2014-15 GENERAL CATALOGUE

UNIVERSITY OF CALIFORNIA, IRVINE

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Catalogue Home

UNIVERSITY OF CALIFORNIA, IRVINE

2014–15 General Catalogue, Volume 48

The *UCI General Catalogue* is published annually in July by the University of California, Irvine, University Editor's Office, 215 Aldrich Hall, Irvine, CA 92697-4975.

The UCI General Catalogue constitutes the University of California, Irvine's document of record. While every effort is made to ensure the correctness and timeliness of information contained in the Catalogue, the University cannot guarantee its accuracy. Changes may occur, for example, in course descriptions; teaching and administrative staff; curriculum, degree, and graduation requirements; and fee information. Contact the individual academic program or administrative office for further information.

Chancellor's Welcome

Welcome to the University of California, Irvine. As a UC Irvine student, you have access to resources that extend across our campus, throughout our state, and beyond. This catalogue will serve as an invaluable guide to enhancing your UCI experience.

UCI is consistently ranked among the nation's best universities. Achievements in the sciences, arts, humanities, medicine, and management have garnered top 50 national rankings for more than 40 academic programs. Three UCI researchers have won Nobel Prizes—two in chemistry and one in physics. We were the youngest campus ever to be welcomed into the prestigious Association of American Universities. *Times Higher Education* magazine ranks UCI as the number one university in the nation—and fifth in the world—under 50 years of age. And you will be especially glad to hear that we rank eleventh in the nation among public universities for student happiness.

These are some of the reasons why UCI attracted more than 82,500 undergraduate applications in 2013 for only 6,000 spots. Our graduate programs are also extremely competitive. You are on this campus because we know you have what it takes to succeed at the highest level.

UCI reaches beyond the classroom and laboratory to help solve societal issues and support human development. We are a hub for stem cell research, a trailblazer in understanding global warming, and a leader in the fight against breast cancer. Our nationally ranked medical center in Orange serves as Orange County's only Level I trauma center, and our state-of-the-art UC Irvine Douglas Hospital has been ranked among the country's top 50 hospitals for more than 10 years, providing outstanding care for the region's citizens. We ranked fourth in the University Global Health Impact Report Card, which evaluates top U.S. and Canadian research universities on their contributions to urgent global health research and access to treatment worldwide. Our law school, the state's first public law school to open in more than 40 years, graduated its first class in 2012. In July 2012 the Regents established the UC Irvine School of Education from the existing Department of Education in recognition of its national academic profile.

A major intellectual and cultural center, UCI offers numerous public activities and events. The Claire Trevor School of the Arts and the School of Humanities produce engaging and entertaining cultural programs, including the award-winning New Swan Theater, our summertime outdoor Shakespeare Festival. UCI's Anteater athletes have won more than two dozen national championships.

We are also national leaders in research and practice relating to sustainability and environmental protection. UCI is the most energy-efficient campus in California, with among the most LEED Platinum and Gold certified buildings in the U.S. Five additional LEED Platinum designations were earned in 2013. For four consecutive years we have been named among the "Coolest Schools" in *Sierra* magazine's annual ranking of the nation's greenest universities.

UCI is benefiting the community and the world in countless ways through its scholarly, scientific, creative, and economic contributions. Orange County's second largest employer, UCI generates an annual economic impact on the county of $4.3 billion.

I encourage you to take advantage of all that UCI has to offer. I look forward to seeing you on campus and to being a part of this very important time in your life.

Sincerely,

Howard Gillman

Interim Chancellor

Academic Calendar

Fall Quarter, 2014

Event	Date(s)
Quarter Begins	Sep. 29 (Mon.)
Academic Advising and Orientation	Sep. 29–Oct. 1 (Mon.–Wed.)
Instruction Begins	Oct. 2 (Thu.)
Veterans' Day Holiday	Nov. 11 (Tue.)
Thanksgiving Holiday	Nov. 27–28 (Thu.–Fri.)
Instruction Ends	Dec.12 (Fri.)
Final Examinations	Dec. 13–19 (Sat.–Fri.)
Quarter Ends	Dec. 19 (Fri.)
Winter Administrative Recess	Dec. 24–Jan. 1 (Wed.-Thu.)

Winter Quarter, 2015

Event	Date(s)
Quarter Begins	Jan. 2 (Fri.)
Instruction Begins	Jan. 5 (Mon.)
Martin Luther King Jr. Holiday	Jan. 19 (Mon.)
Presidents' Day Holiday	Feb. 16 (Mon.)
Instruction Ends	Mar. 13 (Fri.)
Final Examinations	Mar. 14–20 (Sat.–Fri.)
Quarter Ends	Mar. 20 (Fri.)

Spring Quarter, 2015

Event	Date(s)
Quarter Begins	Mar. 25 (Wed.)
Cesar Chavez Day Holiday	Mar. 27 (Fri.)
Instruction Begins	Mar. 30 (Mon.)
Memorial Day Holiday	May 25 (Mon.)
Instruction Ends	Jun. 5 (Fri.)
Final Examinations	Jun. 6–11 (Sat.–Thu.)
Quarter Ends	Jun. 12 (Fri.)
Commencement	Jun. 12–14 (Fri.–Sun.)

Summer Sessions, 2015

Event	Date(s)
Session I	Jun. 22–Jul. 29 (Mon.–Wed.)
10–Week Session	Jun. 22–Aug. 28 (Mon.–Fri.)
Independence Day Holiday	Jul. 3 (Fri.)
Session II	Aug. 3–Sep. 9 (Mon.–Wed.)
Labor Day Holiday	Sep. 7 (Mon.)

Calendar updates, detailed information on registration procedures and late charges, and the School of Law academic calendar are available on the Registrar's (http://www.reg.uci.edu) website. The M.D. program academic calendar is available at the School of Medicine (http://www.meded.uci.edu).

Introduction

The University of California

The University of California (UC) was chartered as the state's only land grant college in 1868. Today, UC is one of the world's largest and most renowned centers of higher education and has a combined enrollment of more than 240,000 students on 10 campuses—Berkeley, Davis, Irvine, Los Angeles, Merced, Riverside, San Diego, San Francisco, Santa Barbara, and Santa Cruz. Among the campuses there are six medical schools, a school of veterinary medicine, and professional schools of business administration, education, engineering, law, oceanography, and many others. The collections of the more than 100 UC libraries are surpassed in size on the American continent only by the Library of Congress collection.

The UC faculty is internationally noted for its distinguished academic achievements. UC-affiliated faculty and researchers have won 57 Nobel Prizes and more than 50 National Medals of Science. National Academy of Sciences membership exceeds 350 and Institute of Medicine membership exceeds 160. UC creates an average of four new inventions every day, and for 15 years in a row has developed more patents than any other university in the country.

UC maintains a variety of research facilities, agricultural field stations, and extension centers in more than 100 locations throughout California. Public services include medical and dental clinics, information services for agricultural and urban populations, a broad program of continuing education, museums and art galleries, and more. Detailed information about the University of California's teaching, research, and public service mission is available at the University of California (http://www.universityofcalifornia.edu) website.

The Irvine Campus

Howard Gillman, **Interim Chancellor**

The University of California, Irvine (UCI) opened in 1965 with 116 faculty and 1,589 students. Since then, UCI programs, faculty and graduates have achieved distinction in virtually every discipline.

Two Nobel Prizes in 1995 for founding faculty F. Sherwood Rowland in Chemistry and Frederick Reines in Physics helped to secure UCI's position among the leading American research universities. In 2004, Irwin A. Rose, Department of Physiology and Biophysics, became UCI's third Nobel Laureate (chemistry). UCI has been ranked prominently along with much older universities for excellence in the arts and humanities, Earth system science, management, social sciences, technology, and information systems.

For quality of educational experience and caliber of faculty, UCI consistently ranks among the nation's best public universities, and among the top 50 research universities in the world. Election to the American Association of Universities (AAU), a group of 62 of the most distinguished research institutions, is another indication of UCI's stature in the academic community.

As a research university, UCI challenges students at every level, both academically and personally. While research is critical to graduate education, the research environment also opens up new educational experiences for undergraduates. Students have access to faculty at the forefront of their fields, and they also have opportunities to participate directly in faculty research projects. In addition, to empower students for the future in an information-focused society, UCI has integrated computer technology throughout the curriculum and campus life.

UCI is committed to the discovery and transmission of knowledge. It makes available to its 29,588 students (23,530 undergraduate; 5,365 graduate, medical, and credential students; and 693 medical residents and fellows) the education, skills, and credentials which provide the basis for lifelong personal and professional growth.

UCI's education and research missions are fulfilled in its academic units, which are described briefly below, and in its formal research units, which are described in the Office of Research (p. 131) section.

The **Claire Trevor School of the Arts** teaches the creative as well as the academic and critical dimensions of the arts. It is concerned with the vitality of the arts in society. Faculty energies are directed toward the refinement, enhancement, and encouragement of students' artistic and creative talents and toward the development of the students' understanding of related theory and history. The School offers programs which emphasize extensive studio and workshop experiences, essential theoretical and historical background studies, and exercises in criticism. There are 919 students in the School, including 772 undergraduate students and 147 graduate students.

The **Francisco J. Ayala School of Biological Sciences** is one of the campus's larger academic units, with 3,695 students (3,425 undergraduate and 270 graduate). Faculty research areas include neural plasticity and behavior (which in part encompasses the development of the nervous system, memory, response to injury, and degenerative brain diseases such as Alzheimer's); the nature of cell-cell interactions; pattern formation; the elucidation of ecological conditions and evolutionary histories that have been the driving forces in organism design and functional diversity; the organization and expression of genes; biomolecular structure; molecular pathogenesis; human mitochondrial genetics; and cell biology.

The Paul Merage School of Business faculty conduct research and teach in the fields of accounting, economics, finance, health care management, information systems, marketing, operations and decision technologies, organization management, public policy, real estate and strategy. Based on a thematic approach throughout the curriculum, the School focuses on three critical drivers of business growth: strategic innovation, information technology, and analytic decision making. The Merage School enrolls 445 Business Administration and 207 Business Information Management

undergraduate students. The Merage School also enrolls 220 students in the M.B.A. and Ph.D. programs, 54 students in Master in Professional Accountancy, and 508 students in the Fully Employed M.B.A, Executive M.B.A., and Health Care Executive M.B.A. programs.

The **School of Education** an undergraduate major in Education Sciences, a minor in Educational Studies, a research-focused PhD program, and MAT and credential programs for those becoming teachers. The School integrates the themes of learning, cognition, and development; educational policy and social context; and language, literacy, and technology across its programs. The faculty is multidisciplinary; their scholarly work arises from the common belief that education environments, both in and out of school, are the loci of change in the quality of life and the availability of productive life choices for learners of all ages. The School has 180 graduate and 75 credential students.

The Henry Samueli School of Engineering, with 4,017 students (3,119 undergraduate, 898 graduate), focuses on advancing the frontier of innovative engineering education and pioneering research that will shape the future of the nation and the world. Through an integrative and cross-disciplinary educational experience that blends fundamentals, research, and hands-on experience, the School trains future leaders in the engineering profession. Working in partnership with state and federal agencies and industry, the School promotes the transfer of research to applications that benefit society. The major research disciplines are aerospace, biochemical, biomedical, chemical, civil, computer, computer science, electrical, environmental, materials science, and mechanical engineering. Research areas include biochemical, biomedical, and rehabilitation engineering, earthquake engineering, water resources, transportation, parallel and distributed computer systems, embedded systems, intelligent systems, machine learning, wireless communications and networking, image and signal processing, opto-electronic devices and materials, high-frequency devices and systems, integrated micro and nanoscale systems, green energy, fuel cell technology, fluid mechanics, combustion and jet propulsion, materials processing, robotics, and modern control theory.

The **School of Humanities** faculty have been repeatedly honored for their teaching and scholarly excellence. Included in the faculty's more than 100 research specialties are literary criticism, film studies, media studies, philosophical analysis, historical inquiry, art history, and world languages and literatures. The faculty also participate in programs that cut across disciplinary boundaries such as Global Cultures, African American Studies, Asian American Studies, Religious Studies, and Gender and Sexuality Studies. At the core of the educational mission of the humanities is imparting to students tools of analysis that will help them interpret, understand, describe, and explain the world around them. The School has 1,829 students, including 1,512 undergraduate and 317 graduate.

The **Donald Bren School of Information and Computer Sciences** (ICS) has 2,100 students (1,676 undergraduate and 424 graduate). Faculty are engaged in research and teaching in computer science and information technology. Research areas include the design of algorithms and data structures; computer architecture and embedded computer systems; networked and distributed systems; systems software; social and mobile computing; artificial intelligence, machine learning and data mining; computer games and virtual worlds; databases and information retrieval; computer graphics and visualization; bioinformatics, computational biology, and genomics; computer-supported cooperative work, human-centered computing, and human-computer interaction; security and privacy; software engineering; managerial and social aspects of computing technology; and statistics.

Interdisciplinary Studies programs provide students with opportunities to pursue subject areas which derive from the interaction of different disciplines such as Computer Science and Engineering, Civic and Community Engagement, and Transportation Science.

The **School of Law** has a student body of 341. It welcomed its inaugural class of students in fall 2009 and graduated its first class in May 2012. The School offers the J.D. (Juris Doctor). The curriculum includes traditional areas of legal doctrine taught in an innovative context designed to prepare students for the practice of law in the twenty-first century. The School's concurrent degree programs (J.D./M.B.A., J.D./M.A., and J.D./Ph.D.) connect UCI's legal education with the wide range of academic and professional opportunities at a major research university.

The **School of Medicine**, with 595 graduate and medical students, and 693 residents and fellows, is dedicated to advancing medical knowledge and clinical practice through scholarly research, physician education, and high-quality care; nurturing the development of medical students, resident physicians, and scholars in the clinical and basic sciences; and supporting the dissemination of research advances for the benefit of society. The new UC Irvine Douglas Hospital at UC Irvine Medical Center has modern facilities for conducting medical research and training future and practicing physicians, allowing more opportunities for researchers and clinicians to collaborate on patient care. A state-of-the-art Medical Education building opened in February 2010 and houses the latest in technology to advance active, small group learning opportunities.

The **Program in Nursing Science** provides a strong research-based academic and professional program to prepare graduates for basic clinical and advanced practice roles, as well as for educational, administrative, and research positions across the healthcare delivery system, and for faculty positions in academic institutions. The Program has 155 undergraduate and 30 graduate students.

The **Department of Pharmaceutical Sciences**, founded in 2007, offers its 766 students interdisciplinary educational programs integrating concepts from fields as diverse as biology, chemistry, cell and molecular biology, chemical engineering, materials science, pharmaceutics, pharmacology and physiology. Its faculty includes world-renowned scientists encompassing a variety of backgrounds with wide-ranging research programs that cover every facet of pharmaceutical research.

The **School of Physical Sciences** has a student body of 1,954 (1,437 undergraduate and 517 graduate). Researchers in the School are conducting investigations in atmospheric chemistry (including the discovery of the adverse impact of human-made chlorofluorocarbon compounds on the Earth's ozone layer), biogeochemistry and climate, synthetic chemistry, laser spectroscopy, condensed matter physics, elementary particle physics, plasma physics, and pure and applied mathematics and mathematical physics.

The **Program in Public Health** provides institutional focus for UC Irvine's academic strengths in various sub-disciplines of public health and facilitates well-grounded education and innovative research in emerging aspects of the field. Under the Program in Public Health, the Department of Population

Health and Disease Prevention advances the collaborative interdisciplinary mission of public health research, education, and translational practice. The Program has 1,128 undergraduate and 38 graduate students.

The **School of Social Ecology**, a multidisciplinary unit established in 1970, is unique to UCI. The School's central objectives are the application of scientific methods to the analysis and resolution of societal problems, and the development of theory and knowledge pertinent to social, behavioral, environmental, and legal phenomena. Among issues of long-standing interest are crime and justice in society, social influences on human development over the life cycle, urban and community planning, and the effects of the physical environment on health and behavior. There are 3,003 students in the School, including 2,643 undergraduate and 360 graduates.

The **School of Social Sciences,** with 5,069 students (4,686 undergraduate and 383 graduate), is the largest academic unit at UCI. The faculty, many of whom are nationally recognized, have expertise in a wide range of specific social science topics. Research areas include mathematical modeling of perception and cognitive processes; economic analysis of transportation; examination of the impact of society's political system on its economy; study of social structure and values in different cultures through a rigorous scientific methodology; exploration of authority structures and inequality in society; and globalization and international affairs.

Academic Goals

UCI offers programs designed to provide students with a foundation on which to continue developing their intellectual, aesthetic, and moral capacities. Programs and curricula are based on the belief that a student's collective university experience should provide understanding and insight, which are the basis for an intellectual identity and lifelong learning.

An important aspect of UCI's educational approach is the emphasis placed on student involvement in independent study, research, and the creative process as a complement to classroom study. Independent research in laboratories, field study, participation in writing workshops, and in arts productions are normal elements of the UCI experience. In many departments, special programs and courses which involve students in original research and creative activities are integrated into the curriculum.

UCI provides an atmosphere conducive to pursing creative work and scholarship at all levels, to exploring the accumulated knowledge of humanity, and to developing new knowledge through basic and applied research. Along with these objectives, UCI has a serious commitment to public service. The campus generates research expertise that may be applied to regional and national social issues, and provides humanistic understanding of the problems facing society.

Academic Structure

UCI's instruction and research programs focus on fundamental areas of knowledge, and at the same time provide for interdisciplinary and professional study through the Claire Trevor School of the Arts, Francisco J. Ayala School of Biological Sciences, The Paul Merage School of Business, School of Education, The Henry Samueli School of Engineering, School of Humanities, Donald Bren School of Information and Computer Sciences, Interdisciplinary Studies, School of Law, School of Medicine, Program in Nursing Science, Department of Pharmaceutical Sciences, School of Physical Sciences, Program in Public Health, School of Social Ecology, and School of Social Sciences.

The Office of Academic Affairs has responsibility for all programs of instruction and research. Along with the Graduate Division and the Division of Undergraduate Education, Academic Affairs reports directly to the Executive Vice Chancellor/Provost. Matters of educational policy, including approval of programs, courses, and grades, are the responsibility of the Irvine Division of the Academic Senate.

UCI Student Affairs (http://studentaffairs.uci.edu) supports the university's academic mission by enriching the student experience from outreach and orientation all the way through to graduation. Student Affairs offers comprehensive programs and services to advance co-curricular learning, foster student leadership, enhance the quality of student life and promote the general welfare of the campus community.

The Division of Undergraduate Education provides leadership in developing policies and programs for the improvement of undergraduate education in such areas as general education, retention, advising, curricular development, undergraduate scholarship and research activities, international education, academic internship, civic and community engagement, grant proposals, assessment, and improvement of instruction. The Division of Undergraduate Education also administers programs and services affecting undergraduate education that require campus-level attention and coordination and that do not come under the direct authority of the heads of academic units or the Irvine Division of the Academic Senate.

The Graduate Division serves as the campuswide advocate for the advancement of graduate education and oversees all master's and doctoral programs, postdoctoral training programs, and the postbaccalaureate teacher credential program. The Graduate Division has a leadership role with UCI's academic units and provides implementation guidelines and procedures related to university policy as it affects the interconnected aspects of graduate student education, including admissions, student financial support, enrollment and registration, academic standards, requirements for graduate degree programs, student services, and diversity programs.

Accreditation

UCI is a member of the Western Association of Schools and Colleges (WASC). The campus is fully accredited by the Senior Commission of WASC. This accreditation requires periodic review in accord with WASC policies and standards. Further information is available at the WASC (http://www.wascsenior.org) website.

In addition, the undergraduate degree program of the Department of Chemistry is accredited by the American Chemical Society; the credential programs of the School of Education are approved by the California Commission on Teacher Credentialing (CCTC); the undergraduate majors in Aerospace Engineering (AE), Biomedical Engineering (BME), Chemical Engineering (ChE), Civil Engineering (CE), Computer Engineering (CpE), Computer Science and Engineering (CSE), Electrical Engineering (EE), Environmental Engineering (EnE), Materials Science Engineering (MSE), and Mechanical Engineering (ME) are accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org), http://www.abet.org; Computer Science and Engineering (CSE) is also accredited by the Computing Accreditation Commission of ABET (http://www.abet.org), http://www.abet.org; the undergraduate major in Biomedical Engineering: Premedical (BMEP) is not designed to be accredited, therefore is not accredited by ABET; the M.S. program in Genetic Counseling is accredited by the American Board of Genetic Counseling; The School of Law is fully accredited by the American Bar Association (ABA); The Paul Merage School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business; the M.D. program of the UCI School of Medicine is accredited by the Liaison Committee on Medical Education; the pre-licensure RN program and the nurse practitioner program are approved by the Board of Registered Nursing; the undergraduate and graduate degrees in Nursing Science are accredited by the Commission on Collegiate Nursing Education (CCNE); the Program in Public Health, including the Master of Public Health (M.P.H.), are accredited by the Council of Public Education for Public Health (CEPH); and the Master of Urban and Regional Planning program is accredited by the National Planning Accreditation Board.

Office of Equal Opportunity and Diversity

The Office of Equal Opportunity and Diversity (OEOD) provides consultation services and training programs to the UCI campus and the medical center on the interpretation and application of both UCI policies and Federal and State laws regarding sexual harassment, sexual offense, discrimination, equal opportunity, and diversity. It also develops and monitors UCI's Affirmative Action Plan for staff and faculty as required by Federal regulations.

OEOD investigates and provides assistance to UCI students, faculty, and staff in resolving complaints of discrimination, sexual harassment, and sexual offense. OEOD also offers a variety of workshops on diversity, cross-cultural communication, sexual harassment and sexual offense prevention, and conflict resolution in a diverse workplace/community to promote awareness, create organizational change, and provide support for the university's commitment to diversity.

OEOD is located in 103 Multipurpose Science and Technology Building; telephone (949) 824-5594 (voice), 824-7593 (TDD); e-mail: oeod@uci.edu; or visit the Office of Equal Opportunity and Diversity (http://www.oeod.uci.edu) website.

Refer to the *Catalogue's* Appendix (p. 1907) for UCI's Nondiscrimination and Sexual Harassment Policy Statements and Sex Offenses and Consensual Relationships Policies.

Office of the University Ombudsman

The Office of the University Ombudsman receives complaints, concerns, or problems that students, faculty, staff, and visitors may encounter on the UC Irvine campus. The office is an informal resource. Users of the office are provided a confidential place to explore options to make informed decisions. When appropriate, the office will initiate an informal intervention with the goal of facilitating or negotiating a resolution that is acceptable to all parties involved.

The Ombudsman acts as an independent, impartial, and confidential problem solver. The office advocates for fairness and equity. If a matter cannot be resolved through the office, the appropriate referral will be made. The Office of the Ombudsman does not replace or substitute for formal grievance, investigative, or appeals processes made available by the university. The office does not have the authority to make decisions or decide policy. However, the office can elevate legitimate matters or concerns to decision makers when appropriate. In addition, the Ombudsman can make recommendations regarding policy review and change as appropriate.

The Office of the Ombudsman also manages the Campus Mediation Program which provides alternative dispute resolution services to the campus and UC Irvine Medical Center communities. The office is located in 205 Multipurpose Science and Technology Building; telephone (949) 824-7256. For more information about the office, visit the Office of the Ombudsman (http://www.ombuds.uci.edu) and the Campus Mediation Program (http://www.mediate.uci.edu) websites.

The Campus Setting

UCI's location combines the cultural and economic resources of an urban area with access to Southern California's spectrum of recreational, scenic, and entertainment venues.

Fifty miles south of Los Angeles, five miles from the Pacific Ocean, and nestled in 1,474 acres of coastal foothills, UCI lies amid rapidly growing residential communities and the dynamic international business environment of Orange County and the surrounding region.

The famed sailing and surfing beaches of Newport, Laguna, and Huntington are a short bike ride from campus, while hiking trails, desert camping, and mountain resorts for snowboarding and skiing are within two-hour's travel distance from Irvine. The campus itself is a natural arboretum of native species, as well as of trees and shrubs from all over the world. Adjacent to the campus, the San Joaquin Marsh serves as a natural classroom or peaceful refuge, with trails for viewing the rich diversity of wildlife.

A full roster of intramural sports and recreation events helps fill the daily fitness needs of students, along with UCI's Anteater Recreation Center. This 115,000-square-foot, state-of-the-art facility includes a pool, gymnasiums, racquetball courts, weight room, and jogging track. UCI is an NCAA Division I campus that competes in men's and women's intercollegiate athletics.

Across Campus Drive, and linked by a pedestrian bridge, an area of shops and restaurants also features a movie theater complex, post office, and other services. Complementing UCI on-campus sports and cultural events throughout the year is the vigorous Orange County arts and entertainment environment. It offers everything from small venues for bands and performers to galleries, museums, the Irvine Barclay Theatre, Orange County Performing Arts Center, and South Coast Repertory. And within a one- to two-hour drive are the metropolitan attractions of Los Angeles and San Diego.

With plenty of land for growth, UCI is building to accommodate greater numbers of students, as well as to provide the most updated classroom and laboratory space. Recent projects include Sue and Bill Gross Hall, with stem cell-focused research, office, clinical and lecture hall space; the Contemporary Arts Center, with studio, theater, and rehearsal areas; the Medical Education building, the high-tech hub of all educational activities for UCI medical students; and luxury student housing complexes Camino del Sol and Puerto del Sol. On the west campus, the 180-acre University Research Park (URP) attracts businesses that want to access the resources of a major research university and form strategic partnerships. URP companies interact with UCI's academic programs, enhance the region's reputation as a center for advanced technology, and contribute to an educated workforce.

Due to the high caliber of UCI faculty and scholarship, the campus is home to national organizations including the National Fuel Cell Research Center and is a major site for the nationwide cancer genetics research network. For its range of services and research, UCI's Chao Family Comprehensive Cancer Center is Orange County's only cancer facility designated "comprehensive" by the National Cancer Institute. UCI is noted, in fact, for its strengths in cancer and neuroscience research, much of which takes place at the University of California, Irvine Medical Center. Located in the city of Orange, 13 miles to the north, the medical center is the primary teaching and research hospital for the UC Irvine School of Medicine.

Bus transportation makes travel convenient between the campus, medical center, and major housing areas, shopping centers, and recreation locales. In addition, the campus and surrounding communities are designed for bicycle traffic, with trails connecting UCI with student housing and the coast.

Celebrate UCI

One Day. One Campus. Many Options. Come to Celebrate UCI (http://celebrate.uci.edu) on Saturday April 18, 2015. This spring event features an outdoor Festival, Open House and Car Show. Wayzgoose, UCI's oldest tradition, is a student-run festival in Aldrich Park filled with live entertainment, food, games and rides for UCI and the community. Many offices and services are open or available with information for everyone, especially prospective students. Included are academic program information and sessions; campus, housing and recreation facilities tours; financial aid and admissions information and much more. Events and parking are free. For information and specific times of events, visit the Celebrate UCI (http://celebrate.uci.edu) website.

University Advancement

University Advancement is helping to shape the future of the UC Irvine campus by creating awareness, building relationships and generating financial support for UC Irvine's mission of teaching, research and public service. It is responsible for all philanthropic fundraising, including the legal and fiduciary responsibilities associated with accepting all charitable donations to UC Irvine, through the University of California, Irvine Foundation. Our success is accomplished through the combined efforts of professional staff, academic leaders and dedicated volunteers. Program areas include community and government relations, office of development, prospect research, gift processing, donor relations, planned giving, corporate and foundation relations, UCI Fund, UCI Medical Center, health advancement, and other research and academic units. Individuals in these areas provide a bridge between the University and the community, thereby promoting a climate of understanding and philanthropic investment. For additional information, contact University Advancement at (949) 824-8696 or visit the University Advancement (http://catalogue.uci.edu/introduction/%20http://www.give.uci.edu/about/advancement) website.

In an era of decreasing state support, UC Irvine relies on private support at a greater level than ever. The **Office of Development** helps raise charitable donations from individuals, corporations and foundations. UC Irvine's development program works hand-in-hand with UC Irvine's schools, research units and the UCI Medical Center to secure philanthropic gifts that support the mission of the University. In 2008, the campus publicly launched its $1 billion "Shaping the Future" campaign for this purpose. For additional information, contact the Office of Development at (949) 824-0503.

The **Office of Community and Government Relations** is responsible for enhancing public understanding and support of UC Irvine and the University of California at local, state and federal levels. The program works to ensure that the University's mission, as well as its legislative and budgetary objectives, are given due consideration by elected officials and the general public through strategic advocacy, civic engagement and awareness activities. Community and Government Relations provides leadership for building effective and enduring relationships with community leaders, public policy makers and other members of the public to increase the visibility and prominence of UC Irvine's research, teaching and service missions. For additional information, contact Community and Government Relations at (949) 824-0061.

The **Office of Strategic Planning and Administration** is the financial management unit of University Advancement. This office oversees gift processing, strategic planning, human resources and the financial management of the University of California, Irvine Foundation's assets. For additional information, contact the Strategic Planning and Administration Office at (949) 824-4166.

The **Office of Advancement Operations** is the operations management unit of University Advancement. This office oversees prospect development, information management, database administration, and donor relations and special events. For additional information, contact the Advancement Operations Office at (949) 824-5408.

UC Irvine Alumni

Located in the newly opened Newkirk Alumni Center on the corner of University Drive and Mesa Road, the UC Irvine Alumni Association is committed to engaging UC Irvine's more than 150,000 alumni with the campus. It sponsors many key campus events, including the annual UCI Homecoming; Lauds & Laurels, the alumni awards ceremony; Anteater Meetups; networking and career events; cap and gown sales; and the senior barbecue. UC Irvine Alumni members receive a range of access and privileges which include discounts on travel, financial and career services, and more at the general, annual, and lifetime levels.

UC Irvine Alumni also oversees the Student Alumni Association at UCI, a student group that works to connect students to one another, alumni, and the university. The students help organize the UC Irvine Care-a-thon, an annual dance-a-thon that raises money for the neonatal intensive care unit at the UC Irvine Medical Center; Dinners for 12 Anteaters, an event that brings alumni and students together for an evening of dining and networking; and Inside the Alumni Studio, an event where alumni are interviewed by students and share valuable professional advice and personal insights into building success after graduation.

For additional information, call (949) 824-2586 or visit the UC Irvine Alumni Association (http://www.alumni.uci.edu) website.

Strategic Communications

The Office of Strategic Communications advances UC Irvine's reputation, mission, priorities and values through an integrated communication approach that includes the following:

- **Brand development and management:** Cultivating an emotional connection and loyalty to the university by articulating the institution's distinctive qualities, encouraging a positive experience, and developing and protecting the university's identity, marks and graphic assets.
- **Media relations:** Establishing mutually beneficial relationships with members of the media—from internal publications and social networks to production studios and international news organizations—to support the accurate, appropriate and fair use of university information.
- **Marketing:** Developing effective tools and services to convey the university's message, from advertising and brochures to presentations and events.
- **Publications and digital properties:** Creating magazines, newsletters, websites and other digital content that advance the university's mission.
- **Visual communication:** Providing photography, videography, graphic design and other visual assets that create a compelling story.
- **Speakers bureau and spokesperson development:** Preparing university experts for interviews, lectures, events and other opportunities.

The office is the university's storyteller, providing information in a way that's accurate, credible, engaging and influential. It uses a wide range of platforms to share the university's story—*UC Irvine Magazine*, websites and social networks, university news and features in prominent media outlets, advertising and marketing materials, and visual assets such as photography, videography and graphics—all designed to build connections with multiple constituents.

The office also develops communication policies, procedures and standards to ensure a consistent, accurate and appropriate presence throughout the institution and provides counsel, services and support to the university's schools, programs and units.

Looking ahead, the office will have an integral role in observing the university's 50th anniversary in 2015. A daylong celebration, a commemorative book and themed academic activities are currently being planned and promoted. Students, faculty and staff will be included in anniversary events.

For more information, call (949) 824-6922 or visit the Strategic Communications (http://www.communications.uci.edu) website.

UCI Libraries

http://www.lib.uci.edu/; (949) 824-6836
Lorelei Tanji, **University Librarian**

Established in 1963 as one of the founding academic units on campus, the UCI Libraries connect users—faculty, researchers, scholars, students, staff, or community members—to information resources, facilitating the creation and sharing of knowledge in all disciplines across campus. The Libraries support the research needs of UCI and the community through the Libraries' website and at four library facilities: the Langson Library, the Ayala Science Library, and the Libraries Gateway Study Center on the UCI campus, and the Grunigen Medical Library in Orange.

The UCI Libraries' premier collections include over 3.4 million volumes and 137,000 serial titles in electronic and print formats, and substantial collections of manuscripts and visual materials. Users access these resources via ANTPAC, the Libraries' online catalog, which offers a wide variety of personalized electronic services such as automatic customized searches and online renewals. MELVYL® Catalog, on the Libraries' website, connects users to the vast collections of the University of California library system, and the scholarly resources of the world. Expedited interlibrary loans and digital desktop delivery services help facilitate the exchange of valuable research materials between our users and the UC libraries.

The UCI Libraries provide expert in-person research assistance. Online reference services are available 24 hours a day, seven days a week via the UC-wide collaborative system which is linked with reference librarians worldwide. Over 36,000 personalized, one-on-one research consultations were

conducted, and nearly 12,000 students attended library training sessions last year. These sessions develop students' lifelong learning skills and assist researchers to effectively utilize rapidly changing information resources and technologies. A series of online LibGuides (http://libguides.lib.uci.edu) recommend research resources for various subjects and courses. Support for research via mobile devices is found at http://www.lib.uci.edu/mobile/.

Wireless access and 600 desktop and laptop computers are available for general use in the four library buildings. The Langson Library features a technology-enhanced classroom (Classroom 228) for hands-on learning. The Ayala Science Library features the state-of-the-art Multimedia Resources Center with multimedia production software, video equipment, and computer classrooms. The Grunigen Medical Library provides two computer technology facilities featuring an instructional laboratory and an Information Technology Center. A copy card system is used for photocopies and printing from networked public work stations, personal laptops, and mobile devices in all library buildings.

The Libraries Gateway Study Center, adjacent to the Langson Library, provides comfortable individual and group study areas as well as late-night study hours throughout the academic year.

Reserve Services offers access to both supplemental electronic and print materials selected by the faculty for individual courses.

Langson Library supports research and instruction in the arts, humanities, social sciences, education, and business and management. Assistive technology and study aids for students are supported through UCI's Disability Services Center.

The Department of Special Collections and Archives in the Langson Library holds non-circulating collections of rare books, archives, manuscripts, photographs, maps, and pamphlets, including the Regional History Collections, emphasizing Orange County; the Southeast Asian Archive; the Critical Theory Archive; the Dance and Performing Arts Collections; the personal papers of distinguished UCI faculty, including Nobel Laureates; and the University Archives.

The Ayala Science Library supports research and instruction in science, medicine, and technology. Nearly 2,000 individual study spaces, faculty and graduate reading rooms, and group study rooms are available.

The Grunigen Medical Library is located at the UCI Medical Center in Orange and serves the clinical and teaching needs of the health sciences programs.

Office of Information Technology

The Office of Information Technology (OIT) provides telephone, network, and computing services to support and enhance instruction, research, and administration at UCI. OIT provides central computing services, computer labs, departmental and research-group support, business application support, and campuswide technical coordination. The campus network infrastructure (including WiFi) maintained by OIT provides connectivity on campus and to the Internet.

ZotPortal (http://portal.uci.edu) brings together campus tools and services into one simple-to-use place. It shows real-time summaries of diverse campus websites, as well as tools and resources needed to get things done online at UCI. Once users log in, they have access to customized news and announcements and a Facebook connector. Student users have access to Housing and Admissions dashboards and tools such as My Courses (which shows the student's schedule, grades, finals, and books for each quarter) and My Checklist (a task list).

UCI Google Apps (http://www.google.uci.edu) is a collection of services contracted from Google including UCI Gmail and Google Drive. Incoming undergraduate students are given UCI Gmail accounts as their default e-mail service. UCI's legacy Webmail (http://webmail.uci.edu) is another option.

UCI's Electronic Educational Environment (EEE) is a campuswide collaboration of the Division of Undergraduate Education (DUE), UCI Libraries, University Extension, University Registrar, and OIT. EEE provides instructional technology training. OIT builds and maintains the EEE (https://eee.uci.edu) website, which offers web-based instructional tools and resources including quizzes, message boards, class websites, and class mailing lists. Most schools conduct official end-of-term instructor evaluations on EEE and quantitative results summaries for many faculty who teach undergraduate courses are available to students via the Eater Evals (https://eaterevals.eee.uci.edu) website.

OIT Classroom Technology Support (http://www.classrooms.uci.edu) (CTS) manages, maintains, and refreshes technology in 133 general assignment classrooms and over 20 other spaces, including computers, laptop cables, video decks, projectors, sound systems, and all associated control & switching equipment. OIT CTS runs a classroom help desk for in-room assistance, questions, comments, or to arrange classroom orientations. For assistance call (949) 824-8833 or e-mail smartclassrooms@uci.edu.

OIT manages computer labs distributed across campus. Lab computers offer many common applications, including Microsoft Office as well as certain mathematical software and statistics packages. Self-service printing is available in many labs. For additional details on Instructional labs, Drop-in labs, Training labs, the lab printing system, Mobile Printing and PC Availability visit the OIT Computer Labs (http://www.oit.uci.edu/computing/labs) website.

OIT provides media services including UCI Replay (http://replay.uci.edu), an audio/screen capture service for instructors, staff, and departments to easily record classes, presentations, or instructional vignettes and the campus presence on iTunes U (http://www.oit.uci.edu/itunesu).

Residential Network Services (http://resnet.uci.edu) is part of OIT Network Operations, providing a range of services to residents including help desk, field support, security, network engineering and the cable TV system.

OIT offers a variety of additional services, detailed on the OIT (http://www.oit.uci.edu) website. The OIT Help Desk is located in the Administrative Module B, Building 423 (parking lot 16). OIT walk-in support is also available 115 Aldrich Hall.

For more information, call (949) 824-2222 or e-mail oit@uci.edu.

UCI Ecological Preserve

The 60-acre UCI Ecological Preserve consists of several small hills and surrounding flatlands bearing remnants of coastal sage scrub flora and associated fauna, including the California gnatcatcher (Federally listed as Threatened) and the coastal cactus wren. The Preserve is located on the campus and is set aside for teaching, research, and use by the campus community. Publications and species lists are available at the Natural Reserves and Environmental Facilities (http://www.bio.uci.edu/research/natural-reserves-and-environmental-facilities) website.

Natural Reserve System

The University of California manages and maintains a system of 38 Reserves that are representative of the State's habitat and geographic diversity. These serve as outdoor classrooms and laboratories for students, faculty, and staff, and are intended primarily for purposes of education and research. For further information visit the Natural Reserve System (http://nrs.ucop.edu) website.

UCI has primary responsibility for three Reserves: the Burns Piñon Ridge Reserve, the San Joaquin Marsh Reserve, and the Steele Burnand Anza-Borrego Desert Research Center. Additional information is available from the Burns and Marsh Reserves NRS Staff Manager at (949) 824-6031, and from the Anza-Borrego Desert Research Center Manager at dicej@uci.edu.

Burns Piñon Ridge Reserve

The Burns Piñon Ridge Reserve is located near the town of Yucca Valley in San Bernardino County. It is a 306-acre parcel of high-desert habitat representing an ecotone between montane and desert biota, with mixtures of Joshua tree, piñon pine, and juniper woodland. The Reserve has a dormitory and research station, as well as primitive camping facilities, and is used primarily for overnight field trips and research by faculty and students from the Francisco J. Ayala School of Biological Sciences. For further information, visit the UC Natural Reserve System (http://nrs.ucop.edu) website.

San Joaquin Marsh Reserve

The San Joaquin Marsh Reserve, one of the last remaining coastal marshes in Southern California, is a 202-acre wetland adjacent to the UCI campus. The Marsh consists of a series of freshwater ponds and their attendant aquatic flora and fauna, and is especially known for its rich bird life, both resident and migratory. The Reserve also sustains one of the largest Pacific pond turtle populations in Southern California. The Marsh has about 150 acres of cattail wetlands in three large cells, and 11 experimental bulrush-dominated ponds whose water levels can be manipulated for teaching and research purposes. For further information, visit the UC Natural Reserve System (http://nrs.ucop.edu) website.

Steele/Burnand Anza-Borrego Desert Research Center

The Steele/Burnand Anza-Borrego Desert Research Center, adjacent to the town of Borrego Springs, includes approximately 80 acres, with a large historic clubhouse that will serve as home base for researchers and students. Through a cooperative agreement with California State Parks and the Anza-Borrego Foundation, the Reserve will offer access to California's largest state park. The 615,000-acre Anza-Borrego Desert State Park encompasses native fan palm oases and piñon pine-juniper forests, and is home to the endangered desert bighorn sheep. The Reserve will encourage the study of environmental and ecological problems in the region. For further information, visit the UC Natural Reserve System (http://nrs.ucop.edu) website.

UCI Arboretum and Herbarium (IRVC)

The UCI Arboretum is a botanical garden developed and managed by the Francisco J. Ayala School of Biological Sciences. It contains areas planted with floras adapted to climates similar to those of Southern California and maintains a large collection of plants native to Southern California and Baja California, as well as South African monocots. The Arboretum provides materials and space for research and teaching needs and its collections are also used as an educational resource for the community at large. The UCI Herbarium (http://arboretum.bio.uci.edu/herbarium.cfm) (IRVC) curates ca. 35,000 vascular plant specimens and is a part of the Arboretum. The Arboretum is open to the public 9 a.m. to 3 p.m., Tuesday through Saturday. For additional information, visit the UCI Arboretum (http://arboretum.bio.uci.edu) website or call (949) 824-5833.

Laser Microbeam and Medical Program

The Laser Microbeam and Medical Program (LAMMP) is a Biomedical Technology Research Center supported by the National Institute of Biomedical Imaging and Bioengineering (NIBIB) at the National Institutes of Health. Located within the Beckman Laser Institute and Medical Clinic at UCI, LAMMP is dedicated exclusively to the use of lasers and optics in biology and medicine. LAMMP supports activities in technological research and development, collaborative research, and training/dissemination. LAMMP research and technology development is based on fundamental light-tissue interaction mechanisms. The LAMMP program also emphasizes "translational" research by rapidly moving basic science and technology from "benchtop to bedside." Additional information is available at the Laser Microbeam and Medical Program (http://lammp.bli.uci.edu) website or from the LAMMP coordinator at (949) 824-5633.

UC Irvine Health

UC Irvine Health is committed to providing the highest quality healthcare to Orange County and surrounding communities.

UC Irvine Medical Center is the county's only university hospital and features more than 600 specialty and primary care physicians. The medical center offers a full scope of acute- and general-care services including cardiac surgery, cancer, digestive disease, neurosurgery, and trauma. *U.S. News & World Report* consistently lists UC Irvine among "America's Best Hospitals," and since 2001, has bestowed national recognition on its programs in urology, gynecology, geriatrics, cancer, digestive disorders, kidney disease, and ear, nose and throat. It was only the third hospital in California and the first hospital in Orange County to receive Magnet Designation for nursing excellence. It is the county's only Joint Commission-designated Comprehensive Stroke Center.

Located in the city of Orange, 13 miles from the UC Irvine campus, UC Irvine Medical Center has 415 beds and is the principal clinical facility for the teaching and research programs of the UC Irvine School of Medicine. As part of its focus on family and preventive health, the medical center has additional patient care locations in Anaheim, Irvine, the UC Irvine campus, Costa Mesa, and Santa Ana.

UC Irvine Medical Center houses a 24-hour emergency department and is designated as Orange County's only Level I trauma center—the most comprehensive for the treatment of life-threatening injuries—and Level II pediatric trauma center. Specialists at UC Irvine Medical Center are available for the expert management of high-risk pregnancies, and critically ill newborns are cared for in the county's most sophisticated Level III neonatal care unit.

The hospital is also home to the Chao Family Comprehensive Cancer Center, the only facility in Orange County designated as a comprehensive cancer center by the National Cancer Institute. It offers patients a full range of cancer therapies and research programs, including laser and radiation therapy, endoscopic ultrasound, and immunotherapy.

In March 2009, UC Irvine Douglas Hospital opened at UC Irvine Medical Center. It includes modern facilities for conducting the latest medical research and training for future and practicing physicians. The seven-story hospital has 236 beds, 19 operating rooms, and interventional procedure rooms. Private patient rooms emphasize individualized patient care and permit family members to stay overnight.

For additional information or to schedule an appointment, call toll free 1 (877) UCI-DOCS or visit the UC Irvine Health (http://www.ucirvinehealth.org) website.

UCI Center for Occupational and Environmental Health

In 1980 the University established occupational health centers in Northern and Southern California for the purpose of training occupational health professionals, conducting research on occupational health issues, and providing clinical evaluation and services to employers and workers/patients. During the early 1990s, the mandate was expanded to include environmental health issues. The Centers have strong ties to the UC Schools of Medicine, Nursing, and Public Health.

The Irvine Center is comprised of UCI academic faculty and health professionals. Faculty research is concerned with identification of causal association between disease and occupational or environmental exposures with an emphasis on prevention of occupational and environmental disease and injury. The Center's primary areas are occupational and environmental medicine, toxicology, epidemiology, and environmental health sciences. The Center includes a consulting clinic in Irvine, a specialty clinic at the UCI Medical Center, facilities for research and teaching in epidemiology and toxicology, and study space for residents in occupational medicine and graduate students in environmental health sciences. For additional information, call (949) 824-8641 or visit the Center for Occupational and Environmental Health (http://catalogue.uci.edu/introduction/%20http://www.coeh.uci.edu) website.

Additional Facilities

Information about many other UCI research and instructional facilities and programs is available in the academic unit sections and the Office of Research (p. 131) section of this *Catalogue,* as well as at the Office of Research Centers and Institutes (http://www.research.uci.edu/centers) website.

UCI Academic Senate Distinguished Faculty

Barbara Dosher (http://www.socsci.uci.edu/maplab/personal)

Distinguished Faculty Award for Research, 2013-14
UCI Distinguished Professor of Cognitive Sciences

Paul Dourish (http://isr.uci.edu/users/paul-dourish)

Distinguished Mid-Career Faculty Award for Research, 2013-14
Professor of Informatics

Kevork Abazajian (http://www.physics.uci.edu/people/kevork-n-abazajian)

Distinguished Assistant Professor Award for Research, 2013-14
Associate Professor of Physics and Astronomy

Mahtab Jafari (http://www.faculty.uci.edu/profile.cfm?faculty_id=5313)

Distinguished Faculty Award for Teaching, 2013-14
Associate Professor of Pharmaceutical Sciences

Sarah Eichhorn (http://www.math.uci.edu/people/sarah-eichhorn)

Distinguished Assistant Professor Award for Teaching, 2013-14
Lecturer of Mathematics

Henry Pontell (http://socialecology.uci.edu/faculty/pontell)

Daniel G. Aldrich, Jr. Distinguished University Service Award, 2013-14
Professor of Criminology, Law and Society

John Dombrink (http://socialecology.uci.edu/faculty/jddombri)

Distinguished Mid-Career Faculty Award for Service, 2013-14
Professor of Criminology, Law and Society

More information about the Academic Senate Distinguished Faculty is available at the Academic Senate (http://www.senate.uci.edu) website.

Preadmission Matters

Office of Admissions and Relations with Schools

The mission of the Office of Admissions and Relations with Schools (OARS), a division of Student Affairs, is to (1) optimize UCI's undergraduate enrollments by implementing Academic Senate, universitywide, and campus policies for the selection and admission of new freshman and transfer students; and (2) stimulate and advance cooperative educational relationships between UCI and California schools and colleges. OARS works to improve the preparation of prospective students for higher education and to promote their access to and success at UCI.

For additional information about OARS and the services listed below, call (949) 824-6703 or visit the OARS (http://www.admissions.uci.edu) website.

Undergraduate Admissions

Staff are involved in monitoring applications and admission targets; collecting and evaluating personal and academic data to select and admit new undergraduate students; establishing students' permanent UCI academic record; and evaluating coursework taken at other colleges and universities by new and continuing students for transfer credit.

Intersegmental Relations

Staff are involved as liaison with regard to curricular articulation between UCI and California Community Colleges as well as various educational organizations designed to facilitate regional cooperation (South Coast Higher Education Council, Southern California Intersegmental Articulation Council).

School and College Relations

Staff: (1) advise prospective students, their parents, teachers, counselors, and school administrators regarding academic programs, admission requirements, and admission selection, and assist them with UC application and enrollment processes; (2) increase public awareness by making presentations to schools, colleges, and the community regarding UCI and the University of California, and by creating publications which explain admissions policies and procedures, academic options, housing, financial aid, and student life opportunities; (3) provide general information on UC admissions and programs for all UC campuses; (4) explain University Admissions policies and procedures specific to undergraduate enrollment to the public; (5) assist prospective transfer students and community college faculty and staff; and (6) participate in activities and projects designed to enhance the academic success of students.

On-Campus Services

Staff: (1) host programs for prospective students and educational groups; (2) offer activities for applicants such as Discover UC Irvine; (3) inform UC and UCI administrators and faculty of developments in California schools and community colleges; and (4) provide consultative services to campus departments wishing to provide programs for schools and colleges or special recruitment for specific majors or programs.

Transfer Student Services

OARS' Transfer Student Services (TSS) provides advice and guidance to prospective UCI transfer students. Staff regularly visit California Community Colleges throughout the state and meet with prospective transfer students to discuss admission requirements, academic planning and preparation, and UCI lower-division major and general education requirements. Articulation agreements, which identify how community college courses may be used to fulfill lower-division UCI degree requirements, are facilitated through TSS. Articulation agreements are available at the ASSIST (http://www.assist.org) website.

Campus Tours

Student-led tours of the campus are conducted Monday through Friday at noon. Tours begin at the UC Irvine Visitor Center, located on the first floor of the Student Center, across from the Student Center parking structure. To confirm tour dates, times, and parking instructions and to arrange tours for school groups of 10 or more during the regular academic year, visit the Campus Tours (http://www.campustours.uci.edu) website.

How to Use the Catalogue

Because the *UCI General Catalogue* must be prepared well in advance of the year it covers, changes in some programs and courses inevitably will occur. The selection of courses to be offered each quarter is subject to change without notice, and some courses are not offered each year. The *Schedule of Classes,* available on the Registrar's (http://www.reg.uci.edu) website at shortly before registration begins each quarter, provides current information about course offerings, instructors, hours, and more. Students should consult the appropriate academic unit for even more up-to-date information. (Admission to UCI does not guarantee enrollment in any particular course.)

Presentation of information in the *Catalogue* is divided into six main concepts:

1. Introduction to UCI,
2. Preadmission Matters,

3. Information for Admitted Students,
4. Research,
5. Division of Undergraduate Education
6. Graduate Division, and
7. Academic Programs. Included in the academic program sections are the following kinds of information:
    a. brief descriptions of the areas that are covered in each school or program and a brief statement of the educational philosophy and orientation of the unit;
    b. requirements for undergraduate majors, minors, and graduate degrees;
    c. additional areas of study referred to as concentrations, specializations, or emphases;
    d. advice about planning a program of study, and other information relevant to the academic progress and experience of students majoring in fields within each school or program;
    e. lists of faculty members; and
    f. courses offered.

Course Listings

Undergraduate courses are classified as lower-division (numbered 1–99) and upper-division (numbered 100–199). Courses numbered 200 and above are graduate or professional courses. Lower-division usually refers to freshman-sophomore courses, upper-division to junior-senior courses. However, junior and senior students may take lower-division courses, and freshmen and sophomores may normally take upper-division courses when upper-division standing is not a prerequisite and when any other prerequisites have been met. A course has no prerequisites unless indicated.

Some courses are structured as three-quarter sequences, such as 1A-1B-1C; *except as noted, each course in a sequence is prerequisite to the one following.* The letter L following a number usually designates a laboratory course. The letter H preceding a number designates an honors course.

The "4 Units" designation following the course title indicates the quarter unit credits toward graduation. Some courses give other than four units of credit; for example, two, five, or a range from one to 12.

When a course is approved for satisfaction of the UCI general education (GE) requirement, the general education category is indicated by a Roman numeral in parentheses at the end of the description. Courses approved to fulfill the upper-division writing requirement are designated with the letter W following the course number and the GE symbol **(Ib)** following the course description.

Undergraduate and Graduate Degrees

Degree Title	Degree[1]
Accountancy	M.P.Ac.
Aerospace Engineering	B.S.
African American Studies	B.A.
Anthropology	B.A., M.A.[2], Ph.D.
Art	B.A., M.F.A.
Art History	B.A.
Asian American Studies	B.A.
Biochemistry and Molecular Biology	B.S.
Biological Sciences	B.S., M.S.[4], Ph.D.
Biological Sciences and Educational Media Design	M.S.
Biology/Education	B.S.
Biomedical and Translational Science	M.S.
Biomedical Computing	B.S. [3]
Biomedical Engineering	B.S., M.S., Ph.D.
Biomedical Engineering: Premedical	B.S.
Biomedical Sciences	M.S.[2], Ph.D.
Biotechnology Management	M.S.
Business Administration	B.A., M.B.A.
Business Economics	B.A.
Business Information Management	B.S.
Chemical and Biochemical Engineering	M.S., Ph.D.
Chemical Engineering	B.S.

Chemistry	B.S., M.S.[2,5], Ph.D.
Chicano/Latino Studies	B.A.
Chinese Studies	B.A.
Civil Engineering	B.S., M.S., Ph.D.
Classical Civilization	B.A.[3]
Classics	B.A., M.A.[2], Ph.D.[6]
Cognitive Sciences	B.S.
Comparative Literature	B.A., M.A.[2], Ph.D.
Computer Engineering	B.S.
Computer Game Science	B.S.
Computer Science	B.S., M.S., Ph.D.
Computer Science and Engineering	B.S.
Criminology, Law and Society	B.A., M.A.S., Ph.D.
Culture and Theory	M.A.[2], Ph.D.
Dance	B.A., B.F.A., M.F.A.
Developmental and Cell Biology	B.S.
Drama	B.A., M.F.A.
Drama and Theatre	Ph.D.[7]
Earth and Environmental Sciences	B.S.[3]
Earth System Science	B.S., M.S.[2], Ph.D.
East Asian Cultures	B.A.
East Asian Languages and Literatures	M.A.[2], Ph.D.
Ecology and Evolutionary Biology	B.S.
Economics	B.A., M.A.[2], Ph.D.
Education	Credential Programs
Education	M.A.[2], Ph.D.
Education Sciences	B.A.
Electrical and Computer Engineering	M.S., Ph.D.
Electrical Engineering	B.S.
Elementary and Secondary Education	M.A.T.
Engineering	B.S., M.S., Ph.D.
Engineering Management	M.S.
English	B.A., M.A.[2], M.F.A., Ph.D.
Environmental Engineering	B.S.
Environmental Health Sciences	M.S., Ph.D.
Environmental Science	B.A.
Environmental Toxicology	M.S.[3], Ph.D.[3]
Epidemiology	M.S.[2], Ph.D.
European Studies	B.A.
Exercise Sciences	B.S.
Film and Media Studies	B.A.
French	B.A.
Gender and Sexuality Studies	B.A.
Genetic Counseling	M.S.
Genetics	B.S.
German	M.A.[2], Ph.D.
German Studies	B.A.
Global Cultures	B.A.
History	B.A., M.A., Ph.D.

Human Biology	B.S.
Informatics	B.S., Ph.D.
Information and Computer Science	B.S., M.S., Ph.D.[3]
International Studies	B.A.
Japanese Language and Literature	B.A.
Korean Literature and Culture	B.A.
Law	J.D.
Literary Journalism	B.A.
Management	M.S.[2], Ph.D.
Materials Science and Engineering	M.S., Ph.D.
Materials Science Engineering	B.S.
Mathematics	B.S., M.S.[5], Ph.D.
Mechanical and Aerospace Engineering	M.S., Ph.D.
Mechanical Engineering	B.S.
Medicine	M.D.
Medicine, Science, and Technology Studies	M.A.
Microbiology and Immunology	B.S.
Music	B.A., B.Mus., M.F.A.
Music Theatre	B.F.A.
Networked Systems	M.S., Ph.D.
Neurobiology	B.S.
Nursing Science	B.S., M.S., Ph.D.
Pharmaceutical Sciences	B.S.
Pharmacological Sciences	M.S.[2], Ph.D.
Pharmacology and Toxicology	M.S.[2, 3], Ph.D.[3]
Philosophy	B.A., M.A.[2], Ph.D.
Physics	B.S., M.S.[2], Ph.D.
Planning, Policy, and Design	Ph.D.
Political Science	B.A., M.A.[2], Ph.D.
Psychology	B.A., M.A.[2], Ph.D.
Psychology and Social Behavior	B.A., Ph.D.
Public Health	M.P.H., Ph.D.
Public Health Policy	B.A.
Public Health Sciences	B.S.
Public Policy	M.P.P.
Quantitative Economics	B.A.
Religious Studies	B.A.
Social Ecology	B.A., M.A., Ph.D.
Social Policy and Public Service	B.A.
Social Science	M.A.[8], Ph.D.
Sociology	B.A., M.A.[2], Ph.D.
Software Engineering	B.S., M.S., Ph.D.
Spanish	B.A., M.A.[2], Ph.D.
Statistics	M.S., Ph.D.
Studio Art	B.A.[3], M.F.A.[3]
Transportation Science	M.S., Ph.D.
Urban and Regional Planning	M.U.R.P.
Urban Studies	B.A.

Visual Studies	M.A.[2], Ph.D.
Women's Studies	B.A.[3]

1 Degrees: B.A. = Bachelor of Arts; B.F.A. = Bachelor of Fine Arts; B.S. = Bachelor of Science; B.Mus.= Bachelor of Music; J.D. = Juris Doctor; M.A. = Master of Arts; M.A.S. = Master of Advanced Study; M.A.T. = Master of Arts in Teaching; M.B.A. = Master of Business Administration; M.F.A. = Master of Fine Arts; M.P.Ac.= Master of Professional Accountancy; M.P.H. = Master of Public Health; M.P.P. = Master of Public Policy; M.S. = Master of Science; M.D. = Doctor of Medicine; M.U.R.P. = Master of Urban and Regional Planning; Ph.D. = Doctor of Philosophy. Titles of degrees may not correspond exactly with specific fields of study offered; see the Index and the academic unit sections for information.

2 Emphasis at the graduate level is on the Ph.D. degree; the master's degree may be awarded to Ph.D. students after fulfillment of the requirements.

3 Admission to this program is no longer available.

4 Emphasis at the graduate level is on the Ph.D. degree; the M.S. degree may be awarded to Ph.D. students after fulfillment of the requirements. However, students may apply directly to the M.S. concentration in Biotechnology and to the M.S. concentration in Ecology and Evolutionary Biology.

5 In addition to the regular M.S. degree program, a program coordinated with the School of Education leads to an M.S. degree and a Teaching Credential.

6 UCI, UCR, and UCSD joint program.

7 UCI and UCSD joint program.

8 Emphasis at the graduate level is on the Ph.D. degree; the M.A. degree may be awarded to Ph.D. students after fulfillment of the requirements. However, an M.A. in Social Science (concentration in Demographic and Social Analysis; Mathematical Behavioral Sciences; or Medicine, Science, and Technology Studies) is available.

Undergraduate Majors, Minors, and Associated Areas of Study

Students are urged to become informed of and understand all requirements concerning their intended majors, minors, and associated areas of study. Special restrictions apply to some majors and minors; for example, some minors require formal application or declaration by students, others may be completed without such formalities. Information about the programs listed below may be found in the academic unit sections of the *Catalogue.*

Undergraduate majors are offered in all of the bachelor's degree programs on the list of degree titles; the degree programs are referred to as majors in the following list. In association with these majors, UCI offers a number of minors, concentrations, specializations, and emphases.

A **minor** consists of a coordinated set of seven or more courses (28–40 units) which together take a student well beyond the introductory level in an academic field, subject matter, and/or discipline but which are not sufficient to constitute a major. An **interdisciplinary minor** consists of courses offered by two or more departments, schools, or programs. Generally, all minors are available to all students, with the following exceptions: (1) students may not minor in their major, and (2) students may not complete certain other major/minor combinations that are expressly prohibited, as noted in the *Catalogue.* Minors are listed on a student's transcript but not on the baccalaureate diploma.

A **concentration** is a program of interdisciplinary study consisting of courses offered by two or more schools or programs. Concentrations are similar to minors in that they require fewer units of work than majors do, and the area of concentration appears on the student's transcript but not on the baccalaureate diploma. Concentrations are taken in combination with a major in one of the schools or programs offering the concentration.

A **specialization** is a program of study which enables students to focus on courses in a particular field within a major. The area of specialization pursued appears on the student's transcript but not on the baccalaureate diploma.

An **emphasis** is a program of study within a major which emphasizes a specific area of the discipline. Emphases usually have a defined course of study and are not listed on the transcript nor on the baccalaureate diploma.

In addition, the Campuswide Honors Program, various major-specific honors programs, and Excellence in Research programs are available. See the Division of Undergraduate Education (p. 138) section for information.

Claire Trevor School of the Arts

Majors

- Art, B.A.
- Dance, B.A
- Dance - Choreography, B.F.A.
- Dance - Performance, B.F.A.
- Drama, B.A.
- Music, B.A.

- Emphases (B.A. only):
  - Composition
  - Music History
  - Music Theory
- Music - Performance, B.Mus.
  - Specializations (B.Mus. only):
    - Guitar and Lute
    - Woodwinds, Brass, Percussion & Strings
      - Bassoon
      - Clarinet
      - Double Bass
      - Flute
      - Horn
      - Oboe
      - Percussion
      - Trombone
      - Trumpet
      - Tuba
      - Viola
      - Violin
      - Violoncello
    - Jazz Studies
      - Bass
      - Percussion
      - Piano
      - Saxophone
      - Trombone
      - Trumpet
    - Piano
    - Voice
- Music Theatre, B.F.A.

Minor

- Digital Arts

Francisco J. Ayala School of Biological Sciences

Majors

- Biochemistry and Molecular Biology, B.S.
- Biological Sciences, B.S.
  - Concentration: Biological Sciences Education
- Biology/Education, B.S.
- Developmental and Cell Biology, B.S.
- Ecology and Evolutionary Biology, B.S.
- Exercise Sciences, B.S.
- Genetics, B.S.
- Human Biology, B.S.
- Microbiology and Immunology, B.S.
  - Specializations:
    - Immunology
    - Microbiology
    - Virology
- Neurobiology, B.S.

Minor

- Biological Sciences

The Paul Merage School of Business

Majors

- Business Administration, B.A.
  - Emphases:
    - Accounting
    - Finance
    - Health Care Management
    - Information Systems
    - Marketing
    - Operations and Decision Technologies
    - Organization and Management
- Business Information Management, B.S. (offered jointly with the Donald Bren School of Information and Computer Sciences)

Minors

- Accounting
- Management

School of Education

Cal Teach Science and Mathematics Program (Secondary Teaching Credential certification combined with a major in the Schools of Biological Sciences or Physical Sciences)

Major

- Education Sciences, B.A.

Minor

- Educational Studies

The Henry Samueli School of Engineering

Majors

- Aerospace Engineering, B.S.
- Biomedical Engineering, B.S.
  - Specializations:
    - Biophotonics
    - Micro and Nano Biomedical Engineering
- Biomedical Engineering: Premedical, B.S.
- Chemical Engineering, B.S.
  - Specializations:
    - Biomolecular Engineering
    - Energy and the Environment
    - Materials Science
- Civil Engineering, B.S.
  - Concentrations:
    - Computer Applications
    - Engineering Management
    - Infrastructure Planning
    - Mathematical Methods
  - Specializations:
    - General Civil Engineering
    - Environmental Hydrology and Water Resources

    - Structural Engineering
    - Transportation Systems Engineering
- Computer Engineering, B.S.
- Computer Science and Engineering, B.S. (offered jointly with the Donald Bren School of Information and Computer Sciences)
- Electrical Engineering, B.S.
  - Specializations:
    - Electronic Circuit Design
    - Semiconductors and Optoelectronics
    - RF, Antennas and Microwaves
    - Digital Signal Processing
    - Communications
- Engineering, B.S.
- Environmental Engineering, B.S.
- Materials Science Engineering, B.S.
  - Specializations:
    - Biomaterials
    - Electronics Processing and Materials
    - Materials and Mechanical Design
- Mechanical Engineering, B.S.
  - Specializations:
    - Aerospace Engineering
    - Energy Systems and Environmental Engineering
    - Flow Physics and Propulsion Systems
    - Design of Mechanical Systems
- Concentration: Engineering and Computer Science in the Global Context (by approval of the Associate Dean, in combination with any major in The Henry Samueli School of Engineering)

Minors

- Biomedical Engineering
- Materials Science Engineering

School of Humanities

Majors

- African American Studies, B.A.
- Art History, B.A.
- Asian American Studies, B.A.
- Chinese Studies, B.A.
  - Emphases:
    - Chinese Culture and Society
    - Chinese Language and Literature
- Classics, B.A.
  - Emphases:
    - Classical Civilization
    - Greek and Latin Language and Literature
    - Latin Language and Literature
- Comparative Literature, B.A.
  - Emphases:
    - Comparative Literature and Critical Theory
    - Cultural Studies
    - World Literature
- East Asian Cultures, B.A.
- English, B.A.

- Emphasis:
  - Creative Writing
- Specialization:
  - English for Future Teachers

- European Studies, B.A.
  - Emphases:
    - British Studies
    - Early Modern Europe
    - Encounters with the Non-European World
    - French Studies
    - German Studies
    - Italian Studies
    - Medieval Studies
    - The Mediterranean World: Past and Present
    - Modern Europe (1789–Present)
    - Russian Studies
    - Spanish-Portuguese Studies
- Film and Media Studies, B.A.
- French, B.A.
- Gender and Sexuality Studies B.A.
- German Studies, B.A.
- Global Cultures, B.A.
  - Emphases:
    - Hispanic, U.S. Latino/Latina, and Luso-Brazilian Culture
    - Africa (Nation, Culture) and Its Diaspora
    - Asia (Nation, Culture) and Its Diaspora
    - Europe and Its Former Colonies
    - Atlantic Rim
    - Pacific Rim
    - Inter-Area Studies
- History, B.A.
  - Specialization:
    - History for Future Teachers
- Japanese Language and Literature, B.A.
- Korean Literature and Culture, B.A.
- Literary Journalism, B.A.
- Philosophy, B.A.
- Religious Studies, B.A.
  - Emphases:
    - Judaism/Christianity/Islam
    - World Religious Traditions
- Spanish, B.A.
  - Emphases:
    - Cinema: Spain, Latin America, and U.S. Latino
    - Literature and Culture
    - Spanish for Future Teachers

Minors

- African American Studies
- Archaeology
- Art History
- Asian American Studies

- Asian Studies
- Chinese Language and Literature
- Classical Civilization
- Comparative Literature
- English
- European Studies
- Film and Media Studies
- French
- Gender and Sexuality Studies
- German Studies
- Global Cultures
- Greek
- History
- Humanities and Law
- Italian Studies
- Japanese Language and Literature
- Jewish Studies
- Korean Literature and Culture
- Latin
- Latin American Studies
- Literary Journalism
- Philosophy
- Queer Studies
- Religious Studies
- Russian Studies
- Spanish

Donald Bren School of Information and Computer Sciences

Majors

- Business Information Management, B.S. (offered jointly with The Paul Merage School of Business)
- Computer Game Science, B.S.
- Computer Science, B.S.
  - Specializations:
    - Algorithms
    - Architecture and Embedded Systems
    - Bioinformatics
    - Information
    - Intelligent Systems
    - Networked Systems
    - Systems and Software
    - Visual Computing
- Computer Science and Engineering, B.S. (offered jointly with The Henry Samueli School of Engineering)
- Informatics, B.S.
  - Specializations:
    - Human-Computer Interaction
    - Organizations and Information Technology
- Information and Computer Science, B.S.
- Software Engineering, B.S.
- Concentration: Engineering and Computer Science in the Global Context (by approval of the Associate Dean, in combination with any major in the Bren School of ICS)

Minors

- Bioinformatics
- Digital Information Systems
- Health Informatics
- Informatics
- Information and Computer Science
- Statistics

Interdisciplinary Studies

Majors

- Business Information Management, B.S. (offered jointly by The Paul Merage School of Business and the Donald Bren School of Information and Computer Sciences)
- Computer Science and Engineering, B.S. (offered jointly by the Donald Bren School of Information and Computer Sciences and The Henry Samueli School of Engineering)

Minors

- Civic and Community Engagement
- Global Sustainability
- History and Philosophy of Science
- Native American Studies

Program in Nursing Science

Major

- Nursing Science, B.S.

Department of Pharmaceutical Sciences

Major

- Pharmaceutical Sciences, B.S.

School of Physical Sciences

Majors

- Chemistry, B.S.
  - Concentrations:
    - Biochemistry
    - Chemistry Education (with Secondary Teaching Certification option)
- Earth System Science, B.S.
  - Concentration:
    - Geosciences Education with Secondary Teaching Certification
  - Specializations:
    - Atmospheric Science
    - Hydrology and Terrestrial Ecosystems
    - Oceanography
- Environmental Science, B.A.
  - Concentration:
    - Geosciences Education with Secondary Teaching Certification
- Mathematics, B.S.
  - Concentrations:
    - Mathematical Finance
    - Mathematics for Education/Secondary Teaching Certification
  - Specializations:

    - Applied and Computational Mathematics
    - Mathematical Biology
    - Mathematics for Education
- Physics, B.S.
  - Concentrations:
    - Applied Physics
    - Biomedical Physics
    - Computational Physics
    - Philosophy of Physics
    - Physics Education (with Secondary Teaching Certification option)
  - Specialization:
    - Astrophysics

Minors

- Earth and Atmospheric Sciences
- Mathematics
- Mathematics for Biology

Program in Public Health

Majors

- Public Health Policy, B.A.
- Public Health Sciences, B.S.

Minor

- Public Health

School of Social Ecology

Majors

- Criminology, Law and Society, B.A.
- Psychology and Social Behavior, B.A.
- Social Ecology, B.A.
- Urban Studies, B.A.

Minors

- Criminology, Law and Society
- Psychology and Social Behavior
- Social Ecology
- Urban and Regional Planning
- Urban Studies

School of Social Sciences

Majors

- Anthropology, B.A.
- Business Economics, B.A.
  - Specialization:
    - International Issues and Economics
- Chicano/Latino Studies, B.A.
- Cognitive Sciences, B.S.
- Economics, B.A.
  - Specialization:
    - International Issues and Economics
- International Studies, B.A.

- Political Science, B.A.
- Psychology, B.A.
- Quantitative Economics, B.A.
  - Specialization:
    - International Issues and Economics
- Social Policy and Public Service, B.A.
- Sociology, B.A.

Minors

- Anthropology
- Chicano/Latino Studies
- Conflict Resolution
- Economics
- International Studies
- Linguistics
- Medical Anthropology
- Political Science
- Psychology
- Sociology

Areas of Graduate Study

For information about any area of graduate or professional study, **including the precise title of the degree conferred,** consult the *Catalogue's* academic unit sections.

Claire Trevor School of the Arts

- Acting
- Art
- Choral Conducting
- Collaborative Piano
- Critical and Curatorial Studies
- Dance
- Design
- Directing
- Drama
- Drama and Theatre
- Guitar/Lute Performance
- Instrumental Performance
- Integrated Composition, Improvisation, and Technology (ICIT)
- Piano Performance
- Stage Management
- Vocal Arts

Francisco J. Ayala School of Biological Sciences

- Biological Sciences
- Biological Sciences and Educational Media Design
- Biotechnology Management[1]
- Biotechnology; Stem Cell Biology
- Cellular and Molecular Biosciences (CMB)[2]
- Developmental and Cell Biology
- Ecology and Evolutionary Biology
- Interdepartmental Neuroscience Program (INP)[2]
- Mathematical and Computational Biology[3]

- Medicinal Chemistry and Pharmacology (MCP)[3]
- Molecular Biology and Biochemistry
- Neurobiology and Behavior

The Paul Merage School of Business

- Accountancy
- Biotechnology Management[1]
- Business Administration
- Engineering Management[4]
- Executive M.B.A. (EMBA)
- Fully Employed M.B.A. (FEMBA)
- Health Care Executive M.B.A. (HCEMBA)
- Management

School of Education

- Education
- Elementary and Secondary Education
- Multiple Subject Credential (elementary)[5]
- Single Subject Credential (secondary)[5]
- Single Subject Credential in Mathematics, English, or Science with an Internship[5]
- Bilingual Crosscultural, Language, and Academic Development (BCLAD) Emphasis in Spanish[5]
- Preliminary Administrative Services[5]
- Professional Clear Administrative Services[5]

The Henry Samueli School of Engineering

- Biomedical Engineering
- Biotechnology Management[1]
- Chemical and Biochemical Engineering
- Civil Engineering
- Civil Engineering/Urban and Regional Planning[6]
- Computer Engineering
- Electrical Engineering
- Electrical and Computer Engineering
- Engineering Management[4]
- Environmental Engineering
- Materials and Manufacturing Technology
- Materials Science and Engineering
- Mechanical and Aerospace Engineering
- Networked Systems[7]

School of Humanities

- Asian American Studies[8]
- Art History[9]
- Chicano/Latino Literature
- Chinese Language and Literature
- Classics
- Comparative Literature
- Creative Nonfiction
- Creative Writing: Poetry or Fiction
- Critical Theory

- Culture and Theory
- East Asian Cultural Studies
- East Asian Languages and Literatures
- English and American Literature
- Feminist Studies[10]
- Film and Media Studies[9]
- German
- Greek
- History
- History of Gender and Sexuality
- Japanese Language and Literature
- Latin
- Philosophy
- Spanish
- Spanish Literature
- Spanish-American Literature
- Translation Studies
- Visual Studies

Donald Bren School of Information and Computer Sciences

- Computer Science
- Embedded Systems
- Informatics
- Information and Computer Science
- Networked Systems[7]
- Software Engineering
- Statistics

Interdisciplinary Graduate Programs

- Biotechnology Management[1]
- Cellular and Molecular Biosciences (CMB)[2]
- Chemical and Materials Physics
- Interdepartmental Neuroscience Program (INP)[2]
- Mathematical and Computational Biology[3]
- Mathematical Behavioral Sciences
- Medicinal Chemistry and Pharmacology (MCP)[3]
- Networked Systems[7]
- Pharmacological Sciences[11]
- Program in Law and Graduate Studies (J.D./Ph.D; J.D./Master's)[3]
- Transportation Science
- Visual Studies

School of Law

- Law (J.D.)
- Program in Law and Graduate Studies (J.D./Ph.D; J.D./Master's)[3]

School of Medicine

- Anatomy and Neurobiology
- Biological Chemistry
- Biomedical and Translational Science

- Cellular and Molecular Biosciences (CMB)[2]
- Environmental Health Sciences
- Epidemiology
- Experimental Pathology
- Genetic Counseling
- Interdepartmental Neuroscience Program (INP)[2]
- Medical Residency Programs
- Medical Scientist Training Program (M.D./Ph.D.)
- Medicinal Chemistry and Pharmacology (MCP)[3]
- Medicine
- Medicine/Business Administration[12]
- Microbiology and Molecular Genetics
- Pharmacological Sciences[11]
- Physiology and Biophysics
- Program in Medical Education for the Latino Community (PRIME-LC)

Program in Nursing Science

- Nursing Science

Department of Pharmaceutical Sciences

- Pharmaceutical Sciences, Medicinal Chemistry and Pharmacology (MCP)[3]
- Pharmacological Sciences[11]

School of Physical Sciences

- Chemical and Materials Physics
- Chemistry
- Chemistry and Teaching Credential
- Earth System Science
- Mathematics
- Mathematics and Teaching Credential
- Medicinal Chemistry and Pharmacology (MCP)[3]
- Physics

Program in Public Health

- Public Health

School of Social Ecology

- Criminology, Law and Society
- Demographic and Social Analysis
- Planning, Policy, and Design
- Psychology and Social Behavior
- Public Policy
- Social Ecology
- Social Ecology - Concentration in Environmental Analysis and Design
- Social Ecology - Concentration in Epidemiology and Public Health
- Urban and Regional Planning
- Urban and Regional Planning/Civil Engineering[6]

School of Social Sciences

- Anthropology
- Chicano/Latino Studies
- Cognitive Neuroscience

- Cognitive Sciences
- Demographic and Social Analysis
- Economics
- Games, Decisions, and Dynamical Systems
- Logic and Philosophy of Science
- Mathematical Behavioral Sciences
- Medicine, Science, and Technology Studies
- Political Psychology
- Political Science
- Psychology
- Public Choice
- Public Policy
- Social Networks
- Social Science
- Sociology
- Transportation Economics

1 Francisco J. Ayala School of Biological Sciences, The Paul Merage School of Business, and The Henry Samueli School of Engineering joint program.
2 Francisco J. Ayala School of Biological Sciences and School of Medicine joint program.
3 Available in conjunction with selected programs.
4 The Paul Merage School of Business and The Henry Samueli School of Engineering joint program.
5 Credential program.
6 The Henry Samueli School of Engineering and School of Social Ecology concurrent master's program.
7 Donald Bren School of Information and Computer Sciences and The Henry Samueli School of Engineering joint program.
8 Available in conjunction with selected graduate programs. Contact the Department of Asian American Studies for information.
9 Graduate program in Visual Studies.
10 Available in conjunction with selected graduate programs. Contact the Department of Gender and Sexuality Studies for information.
11 Department of Pharmacology and Department of Pharmaceutical Sciences program.
12 School of Medicine and The Paul Merage School of Business program.

Majors and Careers

Choosing a Major

Many students select their University major, the field of study which represents their principal academic interest, at the time they fill out their *University of California Undergraduate Application for Admission and Scholarship.* Some students, however, are not ready to choose a major at the time they apply, and still others may wish to change to a different major after they have enrolled.

In preparation for choosing a major, students need to familiarize themselves as much as possible with UCI and its academic programs. Entering students are exposed to a wide range of areas of study, and it is not unusual for students to become enthusiastic about academic disciplines previously unfamiliar to them. At UCI a number of traditionally separate academic disciplines have strong interrelationships, so that the academic environment is influenced by broad interactions among disciplines. As a complement to classroom study, UCI encourages its students to become involved in a variety of educational experiences such as independent study, laboratory research, field study, writing workshops, computing, and arts productions. Such experiences can help students identify additional areas of interest.

The *UCI General Catalogue* is a good place to find specific information about programs available and requirements. Students are encouraged to talk to academic counselors and faculty advisors and to go to any department to learn more about its programs of study, its requirements for graduation, and possible enrollment limitations. While advisors may not be familiar with all fields, they can suggest ways to investigate other areas of study and be helpful in planning a lower-division program which will keep several options open. Courses and workshops designed to assist students in choosing a major are offered by the UCI Career Center, the Division of Undergraduate Education, and some of the academic units.

All students are required to choose a major by the time they reach junior status. It is important to look well ahead to this decision and to think about it carefully during the freshman and sophomore years. When considering possible majors, students should keep in mind that some major programs require quite specific preliminary study. At the same time, excessive early concentration could reduce a student's options and could cause the student to need more than four years to obtain the baccalaureate degree. Furthermore, courses required for graduation need to be considered. For these reasons,

it is desirable for students to plan their programs carefully and thoughtfully, seeking a balance between exposure to a variety of academic areas and completion of courses which are prerequisite to a major under consideration. A qualified student interested in two areas of study may graduate with a double major by fulfilling the degree requirements of any two programs. Certain restrictions may apply; students should check with their academic advisor.

Each school or program has its own standards for change of major. Once a student selects a major, or decides to change majors, the student should visit the academic advising office for their prospective major to obtain current information about prerequisites, program planning, and policies and procedures. For most majors, students may request a change of major by submitting an online application through StudentAccess. Further information and a list of excluded majors is available on the Registrar's (http://catalogue.uci.edu/preadmissionmatters/majorsandcareers/%20http://www.reg.uci.edu/request/changemajor.html) website.

All schools with exceptional requirements have major-change criteria approved by the Academic Senate and published on the Division of Undergraduate Education's Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Students changing majors may meet the approved major-change criteria of the unit they wish to enter that are in place at the time of their change of major or those in effect up to one year before.

Undecided/Undeclared Students

Students who enter the University as freshmen or sophomores, who are uncertain about their major, and who wish to explore, experiment, and then decide, may participate in the Undecided/Undeclared Advising Program administered by the Division of Undergraduate Education. The Division is devoted to enriching the learning environment for lower-division students, especially those in the freshman year. Detailed information about the Undecided/Undeclared Advising Program is available in the Division of Undergraduate Education (p. 138) section.

Preparation for Graduate or Professional Study

Undergraduate students should keep the possibility of future graduate or professional study in mind as they plan their academic programs, and they should discuss their career goals with their advisors. Students who have an idea of the direction in which they would like to go should familiarize themselves with the basic requirements for postbaccalaureate study and keep those requirements in mind when selecting courses. Furthermore, students should supplement their undergraduate programs by anticipating foreign language or other special requirements at major graduate schools and by intensive work in areas outside their major that are of special relevance to their intended graduate work. Students should consult the graduate advisor or academic counselor in the academic unit corresponding to their area of interest and visit the UCI Career Center which offers a number of services useful to those considering graduate or professional study.

General information for prospective graduate students is available on the Graduate Division (http://www.grad.uci.edu) website, while information about UCI's graduate education policies and procedures is available at the Irvine Division of the Academic Senate (http://www.senate.uci.edu) website.

Preprofessional Preparation

Law

Law schools educate lawyers to serve the entire spectrum of legal issues (e.g., tax, criminal, entertainment, or immigration law), and across a wide variety of careers in private, public, and nonprofit sectors. As a result, a wide range of academic backgrounds can serve as good preparation for a career in law. Law schools look less for specific areas of study than they do for evidence of academic excellence. A good record in physics or classics, for example, will be preferred over a mediocre record in history or political science. Most law schools give equal preference to students from all academic disciplines. Courses that demand strong writing and analytical work (e.g., logic, writing, mathematics, research methods, and statistics) build skills that are the key to doing well on the Law School Admissions Test (LSAT) and succeeding in law school and the legal profession.

UCI offers a number of law-related courses that students in any major may take. The School of Humanities offers a Humanities and Law minor, emphasizing courses that require critical reading and analysis, and courses that focus on theoretical and applied analytical perspectives on ethical, political, and social issues relevant to the law. Further, the globalization and increased diversity of our world puts a premium on strong language skills and an understanding of multiple cultures. The School of Social Sciences offers courses in the study of law, international relations, and economics of law and recommends that students take some political science courses as well. The School of Social Ecology offers many law-related courses in both substantive law (such as environmental and criminal law) and in law and society and criminal justice. Social Ecology majors are provided the opportunity to apply theories learned in the classroom to actual problems through its field study program. Students may pursue fieldwork in both public and private law practices, law enforcement, and corrections agencies. Through these placements, students gain direct experience and have the opportunity to shadow professionals in these areas.

Students should know that law schools look closely at five aspects of a student's application: grades, LSAT results, the applicant's statement of purpose, in-depth letters of recommendation, extracurricular activities, and law-related work experience. Students should be aware that not everyone who applies is admitted to law school. One consideration in selecting an undergraduate major is alternative careers should one's goals change.

Medicine and Other Health-Related Sciences

Although health science educators strongly recommend that students obtain a bachelor's degree prior to admission to the health sciences, there is no preferred major. Many UCI students who plan to enter the health professions major in Biological Sciences because much of the basic course work for that major is also required for medical school admission; however, students may major in any academic field as long as they also take the prerequisite

courses required by professional health science schools. In general, the minimum amount of undergraduate preparation required includes one year each of English writing/composition, physics, biology with laboratory, chemistry (to include inorganic, organic, and biochemistry), and mathematics (especially calculus and statistics). Courses in cell biology, developmental biology, genetics, molecular biology, physiology, and computer science are recommended. In addition, some health sciences schools have additional course requirements or recommendations, for example, English and/or a foreign language, in particular, Spanish.

Although many factors ultimately are considered when reviewing applicants for admission, admission committees look carefully at the undergraduate grade point average and the results of the Medical College Admission Test (MCAT); the student's personal essay and/or interview; letters of recommendation; clinical exposure; research experience, especially in a biological, medical, or behavioral science; and extracurricular activities which demonstrate the applicant's ability to interact successfully with others.

Since medical programs cannot accommodate all qualified applicants and competition for entrance is keen, it is important to keep in mind alternative career opportunities should one not be accepted to a health science school, or should one decide to pursue instead one of the expanding number of health-related programs now available.

Business/Management

The contemporary executive or manager must be a creative thinker, make complex decisions, and have the ability to perceive and participate in the full scope of an enterprise while understanding its role in the economy. Effective management requires leadership ability, strong problem-solving skills, the ability to successfully deploy and manage information technologies, effective oral and written communication skills, analytical skills, an understanding of global economic trends, and a basic knowledge of behavioral processes in organizations.

Although not required for preprofessional school preparation, The Paul Merage School of Business offers a major in Business Administration and a major in Business Information Management with the Bren School of Information and Computer Sciences. The Merage School also offers a minor in Management as well as a minor in Accounting as a supplement to any undergraduate major. The Management minor can provide students with a broad understanding of management theory and practice and may be helpful to students in determining whether they wish to pursue a career in business or management or undertake graduate-level study in management. The Accounting minor prepares students for careers in the accounting field or for graduate-level study.

Students can also supplement their major course work to develop the skills needed for business and management by taking electives such as calculus, statistics, economics, psychology, sociology, computer science, and political science, and are encouraged to take intensive course work in the culture, history, geography, economy, politics, and language of specific foreign countries.

For admission purposes, the majority of graduate schools of business look at five areas: grades, scores on the Graduate Management Admission Test (GMAT), the applicant's statement of purpose, in-depth letters of recommendation, evidence of leadership in school and community activities, and work experience. Substantive work experience is becoming an increasingly important prerequisite for many programs.

Students from a variety of undergraduate disciplines including liberal arts, social sciences, physical or biological sciences, computer science, and engineering are encouraged to apply to UCI's Paul Merage School of Business.

Career Opportunities

UCI's academic units which offer undergraduate education leading to the bachelor's degree provide students with opportunities to explore a wide range of interests leading to a career choice or to further education at the graduate or professional level. The lists which follow show the varied career areas pursued by UCI graduates. Any major can lead to a number of careers. Additional discussions of careers are presented in individual academic unit sections.

Arts Career Areas

Acting, Advertising, Animation, Arts Administration, Art Therapy, Broadcasting, Choreography, Composition, Conducting, Conservation/Restoration, Consulting, Criticism, Curating, Digital Arts Production, Direction, Environmental Design, Instrument Repair/Tuning, Interior/Industrial Design, Journalism, Law, Librarianship, Lighting, Marketing, Medical Illustration, Performance, Photography, Physical Fitness, Printing, Production, Publicity, Public Relations, Publishing, Set/Stage/Costume Design, Stage Management, Teaching, Tourism, Visual Resources Management, Writing

The exceptionally talented Claire Trevor School of the Arts graduate may choose to become a professional actor, art historian, artist, dancer, or musician. However, there are many other careers to explore in numerous arts-related areas, or the graduate may wish to combine part-time professional performance with supplemental work. The field of arts administration is an increasingly important career area, offering opportunities to work with opera and dance companies, repertory theatre companies, museums, state and local arts councils, community arts organizations, and arts festivals.

Biological Sciences Career Areas

Bioanalysis, Biochemistry, Biomedical Engineering, Cell Biology, Chiropractic Medicine, Dentistry, Developmental Biology, Dietetics, Environmental Management, Forestry, Genetic Engineering, Health Administration, Industrial Hygiene, Marine Biology, Medical Technology, Medicine, Microbiology, Nurse Practitioner, Occupational Therapy, Oceanography, Optometry, Osteopathy, Plant Biology, Pharmacology, Pharmacy, Physicians' Assistant,

Physical Therapy, Podiatry, Public Health, Quality Control, Research, Sales, Speech Pathology, Teaching, Technical Writing and Editing, Veterinary Medicine

The health field is one of the fastest-growing career areas in the country. Work sites may include private corporations, educational institutions, hospitals, health care complexes, private foundations, city and county governments, state agencies, the federal government, and many others.

Engineering Career Areas

Aerospace, Biochemical, Biomedical Devices and Instrumentation, Biomedical Imaging, Biotechnology, Chemical Engineering, Communications, Computer Architecture, Computer Engineering, Computer Software, Control Systems, Digital Signal Processing, Earthquake Safety, Electric Power, Electronics, Electro-optics, Environmental Control, Environmental Engineering, Flood Control, Geotechnical, High-Speed Image Processing, Hydraulics, High-Frequency Devices and Systems, Land Development and Urban Planning, Manufacturing Engineering, Materials, Process Control, Propulsion and Power, Public Works, Reliability, Robotics, Structures, Traffic, Transportation, Water Resources, Water Supply

These are some areas for employment available to UCI engineering graduates. Career paths typically involve one or more of the following: design, research and development, manufacturing or construction, operations, consulting, applications and sales, management, or teaching. At UCI they will have had the choice of Aerospace, Biomedical, Biomedical: Premedical, Chemical, Civil, Computer, Computer Science and Engineering, Electrical, Environmental, Materials Science, or Mechanical Engineering, as well as a general program in Engineering. However, they will frequently find challenging positions in related areas such as industrial engineering, for which their general and specialty course work at UCI, followed by formal or informal, on-the-job training will qualify them. Approximately half of UCI's Engineering graduates obtain advanced degrees from UCI or other universities, and almost all engage in continuing education to keep abreast of advances in technology. Many Engineering graduates build on their engineering background and enter graduate programs to obtain degrees in the fields of administration, law, medicine, physics, or mathematics.

Humanities Career Areas

Advertising, Banking, Broadcasting, Business, Counseling, Communications, Diplomacy, Education, Film and Television, Foreign Service, Government Service, Human Resources, Insurance, International Relations, Journalism, Law, Library Science, Management/Administration, Marketing, Medicine, Personnel, Politics, Public Administration, Public Relations, Publicity, Publishing, Research, Retail Sales, Screenwriting, Social Service, Social Welfare, Teaching, Technical Writing, Tourism, Translating/Interpreting, Writing

Humanities majors are well-suited for many widely-varied careers because they are taught to read closely, to observe critically, to think logically and analytically, to research methodically, and to write clearly and persuasively. Diverse career fields available to Humanities graduates include entry-level positions in both the public and private sectors or professional-level opportunities combining the degree with further specialization. Humanities graduates may also elect to enter professional graduate programs in law, library science, medicine (with proper prerequisites), or public administration. Business and industry utilize Humanities graduates for management training programs in banking, retail sales, and insurance. Graduates with special skills in oral and written communications may look to positions with newspapers, advertising agencies, public relations firms, radio and television stations, and publishing houses. Technical writers are in demand, particularly those who have had some preparation in engineering, computer science, and/or the sciences. Opportunities for graduates fluent in languages other than English exist in government, business, social service, counseling, foreign service, and international trade.

Information and Computer Science Career Areas

Applications Programming, Bioinformatics, Computer-Aided Design, Computer Animation, Computer Architecture, Computer Networks, Computer Simulation, Computer Systems Design, Databases, Information Systems Design and Consulting, Embedded Systems, Management Information Systems, Multimedia Applications, Parallel and Distributed Systems, Software Engineering, Human-Computer Interface Design, Supercomputing, Systems Administration, Systems Analysis and Design, Systems Programming, Business Information Management

Graduates of the Donald Bren School of Information and Computer Sciences pursue a variety of careers. Many graduates specify, design, and develop a variety of computer-based systems comprised of software and hardware in virtually every application domain, such as aerospace, automotive, biomedical, consumer products, engineering, entertainment, environmental, finance, gaming, investment, law, management, manufacturing, and pharmacology. Bren School graduates also find jobs as members of research and development teams, developing advanced technologies, designing software and hardware systems, and specifying, designing, and maintaining computing infrastructures for a variety of institutions. Some work for established or start-up companies while others work as independent consultants. After a few years in industry, many move into management or advanced technical positions. Some Bren School students also use the undergraduate major as preparation for graduate study in computer science or another field (e.g., medicine, law, engineering, management).

Nursing Science Career Areas

Patient Care, Provider Relations, Policy Analysis, Policy Development, Risk Assessment, Global Health, Consulting, Program Evaluation, Incident/Disease Investigation, Research Methodology, Data Analysis, Clinical Trials, Social and Economic Development, Health Policy and Law, Women's Health, Children's Health, Health and Behavior, Design of Health Care Systems, Pharmaceutical Production and Development, Biotechnology, Medicinal Chemistry, Medicine, Pharmacy, Health Promotion, Health Care Delivery Systems, Physical Restoration and Rehabilitation, Program Management and Design, Disease Prevention and Control, Community Health and Outreach, Health Forensics, Health Insurance and Management, Information Technology, Marketing, Public Relations

Graduates of Nursing Science are prepared for a wide range of unparalleled career opportunities at the frontiers of many emerging and established fields in health care, industry, government, and research and education. Opportunities include working with private corporations, hospitals, medical clinics, health care agencies, pharmaceutical industry, biotechnology industry, local and state government agencies, the federal government, educational providers, court and probation systems, and many others. Graduates can use their education and training to enter a rich variety of graduate programs and to earn professional degrees in related fields.

Pharmaceutical Sciences Career Areas

Pharmaceutical Production and Development, Biotechnology, Medicinal Chemistry, Medicine, Pharmacy, Health Promotion, Health Care Delivery Systems, Physical Restoration and Rehabilitation, Program Management and Design, Disease Prevention and Control, Community Health and Outreach, Health Forensics, Health Insurance and Management

Graduates of Pharmaceutical Sciences are prepared for an unparalleled range of career opportunities in emerging and established biomedical fields in industry, government, research institutes, and education. Opportunities include working in private corporations, hospitals, medical clinics, health care agencies, pharmaceutical industry, biotechnology industry, local and state government agencies, the federal government, educational providers, court and probation systems, and many others. Graduates have a rich variety of choices in filling professional positions in any of these settings or first pursuing additional training at the graduate level in pharmaceutics, chemistry, pharmacology, or biological sciences. Earning professional degrees in medicine, dentistry, or pharmacy is yet another popular option.

Physical Sciences Career Areas

Actuarial Science, Aerospace, Analytical Chemistry, Applied Physics and Chemistry, Astrophysics/Astronomy, Bioscience, Computers, Energy Science, Electronics, Engineering Applications, Environmental Science, Food Chemistry, Forensic Chemistry, Geoscience, Inorganic Chemistry, Instrumentation, Laboratory Science, Lasers, Materials Science, Medicine, Nuclear Science, Optical Devices, Organic Chemistry, Pharmacology, Physical Chemistry, Plasma Physics, Quality Control, Radiation Science, Radiology, Solid State Devices, Space Science, Statistics, Teaching

Graduates of the School of Physical Sciences have backgrounds appropriate to a variety of areas in research, teaching, and management. Career opportunities for physical scientists are found in federal, state, and local government as well as in private industry. Chemists may work in research and development and in jobs dealing with health, pollution, energy, fuel, drugs, and plastics. Water districts, crime labs, and major chemical and oil companies are also good resources for employment. Earth System Science and Environmental Science majors will find employment in areas such as hazardous waste treatment, resource extraction, pollution remediation, and as consultants to government and high-technology fields. Mathematics graduates find employment in both government and the private sector in such technical fields as operations research, computer programming, marketing research, actuarial work, banking, retail management, and scientific research. Physics graduates find professional positions in education, research and development, and in the electronic and aerospace industries. Possible careers include science teaching and writing, computer and electrical engineering, device and instrumentation development, nuclear and reactor physics, environmental and radiological science, laser and microchip development, astronomy, and geophysics.

Public Health Career Areas

Global and International Health, Disease Prevention, Surveillance, Natural Disasters, Emergency Preparedness and Response, Environmental Health Science, Epidemiology, Health Behavior, Health Psychology, Health Economics, Engineering and Health, Health Policy Analysis, Health Care Management, Health Services Administration, Biostatistics, Health Communication, Health Informatics, Complementary and Alternative Medicine, Health Promotion, Health Demography, Health Insurance, Community Health, Health Risk Assessment, Forensics, Biotechnology, Vaccinology, Genetic Engineering, Health Geography, Health Education, Infectious Disease Prevention, Chronic Disease Prevention, Wellness, Clinical Trials, Urban Health, Rural Health, Water Quality, Nutrition and Food Protection, Air Quality and Health, Health Geology, Vulnerable Populations, Burden of Disease Assessment

Increasing human population, diversity, and global mobilization makes a cogent argument for pursuing careers in public health in today's world. Emerging government policies such as the United States Affordable Care Act emphasize disease prevention and population health. Graduates of the UC Irvine Program in Public Health are prepared for careers in research, teaching, and public health practice in private and public sectors. Challenges in public health require acquisition and ready deployment of fundamental knowledge and practical skills. Employment opportunities exist at city and county health care agencies, state departments of public health, national institutions such as the Centers for Disease Control and Prevention, and international agencies such as the World Health Organization. Private foundations and corporations employ public health graduates, including, for example, the Bill and Melinda Gates Foundation and various health insurance providers. Nonprofit organizations and community service groups also employ public health degree holders. Graduates who are interested in academic career tracks focusing on research and/or teaching will find employment at various units within public and private universities and think-tanks.

Social Ecology Career Areas

Administration, Architecture, Biostatistics, Clinical Psychology, Corrections/Probation, Counseling, Education Support Services, Environmental Design, Environmental Planning and Consulting, Epidemiology, Government Service, Health Service, Hospital Administration, Housing Development, Law, Management/Administration, Mental Health, Program Coordination, Psychology, Public Health Research, Public Relations, Real Estate/Development, Research and Research Design, Social Service, Teaching, Urban Planning, Water Quality Control

Graduates of the School of Social Ecology may hold positions as urban planners, environmental consultants, juvenile probation officers, counselors, elementary and secondary school teachers, legal aides, coordinators of juvenile diversion programs, social workers, mental health workers, special education teachers, architectural consultants, and elected officials, just to cite some examples of career choices. Many School of Social Ecology graduates have used their training to enter graduate programs and obtain advanced degrees in the fields of law; clinical, community, social, developmental, and environmental psychology; public health; public and business administration; environmental studies; urban planning; social welfare; criminology; and the administration of justice.

Social Sciences Career Areas

Banking, Correction/Probation, Counseling, Environmental Analysis, Finance, Foreign Service, Government Service, Health Services, Human Services, Industrial Relations, International Affairs, Labor Relations, Law, Library Science, Management/Administration, Marketing, Personnel, Psychology, Public Relations, Publishing, Real Estate, Research, Sales, Statistical Analysis, Teaching, Writing

Business and industry often look to social science graduates to fill positions in management, finance, marketing and advertising, personnel, production supervision, and general administration. In the public sector, a wide variety of opportunities are available in city, county, state, and federal government. Teaching is a frequently chosen career at all levels from elementary school teacher to university professor. In addition, many graduates enter professional practice, becoming lawyers, psychologists, researchers, or consultants in various fields.

Special Programs

Access UCI and Summer Session Enrollment

Exceptional high school students can enroll in UCI classes without formal admission to the University year-round.

During the academic year, concurrent enrollment through UC Irvine Extension's Access UCI program is ideal for well-prepared high school seniors who have exhausted the curriculum available in high school and who are looking for advanced-level course work, or for students who are seeking an enrichment course or course work not available at their high school. For information, call (949) 824-5414; e-mail: unex-services@uci.edu; or visit the Access UCI (http://unex.uci.edu/courses/access_uci) website.

During the summer, highly qualified high school students can enroll in UC Irvine Summer Session's High School Summer Scholar Program. This program provides students with the opportunity to experience college-level course work and preview university life through a combination of academic course work and co-curricular activities. Students may also enroll directly in regular UCI summer quarter courses through UC Irvine Summer Session. For information, contact the UCI Summer Session Office at (949) 824-6494; e-mail: summer-session@uci.edu; or visit the Summer Session (http://summer.uci.edu) website.

Admission and enrollment in courses either through Access UCI or UC Irvine Summer Session does not constitute admission to UCI as an entering freshman student. See the Undergraduate Admissions (p. 52) section of this *Catalogue* for information about applying to UCI and the formal admission process.

UCI Center for Educational Partnerships

The mission of the UCI Center for Educational Partnerships (CFEP) (http://www.cfep.uci.edu) is to create collaborations that support preparation for and success in higher education. CFEP's focus is on equity and access for all students in order to achieve the University of California's goal of academic excellence. CFEP has three guiding principles: (1) diversity among students and faculty enhances the educational experience the University provides and the scholarship it produces; (2) collaboration promotes the exchange of ideas, leverages resources, and drives collective action; and (3) research guides practice, promotes accountability, and advances knowledge. In order to achieve its mission, CFEP builds lasting partnerships with individuals and institutions committed to improving education; facilitates faculty involvement; engages in K–12 academic preparation; provides teacher professional development; promotes college-going culture; supports undergraduate retention; enhances graduate school preparation; conducts research and evaluation; participates in the national dialogue about educational reform and collaboration; and fosters learning communities to support ongoing professional and intellectual development.

For additional information, call 949-824-7482 or visit the Center for Educational Partnerships (http://www.cfep.uci.edu) website.

Student Support Services

Housed within the Division of Undergraduate Education, Student Support Services (SSS) is an academic support program dedicated to helping first-generation college, Pell eligible/low-income, and/or disabled students succeed and thrive at UCI. The goal of SSS is to help students successfully transition to UC Irvine and enhance their academic experience. SSS offers drop-in counseling and advising provided by professional staff, faculty, and student peers; organizes weekly workshops on academic and social opportunities at UCI; and coordinates summer academic programs for incoming students. See the Division of Undergraduate Education (p. 138) section of the *Catalogue* for additional information.

Graduate Diversity Programs

The University of California believes that a diverse student and faculty population is integral to academic excellence. It is critical to promoting the lively intellectual exchange and the variety of ideas and perspectives that are essential to advanced scholarly research. The university remains committed to

expanding outreach, recruitment, and retention efforts. Through the Graduate Division's diversity programs, steps are taken to increase the participation of diverse groups of U.S. citizens and permanent residents who have been disadvantaged in obtaining graduate education in the United States. See the Graduate Division (p. 154) section of the *Catalogue* for additional information.

Medical Student Support Programs

The School of Medicine's Office of Admissions and Outreach is designed to meet the challenges of California's changing demographics and to contribute to the School's goal of achieving a broad spectrum of diversity in the student population, and ultimately, in the medical profession. The office plays a major role in the recruitment and retention of targeted socioeconomically disadvantaged students who have the potential of service to the medically underserved communities in California. The School's Office of Diversity and Community Engagement (ODCE) augments the recruitment and retention of students from populations underrepresented in medicine and works closely with the Office of Admissions and Outreach. ODCE also serves as a resource for students by providing a supportive learning environment through advising and counseling prospective students and mentoring students following their admission to medical school. See the School of Medicine (p. 1119) section for additional information.

Expenses, Tuition, and Fees

- Tuition and Fees (p. 39)
- Special Tuition and Fee Programs, Waivers, and Exemptions (p. 42)
- California Residence and Nonresident Supplemental Tuition (p. 43)
- Tuition and Fee Refunds (p. 46)

Estimated Expenses

The range of estimated nine-month expenses, including projected tuition, fees, books and supplies, room and board, and miscellaneous expenses for California-resident students attending UCI during the 2013-14 academic year are shown in the following chart. Tuition and fees are subject to change without notice, and the university may impose additional fees.

Expenses for students living off campus vary depending upon number of roommates, location of apartment, amenities and other factors. Graduate student expenses assume two students sharing a two-bedroom apartment. All other on- and off-campus estimates are based on two students sharing a bedroom. Figures are based on periodic surveys and are adjusted for inflation for years when surveys are not conducted. These are intended only as a guide in computing average expenses.

California-Resident Student Status	Living Arrangement	Estimated Nine-Month Expenses
Undergraduate	On campus	$31,478.97
	Off campus	$29,346.97
	At home	$24,694.97
Graduate	On campus – Verano	$33,898.50
	On campus – Campus Village	$34,828.50
	On campus – Palo Verde	$34,807.50
	Off campus	$40,561.50
	At home	$33,898.50

Tuition and Fees

All tuition, fees, and charges are subject to change without notice, and the University may impose additional tuition and fees. Consult the Registrar's (http://www.reg.uci.edu) website for the most up-to-date information.

Undergraduate Student Tuition and Fees for Academic Year 2014–15 [1]

Fee	Resident	Nonresident
Tuition	$11,220.00	$11,220.00
Student Services Fee	$972.00	$972.00
Associated Students Fee	$54.00	$54.00
UCI Student Center Fee	$409.50	$409.50
Bren Events Center Fee	$69.00	$69.00
Recreation Center Fee	$264.00	$264.00
Campus Spirit Fee	$99.00	$99.00
Measure S Fee	$24.00	$24.00
TGIF Fee	$10.50	$10.50

Anteater Express Fee	$48.00	$48.00
Measure U Fee	$2.97	$2.97
eTech Fee [3]	varies	varies
UG Student Health Insurance Plan Fee (2014-15 levels TBD) [4]	$1,359.00	$1,359.00
Nonresident Supplemental Tuition	----------	$22,878.00
TOTAL	$14,531.97	$37,409.97

Graduate Student Tuition and Fees for Academic Year 2014–15 [1, 2]

Fee	Resident	Nonresident
Tuition	$11,220.00	$11,220.00
Student Services Fee	$972.00	$972.00
Associated Graduate Student Fee	$27.00	$27.00
UCI Student Center Fee	$409.50	$409.50
Bren Events Center Fee	$69.00	$69.00
Recreation Center Fee	$264.00	$264.00
eTechFee [3]	varies	varies
Grad. Student Health Insurance Plan Fee (2014-15 levels TBD)[4]	$2,592.00	$2,592.00
Nonresident Supplemental Tuition	--------	$15,102.00
TOTAL	$15,553.50	$30,655.50

1 Student fees shown are based on three quarters of attendance.

2 The exact cost of attending UCI varies by program. Students in the the Full-time M.B.A., J.D., M.D., Master's in Public Health, Master's in Public Policy, M.S. in Biotechnology Management, M.S. in Engineering Management, M.S. in Genetic Counseling, M.S. in Nursing Science, Executive M.B.A. programs, M.A.S. in Criminology, Law and Society program, and M.P.Ac. program should refer to the tuition and fee information posted on the Registrar's (http://www.reg.uci.edu) website.

3 The nonrefundable eTech fee is $4 per undergraduate lecture course unit, up to a maximum of $60 per quarter or $180 per year.

4 The 2014-15 Undergraduate Student Health Insurance Plan and Graduate Student Health Insurance Plan premium levels have not been determined; the amounts shown are the 2013-14 levels and the 2014-15 levels will be published when the negotiated rates are approved.

Payment of Tuition and Fees

Tuition and fees for each quarter are due and payable in advance within deadlines published in the Quarterly Academic Calendar on the Registrar's (http://reg.uci.edu/navigation/calendars.html) website. A student will not be officially registered in classes until tuition and fees are paid in full, with the exception of students who are participating in the PACE Plan.

Continuing and returning students are required to pay all outstanding fines and other debts in full before they pay their tuition and fees for an upcoming term.

Information about tuition and fee refunds appears later in this section.

Tuition provides general support for the University's operating budget, including costs related to instruction, and funds student financial aid. Graduate students studying out of the State may be eligible to pay 15 percent of tuition. M.D. students are required to pay the full tuition for each quarter in which they enroll, including the summer quarter. The summer quarter tuition level for M.D. students will be the same as that of the previous spring quarter.

The **Student Services Fee** is required of all students regardless of the number of courses taken, unless otherwise noted. This fee is a charge to each student for co-curricular programs, activities, and services which benefit the student and which are complementary to, but not a part of, the instructional programs. A portion of the fee is returned to support student financial aid. No part of this fee is refundable to students who do not use all or any of these services. Graduate students studying out of the State may be eligible to pay 15 percent of the Student Services Fee. M.D. students are required to pay the full Student Services Fee for each fall, winter, and spring quarter, and a reduced Student Services Fee of $80 for each summer quarter.

The **Associated Students Fee** is administered by the Associated Students of UCI, the Associated Graduate Students, The Paul Merage School of Business Student Association, and the Associated Medical Students. These funds provide social activities, lectures, forums, concerts, and other activities at either a reduced charge, or no charge, to UCI students. The fees are required of all students.

The **UCI Student Center Fee** is required of all students regardless of the number of courses taken. The fee is used to pay the debt service on revenue bonds sold to finance the construction costs of the UCI Student Center.

The **Bren Events Center Fee** is required of all students regardless of the number of courses taken or units carried. The fee is used to pay the debt service on revenue bonds sold to finance the construction costs of the Bren Events Center.

The **Recreation Center Fee** is required of all students regardless of the number of courses taken or units carried. The fee is used to pay the debt service on revenue bonds sold to finance the construction costs of the Student Recreation Center and Athletics facilities improvements.

The **Campus Spirit Fee** is required of all undergraduate students regardless of the number of courses taken or units carried. The fee is used to support Athletics and Campus Spirit Programs.

The **Measure S Fee** is required of all undergraduate students regardless of the number of courses taken or units carried. The fee is used to support, upgrade, and expand the ASUCI Express Shuttle.

The **Green Initiative Fund (TGIF) Fee** is required of all undergraduate students for the fall, winter, and spring quarters regardless of the number of courses taken or units carried. The fee is used to support undergraduate student efforts to reduce the campus's environmental footprint and to promote sustainable educational projects at UCI.

The **Anteater Express Fee** is required of all undergraduate students regardless of the number of courses taken or units carried. The purpose of the fee is to support the Anteater Express campus shuttle service. The fee revenue is used to fund expenses including, but not limited to, fleet replacement, disability services, and route expansion. This initiative differs from the current Measure S Fee in that the funds may be spent more broadly and the funds are also overseen by a funding board.

The **Measure U Fee** is required of all undergraduate students for the fall, winter, and spring quarters regardless of the number of courses taken or units carried. The purpose of the fee is to support the *New University*, the official UCI student newspaper. The fee revenue is used to provide support for the *New University* operational expenses.

The **eTech Fee** is a nonrefundable per-unit fee, required of all students enrolled in undergraduate lecture courses during the fall, winter, and spring quarters. The fee is used to fund the UC Irvine Educational Technology Initiative maintaining and improving existing educational technology, and providing new educational technology services and capabilities supporting the educational goals of UCI students. The fee is $4 per unit of undergraduate lecture course, up to a maximum amount of $60 (or 15 units) per quarter. It will be assessed after the third week of instruction. Further information is available at the eTech (http://etech.uci.edu) website.

The **Undergraduate Student Health Insurance Plan Fee** is charged over three quarters (fall, winter, and spring) to provide 12-month coverage from September through August. The fee is required of all undergraduate students regardless of the number of courses taken or units carried. The fee is used to provide undergraduate students with health insurance. If students provide evidence of comparable coverage from another source, participation in the mandatory plan may be waived. This fee is subject to change pending the outcome of negotiations with insurance carriers.

The **Graduate Student Health Insurance Plan Fee** is charged over three quarters (fall, winter, and spring) to provide 12-month coverage from September through August. First-year law and medical students who matriculate prior to September, any returning students not enrolled in the previous spring quarter, and transfer students must also pay a prorated GSHIP premium in addition to the fall premium. The fee is required of all graduate and medical students regardless of the number of courses taken or units carried. The fee is used to provide graduate and medical students with health insurance. If students provide evidence of comparable coverage from another source, participation in the mandatory plan may be waived. This fee is subject to change pending the outcome of negotiations with insurance carriers.

The **Medical Student Disability Insurance Fee** is required of all medical students. The entire annual fee is charged for the fall quarter.

The **Professional Degree Supplemental Tuition** is required of all students in the full-time M.B.A., J.D., M.D., Master's in Public Health, Master's in Public Policy, M.S. in Biotechnology Management, M.S. in Engineering Management, M.S. in Genetic Counseling, and M.S. in Nursing Science programs, regardless of the number of units taken.

A $1,000 advance deposit on the Professional Degree Supplemental Tuition is required of all new M.B.A. students upon their acceptance of admission. This deposit is nonrefundable.

Service Charges (subject to change without notice)

Item	Charge
Changes in Class Enrollment after Announced Dates (each transaction)	$3.00
Credit by Examination (each petition)	$5.00
Late Payment of Tuition and Fees	$50.00
Late Enrollment in Classes	$50.00
Returned Check Collection	$25.00
Student Parking Permits [1]	
- Zone Commuter, monthly (2014-15 TBD)	$66.00

- Zone Commuter, Preferred, Monthly (2014-15 TBD)	$85.00
- Resident, monthly (2014-15 TBD)	$97.00

In addition, students may be assessed a course materials fee. Consult the online *Schedule of Classes* for courses requiring the fee and the fee level.

1 In accordance with Regents policy, UC parking systems are self-supporting auxiliary enterprises receiving no State appropriations. Visit the Transportation and Distribution Services (http://www.parking.uci.edu) website for fee levels of other types of parking permits. Prices shown are for 2013–14 and are subject to change for 2014–15.

Miscellaneous Fees (subject to change without notice)

Item	Fee
Application Fee [1,2]	
-Domestic Undergraduate	$70.00
- International Undergraduate	$80.00
- Domestic Graduate [3]	$90.00
- International Graduate [3]	$110.00
- Secondary Application Fee (Medical)	$80.00
Application Fee for Readmission [1]	
- Domestic Undergraduate	$70.00
- International Undergraduate	$70.00
- Domestic Graduate	$90.00
- International Graduate	$90.00
Advancement to Candidacy for Ph.D.	$90.00
Duplicate Diploma	$22.00
Duplicate Diploma, School of Medicine	$125.00
Filing Fee (graduate programs; one-half Student Services Fee) [4]	$162.00
Graduate Special Library Borrowing Privileges (per year, nonrefundable, renewable) [5]	$50.00
Master's Thesis Electronic Submission Fee	$55.00
M.B.A. Acceptance of Admissions Deposit [1]	$1,000.00
Transcript of Record (per copy)	$17.00
Undergraduate Acceptance of Admission Fee (applied toward Student Services Fee) (2014-15 TBD)[1,6]	$100.00
Verification of Student Status (per copy)	$17.00

1 Nonrefundable in all cases.

2 The fee entitles an applicant to apply to one UC campus. Applicants who are applying to more than one campus must pay the fee for each campus selected.

3 The Application Fee for The Paul Merage School of Business is $150.

4 The Filing Fee is one half of the quarterly Student Services Fee.

5 This fee entitles graduate students on Official Leave of Absence or Filing Fee Status to keep their library privileges.

6 The fee level shown for the Undergraduate Acceptance of Admission Fee is for 2013-14 and is subject to change for 2014-15.

Special Tuition and Fee Programs, Waivers, and Exemptions

PACE Plan

The PACE Installment Plan allows students to spread the quarterly costs of tuition and fee payment over a three-month period. A fee is charged for this privilege. Information about PACE is available at the Campus Billing Services (http://www.fs.uci.edu/CBS/PACE/TOC.HTM) website.

Reduced-Fee Part-Time Study Program

Part-time study for credit leading to an undergraduate or graduate degree is available in some academic units. To take advantage of reduced tuition and fees for part-time status, quarterly course enrollment is limited to 10 units or fewer for undergraduate students and to eight units or fewer for graduate students. Students enrolled in excess units after Friday of the third week of instruction are liable for full tuition and fees.

The same admissions standards that apply to full-time students apply to part-time students. Under University policy, academic deans (the Dean of the Division of Undergraduate Education, for Undecided/Undeclared students; the Dean of Graduate Studies, for graduate students) may approve Petitions for Part-Time Status *only* for reasons of occupation, family responsibilities, or health.

Undergraduate and graduate students on approved part-time status pay the full Student Services Fee and one-half of Tuition. Those part-time students who have been determined to be nonresidents of the State of California are assessed one-half the Nonresident Supplemental Tuition, in addition to the full Student Services Fee and one-half of Tuition. Part-time students pursuing a professional degree are assessed one-half the Professional Degree Supplemental Tuition, the full Student Services Fee, and one-half of Tuition.

Part-time status lapses at the end of each academic year; therefore, a student must reapply each year that part-time status is desired. See the Registrar's (http://www.reg.uci.edu) website for more information.

Undergraduate petitions are available from academic counselors or the Registrar's Office; graduate students may obtain further information and petitions from the Graduate Division. All students are encouraged to consult with the Office of Financial Aid and Scholarships regarding minimum unit requirements.

Tuition and Fee Reduction for Staff and Academic Employees

Students who are career employees at UCI or the University of California, Irvine Medical Center are eligible for a two-thirds reduction of the Student Services Fee, Tuition, and campus-based fees. This applies for up to nine units or three regular session University courses per quarter, whichever is greater. For staff employees, additional information and the Employee Application for Reduced Fees is available from Human Resources. Academic employees should contact the Office of Academic Personnel.

Exemptions from Nonresident Supplemental Tuition

See the California Residence and Nonresident Supplemental Tuition section below for information about exemptions from Nonresident Supplemental Tuition.

Exemptions from Tuition and Fees

A student who is a child, spouse, or registered domestic partner of a resident law enforcement officer or fire fighter killed in active duty shall be exempted from nonresident supplemental tuition and mandatory system wide fees in accordance with Section 68120 of the Education Code of the State of California.

In accordance with Section 66025.3 of the Education Code of the State of California, a resident student may be exempted from mandatory system wide tuition and fees if:

1. The student is the child or dependent of a veteran of the United States military who has a service-connected disability or who has been killed in service;
2. The student is the dependent of a member of the California National Guard who, while in active service of the State, has acquired a service-connected disability or has been killed in service; or
3. The student is the surviving spouse (who has not remarried) or registered domestic partner (who has not married or registered as a domestic partner) of a member of the California National Guard who, while in active service of the State, has acquired a service-connected disability or has been killed in service.

A nonresident student who meets the requirements of Section 68130.5 of the Educational Code of the State of California regarding attendance and graduation from a California high school shall be exempt from paying nonresident supplemental tuition.

California Residence and Nonresident Supplemental Tuition

All students who have not lived in California with the intent to make California their permanent home for more than one calendar year prior to the residence determination date for each quarter or semester they propose to attend the University must pay Nonresident Supplemental Tuition. The residence determination date is the day instruction begins at the last of the University of California campuses to open for the quarter, and for schools on the semester system, the day instruction begins for the semester.

Laws Governing Residence

The rules regarding residence classification for tuition purposes at the University of California are governed in accordance to the California Educational Code and the Standing Orders of the Regents of the University of California and are implemented through the University of California Residence Policy and Guidelines. UC's Residence Policy and Guidelines are available at the Office of General Counsel (http://ucal.us/fSuZtr) website.

Who Is a Resident?

Adult students (at least 18 years of age) may establish residence for tuition purposes in California if they are a U.S. citizen, a permanent resident or other immigrant, or a nonimmigrant who is not precluded from establishing a domicile in the U.S. This includes nonimmigrants who hold valid visas of the following types: A, E, H-1, H-4, I, K, L, O-1, O-3, R, T, U, or V.

To establish residence a student must, immediately prior to the residence determination date:

1. Be physically present in California for more than one calendar year, *and*
2. Must have come to California with the intent to make California the permanent home. For example, physical presence within the state of California solely for educational purposes does not constitute the establishment of California residence regardless of the length of stay.
3. Students under 24 years of age whose parents are not residents of California will be required to meet the Financial Independence requirement in order to be classified as a resident for tuition purposes.

Residence cannot be derived from a spouse.

Requirements for Financial Independence

The financial independence requirement will not be a factor in residence determination if the student meets one of the following criteria:

1. The student's parents upon whom the student is financially dependent, are residents of California.
2. At least 24 years of age by December 31 of the calendar year of the term for which resident classification is requested.
3. Veteran of the U.S. Armed Forces.
4. A ward of the court or both parents are deceased.
5. Has legal dependents other than a spouse or registered domestic partner.
6. A married or registered domestic partner student, a graduate student, or a professional student who was not claimed as an income tax deduction by parents or any other individual for the tax year immediately preceding the term for which resident classification is requested.
7. Financial independence is not a factor in residence status for graduate student instructors, graduate student teaching assistants, research assistants, junior specialists, postgraduate researchers, graduate student researchers, and teaching associates who are employed 49 percent or more of full time in the term for which resident classification is requested.
8. An unmarried undergraduate student, not claimed as an income tax deduction by parents or any other individual for the two tax years immediately preceding the term for which resident classification is requested, who can demonstrate self-sufficiency for those years.
9. Reached the age of majority in California while his/her parents were residents of this state *and* the California resident parents leave the state to establish a residence elsewhere *and* the student continues to reside in California after the parents' departure.

Establishing Intent to become a California Resident

Relevant indicia that contribute to the demonstration of a student's intent to make California the permanent home include, but are not limited to, the following: registering to vote and voting in California elections; designating a California permanent address on *all* records (i.e., school, employment, military); obtaining a California Driver License or California Identification Card; obtaining a California vehicle registration; paying California income taxes as a resident (including taxes on income earned outside California from the date California residence was established); maintaining a California residence in which personal belongings are kept; licensing for professional practice in California; and the *absence* of these indicia in places other than California during any period for which residence in California is asserted.

General Rules Applying to Minors

The residence of the parent with whom an unmarried minor (under the age of 18) lives is the residence of the unmarried minor. When the unmarried minor does not live with either parent, the residence of the unmarried minor is that of the parent with whom the unmarried minor last lived. An unmarried minor may establish his or her own residence when both parents are deceased and a legal guardian has not been appointed unless the unmarried minor is a minor non-citizen who is precluded by the Immigration and Nationality Act from establishing domicile in the U.S. *The residence of an unmarried minor who has a parent living cannot be changed by the unmarried minor's own act, by the appointment of a legal guardian, or by the relinquishment of a parent's right of control.*

Specific Rules Applying to Minors

1. **Parent of Minor Moves from California.** If the California resident parent(s) of an eligible minor moves from California, the minor will be entitled to resident classification as long as the minor enrolls full-time in a California public postsecondary institution within one calendar year of the parent's departure, and remains physically present in California. This classification will continue until the minor has attained the age of majority and has resided in California for the minimum time required to become a resident. The Financial Independence requirement does not apply to this situation.
2. **Self-Supporting Minor.** Minor students who are U.S. citizens or eligible non-citizens may be eligible for resident classification if documentation of physical presence, intent to be a California resident, and self-support through the student's own employment or credit is provided for the entire calendar year prior to the residence determination date.
3. **Two-Year Care and Control.** Minor students who are U.S. citizens or eligible non-citizens may be eligible for resident classification if they have lived with and been under the continuous care and control of an adult or series of adults other than a parent for not less than two calendar years.

The adult or series of adults must have been responsible for care and control for the entire two-year period and must be California residents for 366 days prior to the residence determination date of the term for which resident classification is requested. Contact the Residence Officer for additional criteria necessary to qualify under this provision.

Exemptions from Nonresident Supplemental Tuition

Students for whom any of the following conditions apply may be eligible for an exemption from Nonresident Supplemental Tuition.

1. **Member of the Armed Forces, dependent spouse, registered domestic partner, or child**. A student on active duty as a member of the Armed Forces of the United States stationed in California, and their spouses or registered domestic partner, and dependent children. An undergraduate who is the natural or adopted child, stepchild, spouse, or registered domestic partner who is the dependent of a member of the U.S. Armed Forces, stationed in California on active duty, may be entitled to an exemption from the nonresident supplemental tuition. Graduate and professional school students are also entitled to this exemption under both state and federal regulations.
2. **Child, spouse, or registered domestic partner of a faculty member.** The spouse, registered domestic partner, or unmarried, dependent child under age 21 of a member of the University faculty who is a member of the Academic Senate may be eligible for an exemption from nonresident supplemental tuition.
3. **University employee or dependent child, spouse, or registered domestic partner of a University employee.** A student who is a full-time University employee who is permanently assigned to work outside the State of California or the unmarried, dependent child or the spouse or registered domestic partner of a full-time employee of the University of California who is permanently assigned to work outside the State of California (i.e., Los Alamos National Laboratory).
4. **Child, spouse, or registered domestic partner of a deceased public law enforcement or fire suppression employee.** A student who is the child, spouse, or registered domestic partner of a deceased public law enforcement or fire suppression employee, who was a California resident and was killed in the course of law enforcement or fire suppression duties.
5. **Dependent child of a California resident.** A student who has not been an adult resident for more than one year and is the natural or adopted, dependent child of a California resident who has been a resident for more than one year immediately prior to the residence determination date. The student must also maintain full-time attendance in a California public postsecondary institution.
6. **Graduate of a California school operated by the Federal Bureau of Indian Affairs (B.I.A.).** A student who is a graduate of a California school operated by the B.I.A. (i.e., Sherman Indian High School) and who enrolls at the University of California.
7. **Employee of California public school district.** A student holding a valid credential authorizing service in California public schools and employed by a school district in a full-time certificate position.
8. **Student athlete in training at U.S. Olympic Training Center, Chula Vista.** An amateur student athlete in training at the U.S. Olympic Training Center in Chula Vista, until the student has resided in California the minimum time necessary to become a resident.
9. **Graduate of California high school (AB 540).** A student who attended high school in California for three or more years (9th grade included), does not hold a valid nonimmigrant visa, and graduated from California high school (or attained the equivalent).
10. **Congressional Medal of Honor recipient.** An undergraduate student under age 27 who is the recipient of the Congressional Medal of Honor or a child of a recipient who at the time of his or her death was a California resident.
11. **Surviving dependents of 9/11 terrorist attacks.** Undergraduate students who are the surviving dependents of a California resident who was killed in the 9/11/01 terrorist attacks of the World Trade Center, the Pentagon Building, or the crash of United Airlines flight 93.

Temporary Absences

If a nonresident student is in the process of establishing a domicile in California and returns to his or her former home during noninstructional periods, the student's presence in California will be presumed to be solely for educational purposes and only convincing evidence to the contrary will rebut this presumption. *Students who are in the State of California solely for educational purposes will not be classified as residents for tuition purposes regardless of their length of stay in California.*

If a student who has been classified as a resident for tuition purposes leaves California temporarily, the absence could result in the loss of California residence. The burden of proof is on the student to demonstrate through documentation that he or she (or the parents if the student is a minor) did nothing inconsistent with a claim of continuing California residence during a temporary absence. Steps that should be taken to retain California residence include, but are not limited to:

1. Continue to use a California address on all records (educational, employment, military, among others).
2. Continue to satisfy California tax obligations. A student claiming California residence is liable for payment of income taxes on his or her total income from the date he or she begins to establish residence in California, *including* income earned in another state or country.
3. Retain a California voter's registration and vote by absentee ballot.
4. Maintain a California Driver License, California Identification Card, and vehicle registration in California. If it is necessary to change the driver's license or vehicle registration, it *must* be changed back to California in the time prescribed by law.

Change in Resident Classification

Continuing students who are classified as nonresidents for tuition purposes, and who believe that they will be eligible for resident status for an upcoming quarter, must submit a Petition for Resident Classification to the University Registrar in order to have their residence status changed before they

submit their tuition and fee payment for the applicable quarter. Students must initiate all changes of status before the submission deadline of the quarter for which they want to be reclassified. (Specific deadline dates are listed on the Registrar's (http://www.reg.uci.edu) website). Students are strongly encouraged to submit their petition at the earliest possible date in order to expedite the review process. As long as submission deadlines are met, students may be allowed a period of time no later than the end of the quarter to provide any additional documentation required for residence determination.

Incorrect Classification

Any student found to be incorrectly classified as a resident is subject to nonresident classification and to payment of all previously unpaid Nonresident Fees. If a student has concealed information or furnished false information, and was classified incorrectly as a result, the student is also subject to University discipline. Resident students who become nonresidents of California must immediately notify the UCI Residence Officer.

Inquiries and Appeals

Inquiries regarding residence requirements, determination, and/or recognized exceptions should be directed to the:

University of California, Irvine
Residence Officer
Registrar's Office
215 Aldrich Hall
Irvine, CA 92697-4975
Telephone (949) 824-6129

or to the:

Residence Analyst
Office of the General Counsel
1111 Franklin Street, 8th Floor
Oakland, CA 94607-5200

No other University personnel are authorized to supply information relative to residence requirements for tuition fee purposes.

This summary is *not* a complete explanation of the law regarding residence classification. Additional information is available from the University Registrar. Changes may be made in the residence requirements between the publication of this statement and the relevant residence determination date. Any student, following a final decision on residence classification by the Residence Officer, may file an application to appeal in writing to the Office of the General Counsel within 30 days of notification of the Residence Officer's final decision.

Tuition and Fee Refunds

Student Tuition and Fee Refunds

Students who pay tuition and fees for a regular academic term and then decide to withdraw from the university must submit a Withdrawal form, complete with the signature of their academic dean. Undergraduate students must submit the form to the University Registrar; graduate students to the Graduate Division; medical students to the Curricular Affairs Office in the School of Medicine; law students to the Law School Registrar's Office. This form serves two purposes:

1. A refund of tuition and fees, if applicable; and
2. Withdrawal from classes.

The effective date of withdrawal is used in determining the percentage of tuition and fees to be refunded. This date is normally the date that the student submits the form to the appropriate Dean for approval. It is presumed that no university services will be provided to the student after that date. Tuition and fees are refunded as follows.

Prior to and including the first day of instruction, tuition and fees are refunded in full, except for

1. A $10 service charge for continuing and readmitted students, *or* the $100 Acceptance of Admission Fee for new undergraduate students, *or* the applicable deposit fee for new health sciences and M.B.A. students, and
2. The Student Health Insurance Fee. (The Student Health Insurance Fee is refunded only if the Withdrawal form is submitted *prior to the first day of the quarter.)* Students should bear in mind that the "first day of the quarter" often is several days prior to the "first day of instruction." Refer to the Academic Calendar for exact dates.

A refund of the Medical Student Disability Insurance Fee (if applicable) may be requested.

After the first day of instruction, the tuition and fee refund is prorated as shown (with the exception of the Health Insurance Fee).

Standard Refund Schedule

Calendar days (beginning with the first day of instruction)	Refund
1	100 percent
2-7	90 percent
8-18	50 percent
19-35	25 percent
over 35	no refund

New students receiving Federal Financial Aid follow the refund schedule outlined below.

Refund Schedule for New Students Receiving Federal Financial Aid

Calendar days (beginning with the first day of instruction)	Refund
1	100 percent
2-7	90 percent
8-14	80 percent
15-21	70 percent
22-28	60 percent
29-35	50 percent
36-42	40 percent
over 42	no refund

Financial aid recipients should see the UCI Office of Financial Aid and Scholarships Student Withdrawal Policy, or consult their Policies and Conditions (http://www.ofas.uci.edu/content/PoliciesAndConditions.aspx) website.

Claims for a refund of tuition and fees must be presented during the fiscal year (July 1 to June 30) in which the claim is applicable. Refund checks are issued by the Accounting Office approximately three weeks after the official notice of withdrawal is initiated.

Law students follow refund schedules set by the School of Law. Refer to the School of Law (http://www.law.uci.edu) website for further information.

Housing Refunds

UCI Housing refund policies are included in the housing contracts.

Financial Aid

Lack of funds need not be a barrier to attending UCI; about 75 percent of UCI's enrolled students are offered some form of financial aid. Students who demonstrate that they need financial assistance in order to attend may be eligible for scholarships, grants, loans, and/or work-study awards through the Office of Financial Aid and Scholarships. In addition to awarding aid on the basis of financial need, some scholarships are awarded on the basis of academic excellence. Information regarding the application process, deadlines, and financial aid programs for undergraduate, graduate, and medical students may be found at the Office of Financial Aid (http://www.ofas.uci.edu/content) website.

Free Application for Federal Student Aid (FAFSA/Renewal Application and FAFSA on the Web). To obtain financial aid, new and continuing students must file the FAFSA or FAFSA on the Web (FOTW) and submit the necessary supporting documents each year. FAFSA on the Web is available at fafsa.gov (https://fafsa.ed.gov), and paper forms are available either by completing a PDF FAFSA (https://fafsa.ed.gov/help/ffdef44.htm) or by calling 800-4-FED-AID / 800-433-3243. Renewal notifications are mailed to current financial aid recipients starting in mid-January. Students are encouraged to apply as early as possible after January 1. The priority deadline to file the FAFSA/FOTW for loans, work-study, and most grants is March 2. For priority consideration of these funds, all other supporting documentation must be submitted to the Office of Financial Aid and Scholarships by June 30 or the specified due date.

The University expects the student and the parent (or spouse) to contribute toward the educational costs to the extent possible. For dependent students, an analysis of the FAFSA and supporting documents determines the amount a student and the student's parents can be expected to contribute toward the cost of the student's education. For independent students, the analysis determines the amount a student and, if applicable, a spouse, can contribute to the cost of the student's education. Income, assets, size of family, and the number of family members in college (excluding parents) are the major factors considered in the analysis. Assets include, but are not limited to, equity in real estate other than family residence; stocks, bonds and other securities; business equity; and cash, savings and checking accounts. Income includes wages, salaries, interest, dividends, and nontaxable income such as Social Security, Veterans' benefits, and foreign income.

All undergraduate financial aid applicants are required to apply for a Pell Grant, and eligible California residents are required to apply for a Cal Grant. The application deadline for Cal Grants is March 2 for the following academic year.

Special Expenditures. Financial aid recipients who are in need of money for special expenditures (beyond the cost of books and basic supplies associated with certain courses of study) may make an appointment to see a financial aid counselor to explore the possibility of a budget extension, based on the availability of funds. Examples of such special expenditures include special equipment for students with disabilities and computer purchases.

Eligibility Requirements for Federal Student Aid

Federal financial aid programs are subject to regulations that define the criteria students must meet to qualify and maintain eligibility for those programs. The regulations state that a student must:

1. Be a U.S. citizen or an eligible noncitizen of the U.S.;
2. Be accepted for admission to the University;
3. Be enrolled in good standing at the University; units taken through the University Extension program are not counted toward half- or full-time enrollment;
4. Demonstrate financial need (except for William D. Ford Federal Direct Unsubsidized Loans and Federal PLUS loans); financial need is the difference between the reasonable, approved expenses of attending UCI and all available resources, including the expected contribution from parents, the student, and any outside aid;
5. Maintain satisfactory academic progress for financial aid, as outlined below;
6. Be registered with the Selective Service if the student is a male at least 18 years old, born after December 31, 1960, and not on active duty with the armed forces;
7. Not owe a refund on a federal grant or be in default on a federal educational loan.

Once a student meets the above criteria, disbursement of financial aid funds is made only if the student does not have outstanding debts owed to UCI.

California Dream Act Application. Students who qualify for the AB 540 fee exemption and are not able to file a FAFSA can apply for certain types of financial aid by completing the California Dream Act Application.

The California Dream Acts – AB 130 and AB 131 – extend eligibility for privately funded UC scholarships, other UC scholarships and grants, and Cal Grants to students, including undocumented students, who qualify for benefits under another California law – AB 540 – which exempts students from paying nonresident supplemental tuition.

Students who think they might be eligible for an AB 540 nonresident tuition exemption should:

1. Submit a California Dream Act Application as soon as possible after it becomes available on January 1, but no later than March 2. Additional information is available at the California Dream Act (http://www.csac.ca.gov/dream_act.asp) website.
2. Students who are admitted to the University and intend to enroll should submit a Statement of Legal Residence. Those who receive a nonresident classification from the campus residence deputy should submit a California Nonresident Tuition Exemption Request or a University of California Nonresident Tuition Exemption Application and Affidavit, available at the University Registrar's Office or website. Official high school transcripts and proof of high school graduation may be requested.

Once applicants have completed these steps, the University will notify them of any financial aid eligibility.

UCI Policies on Satisfactory Academic Progress for Financial Aid

Undergraduate and Graduate Students

In defining student eligibility for financial aid, the Higher Education Act Amendments state that a student must maintain “satisfactory progress in the course of study the student is pursuing, according to the standards and practices of the institution at which the student is in attendance.” Federal regulations state that each institution shall establish, publish and apply “reasonable standards” for assuring that every student receiving need-based financial aid should maintain “satisfactory progress in his/her course of study.” Final Federal regulations state that “in order to receive student financial aid under the programs authorized by Title IV of the Higher Education Act, a student must be maintaining satisfactory progress in the course of study he or she is pursuing according to the standards and practices of the institution in which he or she is enrolled.”

The following disclosures on the UCI website provide detailed information about satisfactory academic progress requirements for receiving financial aid at UCI. The Office of Financial and Scholarships will provide a paper copy of this information upon request.

Undergraduate and Teaching Credential Students:
www.ofas.uci.edu/content/pdf/SAPDisclosureForUndergraduates.pdf

Graduate Students:
www.ofas.uci.edu/content/pdf/SAPDisclosureForGraduates.pdf

Graduate Business Students:
applicant.merage.uci.edu/FinancialAid/AcademicRequirements.aspx

Medical Students:
www.ofas.uci.edu/content/pdf/SAPDisclosureForMedicalStudents.pdf

Law Students:
www.law.uci.edu/financial_aid/SAP_Disclosure_LawStudents.pdf

UCI Office of Financial Aid and Scholarships Student Withdrawal Policy

Students who withdraw from UCI prior to completing 60 percent of the period for which they received federal financial aid will be subject to both the UC Fee Refund Policy and the Federal Return of Title IV Funds policy. Title IV Funds are federal funds awarded to a student to meet educational expenses. Examples of Title IV Funds include Pell Grants, Federal Supplemental Educational Opportunity Grants (SEOG), Federal Direct Loans, and Federal Perkins Loans.

Cancellation of Enrollment. Students who cancel their registration or have their registration cancelled by the University prior to the first day of classes will be invoiced for all financial aid disbursed on their behalf.

The full text of this official policy is available on the Office of Financial Aid and Scholarships Policies and Conditions (http://www.ofas.uci.edu/content/PoliciesAndConditions.aspx) website.

Any student contemplating withdrawing from the University should contact the Office of Financial Aid and Scholarships to speak with a financial aid counselor concerning the financial ramifications of withdrawing.

Students who are receiving a Cal Grant should also contact the Office of Financial Aid and Scholarships to discuss the ramifications of withdrawing on their Cal Grant status. Students should check with their financial aid counselor on how they may be able to re-establish a quarter of eligibility for their Cal Grant.

Scholarships

Scholarships are awarded on the basis of academic ability, achievement, and promise. They do not require repayment. Although a few honorary scholarships are awarded on the basis of academic excellence alone, many also require that an applicant demonstrate financial need. UCI offers students with proven high academic achievement and leadership potential two top honors awards: Regents' Scholarships and Alumni Association Scholarships.

Entering Freshmen and Transfer Students

Students entering UCI in the fall must complete the *UC Application for Undergraduate Admission and Scholarships* and submit the application by November 30. The Office of Financial Aid and Scholarships automatically collects information about applicants' scholarship qualifications. Applications that meet the requirements are reviewed by the Board on Undergraduate Scholarships, Honors, and Financial Aid. Information about the Alumni Scholarship is available in the *UC Application for Undergraduate Admission and Scholarships.* However, a separate application is required for the Alumni Scholarship.

Regents' Scholarships

Regents' scholarships, among the highest honors conferred upon UC students, are awarded on the basis of academic excellence and exceptional promise. Undergraduate students are eligible upon graduation from high school or transfer from community college. Medical students are eligible upon admission to the School of Medicine. The scholarship may be renewed for an additional one or three years, depending on the year of appointment, provided the student completes an average of 12 units per quarter and maintains a grade point average of at least 3.25. The amount of the scholarship may vary depending on the student's established financial need.

Restrictive Scholarships

Eligibility requirements for Restrictive Scholarships vary greatly and are restricted in terms of such student characteristics as geographic location, family background, academic major and career goals. For the most part, these scholarship awards are based on the student's established financial need. All UCI students will be considered for Restrictive Scholarships based upon information from the *UC Application for Undergraduate Admission and Scholarships* and their current academic records.

Grants

Grants are awarded on the basis of financial need. There is no repayment requirement. A student's financial aid award includes grant funds whenever regulations, UCI policies and funding levels permit.

Federal Pell Grant is the largest federally funded grant program and provided up to a maximum of $5,645 for the 2013-14 academic year. To be eligible, applicants must be U.S. citizens or eligible noncitizens, be enrolled as undergraduates, have not previously received a bachelor's degree, and demonstrate financial need. Students must use the FAFSA to apply for this grant. Students must be enrolled full time (12 units) to receive the full grant, and enrolled at least half time (6 or more units) to receive a prorated amount. The amount of Pell Grant funds students may receive over their lifetime is limited to the equivalent of six years of Pell Grant funding.

Cal Grant A is a state-funded scholarship program which currently provides awards to be applied to the payment of University tuition and fees. In 2013-14, Cal Grant A awards paid up to $12,192. To be eligible, applicants must be California residents and demonstrate financial need. Students must use the FAFSA and GPA Verification Form to apply for Cal Grant A. The filing deadline for new applicants is March 2 for the following year. Students must be enrolled full time (12 units) to receive the full grant, and enrolled at least half time (6 or more units) to receive a prorated amount.

Cal Grant B is a state-funded grant program which provided awards up to a maximum of $1,473 in 2013-14 during the student's first year and $1,473 plus $12,192 toward tuition and fees during subsequent years. To be eligible, applicants must be California residents, demonstrate financial need, and be entering college or not have completed more than one quarter of college work. Students must use the FAFSA and GPA Verification Form to apply for Cal Grant B. The filing deadline for new applicants is March 2 for the following year. Students must be enrolled full time (12 units) to receive the full grant, and enrolled at least half time (6 or more units) to receive a prorated amount. *NOTE: Students may not receive both Cal Grant A and Cal Grant B.*

Federal Supplemental Educational Opportunity Grant (FSEOG) provides grant aid for U.S. citizens and eligible noncitizens who are undergraduate students and have demonstrated financial need. These federal grants range from $100 to $4,000 per year, depending upon financial need.

UCI Grant is funded by The Regents of the University of California and by the State of California and provides grant aid for full-time students who demonstrate financial need. The amount awarded depends upon financial need and funding levels.

Loans

Loans are often part of a financial aid award. They provide recipients with an opportunity to defer the cost of their education by borrowing when needed and paying later. However, loan recipients must pay interest on the amount borrowed. The deferment and cancellation provisions for the loans listed below are contained on the promissory note each recipient must sign and may be obtained from the Office of Financial Aid and Scholarships.

A student's loan responsibility, prior to acceptance of the loan, is to understand the terms of the loan. After accepting the loan, the recipient must repay the loan in accordance with the repayment schedule; advise the Office of Financial Aid and Scholarships upon leaving UCI; participate in an exit interview; and provide the Financial Services Office with a current address after leaving UCI. In case of death or total disability, outstanding loan obligations may be cancelled upon presentation of official confirming documents.

Federal Perkins Loan provides long-term federal loans for U.S. citizens and eligible noncitizens. The amounts awarded vary, depending on financial need, but cannot exceed $5,500 annually for undergraduates and $8,000 annually for graduate students. Cumulative totals for the full term of college attendance may not exceed $27,500 as an undergraduate and $60,000 as a graduate student. No interest is charged nor is repayment required while the borrower is enrolled in at least one half of the normal academic load. Interest of five percent a year begins nine months after the borrower ceases to be enrolled or is enrolled less than half time, and repayment must be completed within a 10-year period.

University Loan, funded by The Regents of the University of California, provides long-term loans to full-time students who demonstrate financial need. The maximum amount for an academic year is $3,000. Interest of five percent a year begins six months after the student ceases to be enrolled at least half time, and repayment must be completed within ten years. Two cosigners are required.

William D. Ford Direct Loan Program

Subsidized William D. Ford Federal Direct Loan, processed through the U.S. Department of Education and UCI, is available to undergraduate and teaching credential students who are U.S. citizens or eligible noncitizens, and who demonstrate financial need. During an academic year, the maximum a student may borrow is $3,500, freshmen; $4,500, sophomores; $5,500, juniors, seniors and teaching credential students. Both a guarantee and origination fee will be deducted from the amount of the loan prior to issuing the check.

Interest rate: If a student receives a loan that is first disbursed between July 1, 2012, and July 1, 2014, the student will be responsible for paying any interest that accrues during the grace period. If a student chooses not to pay the interest that accrues during the grace period, the interest will be added to the principal balance.

If a student received a loan prior to July 1, 2012, the federal government pays the interest during the deferment period.

Interest rate: Visit the Federal Student Aid Interest Rates and Fees (https://studentaid.ed.gov/types/loans/interest-rates) website for current as well as historic loan rates and fees.

For first-time borrowers borrowing on or after July 1, 2013, there is a limit on the maximum period of time (measured in academic years) that you can receive Direct Subsidized Loans. In general, you may not receive Direct Subsidized Loans for more than 150% of the published length of your program.

Unsubsidized Federal Direct Loans have the same terms and conditions as the Federal Direct Loan, including the aggregate loan limits, interest rate and repayment. During an academic year the maximum a dependent student may borrow is $5,500, freshmen; $6,500, sophomores; $7,500, juniors and seniors. Independent students may borrow an annual maximum of: $9,500, freshmen; $10,500, sophomores; $12,500, juniors and seniors; $20,500, graduate/professional; and $32,000, medical students. These maximum amounts include any amount borrowed under the Subsidized William D. Ford Federal Direct Loan program. However, the loan is not based on need. Students may borrow an amount equal to the cost of attendance, less any estimated financial assistance up to the annual loan limits in effect at the time the loan is disbursed. Students must first apply for the Federal Direct Loan prior to consideration for the Unsubsidized Federal Direct Loan. There is no interest subsidy for this loan; students pay the interest charged while

enrolled at UCI. Students may receive both subsidized and unsubsidized Federal Direct Loans, but the total may not exceed the loan limits. Borrowers with both types of loans may have a single repayment schedule.

Interest rate: Visit the Federal Student Aid Interest Rates and Fees (https://studentaid.ed.gov/types/loans/interest-rates) website for current as well as historic loan rates and fees.

Cumulative maximum: Dependent, undergraduate, $23,000; independent, undergraduate, $57,500; graduate and professional students, $138,500 (includes undergraduate loans); medical students, $224,000 (includes undergraduate loans). Deferment period before repayment: six months after ceasing to be enrolled at least half time. Interest accrues immediately and may be paid monthly or quarterly. Students also may request that the lender add the interest to the principal balance. Repayment of principal begins six months after ceasing to be enrolled at least half-time. Full repayment: Up to 10 years. Minimum payment: $50 per month.

Graduate PLUS Loans are available to graduate and professional-level students. Students may borrow up to the cost of education for the academic year, less any estimated financial aid. The loan is limited to students who do not have adverse credit histories as defined by regulation.

Interest rate: Visit the Federal Student Aid Interest Rates and Fees (https://studentaid.ed.gov/types/loans/interest-rates) website for current as well as historic loan rates and fees.

Federal Direct Parent Loans for Undergraduate Students (PLUS) are designed to assist parents of dependent undergraduate students who are unable to demonstrate financial need for campus-based funds. Parents are eligible to borrow up to the cost of education for the academic year, less any estimated financial aid each academic year, on a student's behalf. The loan is limited to parents who do not have adverse credit histories as defined by regulation.

Interest rate: Visit the Federal Student Aid Interest Rates and Fees (https://studentaid.ed.gov/types/loans/interest-rates) website for current as well as historic loan rates and fees.

Cumulative maximum: None. Deferment period before repayment: 60 days from day of final check disbursement for loan period. Full repayment: Up to 10 years.

Loans for Disadvantaged Students and Primary Care Loans are available to medical students. For information, call the School of Medicine Financial Aid Office at 949-824-6476 or visit the School of Medicine Financial Aid Office (http://www.ofas.uci.edu/content/medical.aspx) website.

Emergency loans are made from an emergency student loan fund made possible through various philanthropic individuals and organizations. Undergraduate, graduate and medical students who have experienced unanticipated financial problems of a temporary nature may borrow up to $300 without interest or service charge. Emergency loans must be repaid within 30 days after disbursement or by the end of the academic quarter, whichever occurs first. Applications are available in the Office of Financial Aid and Scholarships or at the School of Medicine Financial Aid Office. This loan is not based on demonstrated financial need.

Federal Work-Study

The Federal Work-Study Program offers eligible students who demonstrate need an opportunity to pay for their living and educational expenses as they occur. By participating in the Federal Work-Study Program, students can reduce the amount of the loan to be repaid after leaving school. Students awarded work-study have the choice of obtaining a work-study job either on campus or off campus at an approved nonprofit agency. A variety of work opportunities are available, and such part-time work experience can be a valuable asset when seeking employment after graduation. Students eligible for work-study will be notified as such via their UCI Financial Aid award notification. Specific information regarding the terms and conditions of work-study employment will be available with the award notification.

Veterans Work-Study Program is available only to U.S. military veterans and their eligible dependents, and members of the Selected Reserve and National Guard, while receiving Veteran Affairs Federal Educational Benefits, such as Ch. 30, Post 9/11 GI Bill, or Ch. 35 benefits. Positions are limited. For applications and detailed information, call the Veteran Services Center at 949-824-3500 or visit the Veteran Services (http://veteran.uci.edu) website.

Additional Aid for Graduate and Medical Students

Most graduate fellowship programs are administered by the Graduate Division, 120 Aldrich Hall, telephone 949-824-4611. Medical students should contact the School of Medicine Financial Aid Office, 836 Medical Education Building, telephone 949-824-6476.

Aid for Students with Disabilities

All forms of student financial aid are available to eligible students with disabilities. Interested students should follow the regular financial aid application procedures and should notify the Office of Financial Aid and Scholarships of any additional expenses they may incur because of a disability. Supporting documentation must be provided.

Student Employment

The UCI Career Center, located in the Student Services I building, assists UCI students in obtaining part- or full-time jobs and internships during the academic year as well as summer. Students may easily access all job and internship listings, including work-study positions, using their student ID number via ZotLink on the UCI Career Center (http://www.career.uci.edu) website.

Undergraduate Admissions

The UCI Office of Admissions and Relations with Schools (OARS) is responsible for the admission of new undergraduate freshmen and transfer students. Inquiries may be addressed to:

UCI Office of Admissions and Relations with Schools
260 Aldrich Hall
University of California
Irvine, CA 92697-1075
http://www.admissions.uci.edu

OARS is open from 8 a.m. to 5 p.m., Monday through Friday; telephone (949) 824-6703.

The information on admission to UCI presented below is organized as follows:

Categories of Application (p. 52)
Admission as a Freshman Applicant (p. 52)
Nonresident Freshman Admission Requirements (p. 56)
Admission as a Transfer Applicant (p. 57)
Admission of International Students (p. 61)
Advanced Placement and International Baccalaureate Credit (p. 62)
Application Procedures (p. 68)

Categories of Application

An **undergraduate** applicant is a student who wishes to complete a program of study leading to a Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science degree.

A **freshman** applicant is a student who is currently in high school or has graduated from high school but has not enrolled in a regular session at a college or university after high school graduation. Summer sessions immediately following graduation are excluded in the determination of freshman status.

A **transfer** applicant is a student who has completed high school and who has been a registered student in a regular session at another college or university. Students who meet this definition cannot disregard their college record and apply as freshmen. A student can be considered as a **California Community College transfer** applicant to UCI if:

1. the student was enrolled at one or more California Community Colleges for at least two terms (excluding summer sessions);
2. the last college the student attended before admission to a UC campus was a California Community College (excluding summer sessions); and
3. the student has completed at least 30 semester (45 quarter) UC transferable units at one or more California Community Colleges.

A **nonresident** applicant is a student whose legal permanent residence (as determined by the University) is outside of the State of California. Nonresident applicants are generally required to pay Nonresident Supplemental Tuition and must also present a higher grade point average than is required of California residents. Refer to the Nonresident Admission Requirements section for further information.

An applicant for **readmission** is a student who was formerly registered and enrolled at UCI and who has interrupted the completion of consecutive quarters of enrollment. See Readmission: Undergraduate and Graduate Students.

A **second baccalaureate** applicant is a college graduate who, because of a change of objective, wishes to obtain a second bachelor's degree in a major different from that of the first degree.

An **international** applicant is a student who holds or expects to hold a student, exchange, visitor, or diplomatic visa and who wishes to attend school in the United States.

Admission as a Freshman Applicant

The undergraduate admissions policy of the University of California is guided by the University's commitment to serve the people of California and the world, from every culture and ethnicity and across the economic spectrum.

The University's admission requirements, described in detail in the Minimum Admission Requirements for Freshmen section, are designed to ensure that students are adequately prepared for University-level work. Meeting admission requirements entitles an applicant to be considered for admission but does not constitute an offer of admission.

In recent years, the number of freshman applicants to UC Irvine has exceeded the number of spaces available. Since the campus cannot admit all eligible applicants, it must use standards that are more demanding than the minimum UC requirements to select students. These standards, which the University calls selection criteria, are used to identify applicants who have demonstrated the highest academic achievement and who have a variety of other qualities that can contribute to the strength and diversity of the campus community.

In the case that UCI is unable to accommodate all qualified applicants in their first-choice major, those students who indicate a valid alternate major may be offered admission in that major. Students who wish to change their major after enrolling at UCI must submit an Undergraduate Petition for Change of Major to the academic counseling office in the school or program of their prospective major.

Admissions Selection

UCI seeks to select students who have a demonstrated record of academic and personal achievement. Academic achievement includes the number of college preparatory courses completed; the level of achievement in these courses, including honors, Advanced Placement, International Baccalaureate, and college courses completed; and the quality of the senior-year program as measured by the type and number of academic courses in progress or planned. Also considered are the high school grade point average (GPA) calculated on UC-specified subjects (UCI uses a maximum of eight honors grade points in determining the UC GPA) and the required standardized national examinations.

The level of performance needed to gain admission varies from year to year depending on the size and the academic quality of the applicant pool and the number of enrollment spaces.

Personal achievement outside the classroom is also considered in UCI's selection process. A range of pursuits is considered, including academic activities, the creative and performing arts, community service and leadership, athletics, participation in pre-collegiate programs that develop academic ability, and other extracurricular activities. Persistence counts more than scattered involvement, while initiative and curiosity are also important.

The admissions process at UCI is also sensitive to individual circumstances and the effect these may have had on the resources available to and the experiences of applicants. While all applications receive careful consideration, reviewers take note of any extenuating circumstances and/or a variety of cultural and economic situations, including students who are the first in their families to attend college, who have a low family income, or who have worked in support of their family during high school. The emphasis, however, is less on the personal circumstances of the applicant and instead is more focused on how the applicant has responded to challenges while achieving academic success.

Each application is read at least twice. Every attempt is made to become familiar with the unique accomplishments of each applicant.

Students interested in the majors below should be aware of the following provisions.

Dance and **Music:**

Dance applicants must audition in late January/early February in ballet, modern, and jazz, prior to the fall quarter when entrance is anticipated, and be selected by faculty.

All Music applicants must apply to the B.A. degree program and audition in late January/early February with an instrument or voice, prior to the fall quarter when entrance is anticipated; admission to the B.Mus. degree program is by a second audition later after matriculation.

Computer Science and Engineering (offered jointly by the Donald Bren School of Information and Computer Sciences and The Henry Samueli School of Engineering)**:** Applicants must complete four years of high school mathematics through pre-calculus or math analysis and are advised to have completed one year each of chemistry and physics. One semester of programming coursework is also advised. (This requirement does not apply to other majors offered by the Donald Bren School of Information and Computer Sciences.) That preparation along with honors courses and advanced placement courses, is fundamental to success in the program. The Henry Samueli School of Engineering recommends that freshman applicants in Engineering majors take the Math Level 2 SAT Subject Test.

Nursing Science: Admission to the Nursing Science major is limited and selective. Applicants must complete two years of basic science providing fundamental knowledge in the core disciplines of biology and chemistry. Advanced laboratory science classes that have biology or chemistry as prerequisites and offer substantial additional material may be used to fulfill this requirement. Students must earn grades of C or higher in order to fulfill their subject requirements. Students with the highest combination of overall grade point average, grade point average in science courses, and scores on the SAT or ACT examinations will be given priority. Applicants to the Nursing Science major must submit a supplemental application.

Minimum Admission Requirements for Freshmen

The University defines a freshman applicant as a student who is currently in high school or has graduated from high school but has not enrolled in a regular session at a college or university after high school graduation. Summer sessions are excluded in the determination.

Freshman applicants who are not residents of California should refer to the Nonresident Admission Requirements section.

Applicants who do not meet the requirements for admission at the time of high school graduation may be considered for admission after they meet the requirements for admission as a transfer applicant (see Admission as a Transfer Applicant). Transfer credit will be granted for an acceptable course from an accredited college or university taken while still in high school if reported on a valid transcript issued by the college which conducted the course.

The requirements described below represent the minimum academic standards students must attain to be considered for admission to the University. Meeting minimum admission requirements does not guarantee admission. Admission to UCI and the program of choice often requires students to meet more demanding standards.

Subject Requirement

To satisfy the subject requirement, students must complete a minimum of 15 yearlong UC-approved college-preparatory courses with at least 11 finished prior to their senior year. These courses are also known as the “a–g” subjects/courses. (A one-year course is equal to one unit; a one-semester course is equal to one-half unit.) A grade point average (GPA) of 3.0 or better must be earned (3.4 if the student is a nonresident) in these courses with no grade lower than a C.

The 15 required “a–g” courses are:

a. History/Social Science: 2 years required. Two years of history/social science, including one year of world history, cultures, and geography (may be a single yearlong course or two one-semester courses); and one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government.

b. English: 4 years required. Four years of college-preparatory English that include frequent writing, from brainstorming to final paper, as well as reading of classic and modern literature. No more than one year of ESL-type courses can be used to meet this requirement.

c. Mathematics: 3 years required; 4 years recommended. Three years of college-preparatory mathematics that include the topics covered in elementary and advanced algebra and two- and three-dimensional geometry. Approved integrated math courses may be used to fulfill part or all of this requirement, as may math courses taken in the seventh and eighth grades if the high school accepts them as equivalent to its own courses.

d. Laboratory Science: 2 years required; 3 years recommended. Two years of laboratory science providing fundamental knowledge in at least two of these three foundational subjects: biology, chemistry, and physics. The final two years of an approved three-year integrated science program that provides rigorous coverage of at least two of the three foundational subjects may be used to fulfill this requirement.

e. Language Other Than English: 2 years required; 3 recommended. Two years or equivalent to the second level of high school instruction of the same language other than English are required. (Three years/third level of high school instruction recommended.) Courses should emphasize speaking and understanding, and include instruction in grammar, vocabulary, reading, composition and culture. American Sign Language and classical languages, such as Latin and Greek, are acceptable. Courses taken in the seventh and eighth grades may be used to fulfill part or all of this requirement if the high school accepts them as equivalent to its own courses. (Students are strongly encouraged to complete three or four years of one language in preparation for the UCI Language Other Than English and/or the International/Global Issues general education requirements.)

f. Visual and Performing Arts (VPA): 1 year required. One yearlong course of visual and performing arts chosen from the following: dance, drama/theatre, music, or visual art.

g. College Preparatory Elective: 1 year required. One year (two semesters), in addition to those required in “a–f” above, chosen from the following areas: visual and performing arts (non-introductory-level courses), history, social science, English, advanced mathematics, laboratory science, and language other than English (a third year in the language used for the “e” requirement or two years of another language).

Courses Satisfying the “g” Requirement

History: All history courses should require extensive reading and writing. Courses should enable students to establish a breadth of understanding of history (for example, world history, political history, or economic history) and should provide an understanding of the human past, including its relation to the present. Courses should develop a student’s critical thinking, ability to evaluate historical data, and ability to analyze and synthesize evidence.

***Social Science*:** Courses should be in one of the social sciences: anthropology, economics, geography, political science, psychology, or sociology, or, alternatively, courses should be interdisciplinary, drawing knowledge from two or more of these fields. Course objectives should include as many of the following as are applicable to the field: (1) to understand the development and basic features of major societies and cultures; (2) to examine the historic and contemporary ideas that have shaped the world; (3) to understand the fundamentals of how differing political and economic systems function; (4) to examine the nature and principles of individual and group behavior; and (5) to study social science methodologies.

In order to develop a student’s critical thinking, ability to evaluate ideas and information, and ability to analyze and synthesize qualitative and quantitative evidence in the laboratory and in the field, a social science course must include a body of basic knowledge, extensive reading, and written and oral exposition.

Courses which are designed to meet state-mandated social studies graduation requirements are acceptable provided that they meet the above criteria. Courses of an applied, service, or vocational character are not acceptable social science electives.

***English*:** All English courses should require substantial reading with frequent and extensive practice in writing which is carefully evaluated and criticized. A course in creative writing, journalism, speech, or debate is acceptable if it meets the general requirements in reading and writing stated above. An

advanced-level course in English as a Second Language (ESL) or English Language Development (ELD) may be acceptable provided it meets the standards outlined under the “b” requirement.

***Advanced Mathematics*:** Acceptable electives are courses in mathematics with second-year algebra as a prerequisite such as trigonometry, linear algebra, precalculus (analytic geometry and mathematical analysis), calculus, and probability and statistics.

A computer science course is an acceptable mathematics elective if it fulfills the following objectives. The course should enable each student to express algorithms in a standard computer language such as C++, Pascal, Java, BASIC, FORTRAN, or COBOL. By the end of the course, each student should complete substantial programming projects in the language used. The course should also involve the study and mastery of various aspects of computer science: how computers deal with data and instructions, the internal components of a computer, and the underlying computer logic.

***Laboratory Science*:** Acceptable courses should cover topics from the biological or physical sciences in which students make their own observations and measurements and analyze these data to obtain further information.

An introductory science course normally offered in the ninth grade, (such as earth science or physical science) is an acceptable science elective provided it is designed to prepare students for laboratory science courses in the tenth grade and beyond. The course must provide an introduction to the fundamental principles of physical and/or biological science. Laboratory activities as defined above shall be included. (A terminal course designed only to meet graduation requirements is not an acceptable science elective.)

***Language Other Than English*:** It is recommended that elective courses be in the same language used to satisfy the language other than English “e” subject requirement. Elective courses in this language must have at least two years of the language as a prerequisite. In order for a second language to qualify as an elective, at least two years of this language must be completed.

***Visual and Performing Arts*:** Courses in this area consist of instruction in dance, drama/theater, music, and visual arts. Courses should enable students to understand and appreciate artistic expression and, where appropriate, to talk and write with discrimination about the artistic material studied.

Courses devoted to artistic performance and developing creative artistic ability should have prerequisites (either one year of introductory coursework or experience approved by the instructor) and should assume proficiency beyond the introductory level.

Courses must require on average the equivalent of a five-period class per week. Work outside of class must be required; for example, portfolio/performance preparation, reading, writing, research projects, and/or critical listening/viewing.

Dance courses offered for physical education credit or under any other departmental arrangement are acceptable provided they include content satisfying the above criteria.

Courses which are primarily athletic or body conditioning are not acceptable visual and performing arts electives.

***College Preparatory Elective*:** The general objectives of the “g” requirement are to improve students’ analytical abilities, promote artistic development, and strengthen oral and written skills. The requirement is intended to encourage prospective University students to fill out their high school programs with courses that: (1) strengthen general study skills, particularly analytical reading, expository writing, and oral communication; (2) provide an opportunity to begin work that could lead directly into a major program of study at the University; (3) experience, at some depth, new areas of academic disciplines that might form the basis for future major or minor studies at the University.

Courses that fulfill the “g” requirement should allow students to prepare for college-level work in the subject area, so that the level attained at the end of such courses would be well beyond the introductory or survey level. Courses that have narrow objectives aimed at meeting specific societal or personal lifestyle goals are not acceptable.

California High School Students. Courses taken to fulfill the subject requirement must be certified by the University as meeting the requirement and must be included on the UC-certified course list of the school the student attended. The high school counselor or principal will have a copy of this list. In addition, the lists are available at the UC Doorways (http://www.ucop.edu/doorways) website.

Out-of-State High School Students. The UCI Office of Admissions and Relations with Schools will review and accept courses that meet the requirements for applicants graduating from out-of-state schools.

Examination Requirement

All freshman applicants must submit examination scores as described below. *Students applying for admission for fall quarter should complete their examination requirements during May or June of their junior year or during their senior year, but no later than the December test date. (Typically, this means that students will take either the SAT Reasoning Test or the ACT Plus Writing Test in October or November.)* Scores earned prior to March 2005 will not be accepted. All students applying for freshman admission must submit the following college admissions test scores:

- The SAT Reasoning Test or the ACT Plus Writing.
- Report ACT and/or SAT scores on the admissions application, then request that an official copy of the scores be sent to UC Irvine from the testing agency. Applicants can have their official score report sent to one UC campus, and all campuses they apply to will receive it.
- In the College Board’s Score Choice module, ensure that all scores are sent to UC. UC requires all scores and will use the highest scores from a single administration.

- For the ACT Plus Writing test, UC will focus on the highest combined score from the same test administration.
- For the SAT Reasoning Test, UC will focus on the highest total score from a single test date.
- UC does not require results of tests taken for the purpose of talent programs in middle or junior high school (e.g., Johns Hopkins Center for Talented Youth, the Duke University Talent Identification Program, etc.). Those test scores do not have to be sent to UC.
- UC does not accept test substitutions.
- SAT Subject Test scores are no longer required. However, submission of SAT Subject Test scores may add positively to the review of a student's application.

More information about these examinations is available online. For the SAT Reasoning and Subject Tests, visit the College Board (http://www.collegeboard.org) website. For the ACT Plus Writing, visit the ACT (http://www.actstudent.org) website.

Do not use the score choice option to withhold reporting of SAT Subject Test scores. IMPORTANT: Please note the SAT Subject Test recommendations below.

- The Claire Trevor School of the Arts recommends that freshmen applicants take any SAT Subject Tests that will demonstrate the student's strengths.
- The Henry Samueli School of Engineering recommends that freshmen applicants in Engineering majors (including the joint Computer Science and Engineering major) take the SAT Subject Test in Math Level 2 and a science test (Biology E/M, Chemistry or Physics) closely related to the applicant's intended major.
- The Department of Pharmaceutical Sciences recommends that freshmen applicants take the following SAT Subject Tests: Biology M, Chemistry, and/or Math Level 2.
- The School of Physical Sciences recommends that freshmen applicants in Chemistry, Earth System Science, Mathematics, and Physics majors take the SAT Subject Test in Math Level 2.
- The Program in Public Health recommends that freshmen applicants take the following SAT Subject Tests: for the major in Public Health Sciences: Biology E, Biology M, and/or Chemistry; for the major in Public Health Policy: Biology E, Biology M, and/or World History.

California Students

State residents who have met the minimum requirements and are not admitted to any UC campus to which they apply will be offered a spot at another campus if space is available, provided:

- The applicant ranks in the top 9 percent of California high school students, according to the UC admissions index (http://catalogue.uci.edu/preadmissionmatters/undergraduateadmissions/%20http://admission.universityofcalifornia.edu/freshman/california-residents); *or*
- The applicant ranks in the top 9 percent of his or her graduating class at a participating California high school. UC refers to this as "Eligibility in the Local Context" (ELC).

Eligibility in the Local Context (ELC)

An applicant who ranks in the top 9 percent of students in his or her California high school class—and whose high school participates in the ELC program—can qualify for admission to UC.

The top 9 percent of students will be identified on the basis of GPA in UC-approved coursework completed in the tenth and eleventh grades. To be considered for ELC, an applicant must have a minimum GPA of 3.0 and complete the following a–g courses prior to their senior year:

- History/Social Science: 1 year
- English: 2 years
- Mathematics: 2 years
- Laboratory Science: 1 year
- Language Other Than English: 1 year
- College Preparatory Elective: 4 yearlong courses (chosen from the subjects listed above or another course approved by the University)

Eligibility By Examination Alone

Students are no longer guaranteed admission based solely on their examination scores. Nevertheless, students who excel in their examinations yet do not fulfill the admission requirements described in the Minimum Admission Requirements for Freshmen section will still receive a full review of their application. For more information, visit UC Admission by Exam (http://admission.universityofcalifornia.edu/freshman/requirements/examination) website.

Nonresident Freshman Admission Requirements

Nonresident freshman applicants must meet the same admission requirements as those for residents, *except*, nonresident applicants must have a 3.4 GPA and do not qualify for ELC. Refer to the Expenses, Tuition, and Fees (p. 39) section of this *Catalogue* for information regarding residence classification for tuition purposes and the Nonresident Supplemental Tuition.

Admission of International Students

See the Admission of International Students (p. 61) section of this *Catalogue* for information regarding English proficiency and other details.

Admission as a Transfer Applicant

The University defines a transfer applicant as a student who has completed high school and who enrolled in a regular session at a college or university after high school. (Summer sessions do not count.) UCI considers a California Community College transfer applicant as a student who has completed at least 30 semester units/45 quarter UC-transferable units at one or more California Community Colleges (see full definition above). A competitive UCI transfer applicant should have a UC transferable GPA of 3.0 or above. A transfer applicant may not disregard the college record and apply for admission as a freshman. (Transfer applicants who are not residents of California should also refer to the section on Nonresident Admission Requirements.)

Transfer Admission Guarantee: UCI's Transfer Admission Guarantee (TAG) program offers provisional admission to well-qualified junior-level students from participating California Community Colleges. Although admission to UCI is selective in most majors, through TAG, admission can be guaranteed for transfer students who meet the TAG Eligibility and major prerequisites requirements (see TAG Selection Guidelines later in this section).

Selection Criteria

UCI attempts to accommodate as many qualified transfer applicants as possible. Priority consideration for admission of transfer applicants is given to junior-level applicants (with a minimum of 60 semester/90 quarter units of UC-transferable credit) from California Community Colleges and is based upon:

1. GPA in transferable courses;
2. depth of preparation toward general education and major requirements; and
3. participation in the TAG (Transfer Admission Guarantee) program, which requires early completion of one transferable English composition course, and one transferable course in mathematical concepts and quantitative reasoning.

TAG Applicants for fall quarter 2015 admission must have completed the first English and one mathematics course by the end of summer 2014. The second English course must be completed by spring 2015. Transfer applicants with the strongest academic performance will be the most competitive for admission. Junior transfers from four-year colleges, including other UC campuses, and lower-division transfers will be considered as space permits.

In the case that UCI is unable to accommodate all qualified applicants in their first-choice major, those students who indicate a valid alternate major may be offered admission in that major. Students who wish to change their major after enrolling at UCI must submit an Undergraduate Petition for Change of Major to the academic counseling office in the school or program of their prospective major. This is of particular importance to those who apply in majors which are subject to additional course prerequisites and/or have a limit placed on the number of applicants admitted into the major. (See the following list.)

UCI's transfer selection process is also based upon consideration of the academic criteria in conjunction with the following personal achievement criteria: an exceptionally challenging curriculum; outstanding accomplishments relevant to academic aims; hardships or unusual circumstances the applicant has faced, and the ways in which the student has responded to these challenges; a strong, thoughtful match between UCI's programs and the student's academic and career objectives, preparation, talents, and skills; and potential contributions to the campus. The level of performance needed to gain admission varies from year to year depending on the size and the academic quality of the applicant pool and the number of enrollment spaces.

Transfer applicants to the majors listed below must complete prerequisite courses for the major as specified.

Biological Sciences: Junior-level applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission to the Biological Sciences major. All applicants must complete one year of general chemistry with laboratory with grades of C or better; one year of organic chemistry with grades of C or better; one year of biology courses equivalent to BIO SCI 93, BIO SCI 94 at UCI with a grade of C or better in each course; and have a cumulative GPA of 3.0 or higher.

Biology/Education: Junior-level applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission to the Biology/Education major. All applicants must complete one year of general chemistry with laboratory with grades of C or better; one year of organic chemistry with grades of C or better; one year of biology courses equivalent to BIO SCI 93, BIO SCI 94 at UCI with a grade of C or better in each course; and have a cumulative GPA of 3.0 or higher.

Business Administration: Junior-level applicants with the highest grades overall (minimum cumulative GPA of 3.0) and who satisfactorily complete lower-division courses equivalent to UCI's MATH 2A - MATH 2B, ECON 20A - ECON 20B, MGMT 7, and MGMT 30A - MGMT 30B will be given preference for admission. MGMT 1 may be completed at UCI. Admission to the major will be competitive due to limited space availability.

Business Information Management: Junior-level applicants who satisfactorily complete the following requirements will be given preference for admission:

1. one year of approved college-level math, preferably courses in calculus equivalent to UCI's MATH 2A - MATH 2B; if not available, two semester courses equivalent to other major-related math courses are acceptable;

2. one year of transferable computer science courses with at least one course involving concepts such as those found in Java, Python, C++, or other object-oriented or high-level programming language;
3. one year of introductory accounting theory and practice equivalent to UCI's MGMT 30A - MGMT 30B and
4. one year of micro- and macro-economics theory equivalent to UCI's ECON 20A - ECON 20B.

NOTE: The introductory sequence in Information and Computer Science (ICS) has moved to Python. The Bren School of ICS strongly encourages all participants to become familiar with this programming language prior to matriculation. Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major(s) of interest. Java is used extensively in the curriculum; therefore, transfer students should plan to learn it by studying on their own or by completing a Java-related programming course prior to their first quarter at UCI.

Additional courses beyond those required for admission must be taken to fulfill the lower-division degree requirements, as many are prerequisites for upper-division courses. For some transfer students, this may mean that it will take longer than two years to complete their degree.

The Business Information Management major is offered jointly by the Donald Bren School of Information and Computer Sciences and The Paul Merage School of Business. More information is available at the Bren School of ICS Student Affairs Office (http://www.ics.uci.edu/ugrad) website; telephone (949) 824-5156; e-mail: ucounsel@uci.edu.

Chemistry: Preference will be given to junior-level applicants with the highest grades overall and who have satisfactorily completed the following required courses: one-year of general chemistry with laboratory and one year of approved calculus. Completion of one year of organic chemistry is strongly recommended.

Computer Game Science: Junior-level applicants who satisfactorily complete the following course requirements will be given preference for admission:

1. one year of approved college-level math, preferably courses in calculus equivalent to UCI's MATH 2A - MATH 2B; if not available, two semester courses equivalent to other major-related math courses are acceptable; and
2. one year of transferable computer science courses with at least one course involving concepts such as those found in Java, Python, C++, or other object-oriented or high-level programming language.

NOTE: The introductory sequence in Information and Computer Science (ICS) has moved to Python. The Bren School of ICS strongly encourages all participants to become familiar with this programming language prior to matriculation. Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major(s) of interest. Java is used extensively in the curriculum; therefore, transfer students should plan to learn it by studying on their own or by completing a Java-related programming course prior to their first quarter at UCI.

Applicants to the Computer Game Science major should be aware that several lower-division courses must be taken at UCI; therefore, the minimum time to degree completion will exceed two years.

Computer Science and Engineering (offered jointly by the Donald Bren School of Information and Computer Sciences and The Henry Samueli School of Engineering)**:** Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer, including one year of approved calculus; one year of calculus-based physics with laboratories (mechanics, electricity and magnetism); one year of transferable computer science courses[1] involving concepts such as those found in Java, Python, C++, or other object-oriented or high-level programming language; and one additional approved transferable course for the major (an approved math, science, or CSE course).

[1] Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major of interest. Java and C++ are used in the curriculum; therefore, transfer students should plan to learn these languages by studying on their own or by completing related programming courses prior to their first quarter at UCI.

Students who enroll at UCI in need of completing lower-division course work may find that it will take longer than two years to complete their degrees. For further information, contact the Donald Bren School of Information and Computer Sciences at (949) 824-5156 or The Henry Samueli School of Engineering at (949) 824-4334.

Dance: Applicants must audition in late January/early February in ballet, modern, and jazz, prior to the fall quarter when entrance is anticipated, and be selected by faculty.

Education Sciences: Preference will be given to Junior-level applicants with the highest grades overall (minimum cumulative GPA of 3.0). It is suggested that prospective transfer students work toward completing coursework to fulfill the UCI general education requirements or IGETC.

Earth System Science: Preference will be given to junior-level applicants with the highest grades overall and who have satisfactorily completed the following required courses: one year of approved calculus and one year of *either* general chemistry with laboratory (preferred) or one year of calculus-based physics with laboratory.

Ecology and Evolutionary Biology: Junior-level applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission to the Ecology and Evolutionary Biology major. All applicants must complete one year of general chemistry with laboratory with grades of C or better; one year of organic chemistry with grades of C or better; one year of biology courses equivalent to BIO

SCI 93 (http://catalogue.uci.edu/preadmissionmatters/undergraduateadmissions), BIO SCI 94 (http://catalogue.uci.edu/preadmissionmatters/undergraduateadmissions) at UCI with a grade of C or better in each course; and have a cumulative GPA of 3.0 or higher.

Economics: Transfer applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission to the majors in Economics, Business Economics, and Quantitative Economics. All applicants must complete one course in microeconomics, one course in macroeconomics, and two quarters/two semesters of approved first-year calculus.

Engineering: Applicants must select either Aerospace Engineering, Biomedical Engineering, Biomedical Engineering: Premedical, Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science and Engineering, Electrical Engineering, Environmental Engineering, Materials Science Engineering, Mechanical Engineering, or Engineering Undeclared (option for freshmen only) as their major on the application. Junior-level applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission. All applicants must complete the following required courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), additional courses as specified by the major, and completion of lower-division writing. Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. See The Henry Samueli School of Engineering section of this *Catalogue* for information on courses required for each major.

See also the listing for **Computer Science and Engineering,** a major jointly administered by the Donald Bren School of Information and Computer Sciences and The Henry Samueli School of Engineering

Environmental Science: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following required courses: *either* one year of general chemistry with laboratory (preferred), or one year of biology with laboratory. One year of economics or sociology is recommended.

Humanities: Junior-level transfers for all majors within the School of Humanities must have completed the UC Entry Level Writing Requirement, and two semester or two quarter courses of approved English composition with grades of C or better.

Information and Computer Sciences (ICS): Students are strongly encouraged to follow the transfer preparation guidelines for any of the other Bren ICS majors. Applicants must select either Business Information Management[1], Computer Game Science, Computer Science, Computer Science and Engineering[2], Informatics, or Software Engineering as their major on the application. Junior-level applicants who satisfactorily complete course prerequisites will be given preference for admission. Transfers to all majors (except for Informatics) must complete one year of approved college-level math, preferably courses in calculus equivalent to UCI's MATH 2A - MATH 2B; if not available, two semester courses equivalent to other major-related math courses are acceptable. Informatics majors must complete one college-level mathematics course. All applicants must complete one year of transferable computer science courses[3] with at least one course involving concepts such as those found in Java, Python, C++, or other object-oriented or high-level programming language. See the Donald Bren School of Information and Computer Sciences section of this *Catalogue* for information on preferred courses and specific requirements for transfer applicants to each major.

Additional courses beyond those required for admission must be taken to fulfill the lower-division degree requirements, as many are prerequisites for upper-division courses. For some transfer students, this may mean that it will take longer than two years to complete their degree.

1 See also the listing for Business Information Management, a collaborative major between the Donald Bren School of ICS and The Paul Merage School of Business in the Interdisciplinary section of the *Catalogue*.

2 Apply at the Interdisciplinary section of the UC application. See also the listing for Computer Science and Engineering, a major jointly administered by the Donald Bren School of ICS and The Henry Samueli School of Engineering in the Interdisciplinary section of the *Catalogue*.

3 Additional computer science courses beyond the requirement for transfer eligibility are strongly recommended, particularly those that align with the major(s) of interest. Java and C++ are used in the curriculum; therefore, transfer students should plan to learn these languages by studying on their own or by completing related programming courses prior to their first quarter at UCI.

Mathematics: Preference will be given to junior-level applicants with the highest grades overall and who have satisfactorily completed the required coursework of one year of approved calculus. Additional coursework in multivariable calculus, linear algebra, and differential equations is strongly recommended.

Music: All Music applicants must apply to the B.A. degree program and audition in late January/early February with an instrument or voice, prior to the fall quarter when entrance is anticipated; admission to the B.Mus. degree program is by a second audition later after matriculation.

Nursing Science: Admission to the major is limited and selective. Junior-level applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission to the Nursing Science major. The following list of prerequisites is required for transfer students applying for fall 2015 entry. Students wishing to enter before fall 2015 should review the Nursing Science (http://www.nursing.uci.edu) website for those specific requirements. All applicants must complete the following with grades of B or better: one year of general chemistry equivalent to UCI's CHEM 1A - CHEM 1B - CHEM 1C; one quarter/semester of organic chemistry equivalent to UCI's CHEM 51A; one quarter/semester of genetics equivalent to UCI's BIO SCI 97; one quarter/semester of biochemistry equivalent to UCI's BIO SCI 98; one quarter/semester of human physiology with laboratory equivalent to UCI's BIO SCI E109 and BIO SCI E112L; one quarter/semester of microbiology with laboratory equivalent to UCI's BIO SCI M122 and either BIO SCI M118L or BIO SCI M122L; one quarter/semester of human anatomy with laboratory equivalent to UCI's BIO SCI D170; one quarter/semester of philosophy equivalent to UCI's PHILOS 4 or PHILOS 5; one quarter/semester of psychology equivalent to UCI's PSYCH 7A/PSY

BEH 9; one quarter/semester of public health equivalent to UCI's PUBHLTH 1; one quarter/semester of sociology equivalent to UCI's SOCIOL 1; and one quarter/semester of statistics equivalent to UCI's STATS 7 or STATS 8. Applicants must have a cumulative GPA of 3.0 or higher to be considered.

Pharmaceutical Sciences: All applicants must have completed the following required courses with a grade of B- or better in all courses: one year of general chemistry courses with laboratory courses equivalent to UCI's CHEM 1A - CHEM 1B - CHEM 1C and CHEM 1LC - CHEM 1LD and one year of biology courses equivalent to UCI's BIO SCI 93 and BIO SCI 94. In addition, all applicants must have a cumulative GPA of 3.0 or better. Additional courses that are recommended, but not required: one year of organic chemistry with laboratory; one year of calculus; one year of calculus-based physics with laboratory; and additional articulated lower-division biology requirements.

Physics: Preference will be given to junior-level applicants with the highest grades overall and who have satisfactorily completed the following required courses: one year of approved calculus and one year of calculus-based physics with laboratory for engineering and physics majors.

Psychology and Social Behavior: Transfer applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission to the major.

Public Health: Junior-level applicants with the highest grades overall and who satisfactorily complete lower-division requirements will be given preference for admission to the Public Health majors. All applicants to the B.S. degree in Public Health Sciences must have a minimum overall GPA of 3.0 and a minimum GPA of 3.0 in required courses, one year of general chemistry with laboratory, and one year of courses equivalent to UCI's BIO SCI 93 and BIO SCI 94. All applicants to the B.A. degree in Public Health Policy must have a minimum overall GPA of 3.0 and a minimum GPA of 3.0 in required courses, and complete one year of social science courses in any combination of the following topics: anthropology, economics, sociology, and/or psychology.

Transfer Student Admission Requirements

The University of California requirements for admission as a transfer applicant vary according to the high school record. Transfer applicants who have completed a California Certificate of Proficiency or the equivalent must also meet regular University entrance requirements.

Transfer applicants should also refer to the section on Information for Transfer Students: Fulfilling Requirements for a Bachelor's Degree (p. 103).

The transcript submitted from the last college attended must show, as a minimum, that the student was in good standing and had earned a GPA of 2.4 (2.8 for nonresidents) or better in all transferable coursework.

A transfer applicant must also meet **one** of the following conditions:

1. If a student was eligible for admission to the University when the student graduated from high school—meaning that the student satisfied the Subject, Scholarship, and Examination Requirements or was identified by the University as eligible under the Eligibility in the Local Context (ELC) program and completed the Subject and Examination Requirements in the senior year—the student is eligible to transfer if he or she has a C (2.0) average in transferable college coursework and has met the prerequisites for his or her major.
2. If a student met the Scholarship Requirement in high school but did not satisfy the Subject Requirement, the student must take transferable college courses in the missing subjects, earn a grade of C or better in each of these required courses, and earn an overall C (2.0) average in all transferable college coursework to be eligible to transfer.
3. Students who were not eligible for admission to the University when they graduated from high school because they did not meet the Scholarship Requirement must:
   a. Complete 60 semester (90 quarter) units of UC-transferable college credit with a grade point average of at least 2.4 (2.8 for nonresidents). No more than 14 semester (21 quarter) units may be taken Pass/Not Pass); **and**
   b. Complete the following course pattern requirement, earning a grade of C or better in each course:
      i Two UC-transferable college courses (3 semester or 4–5 quarter units each) in English composition; **and**
      ii One UC-transferable college course (3 semester or 4–5 quarter units) in mathematical concepts and quantitative reasoning; **and**
      iii Four UC-transferable college courses (3 semester or 4–5 quarter units each) chosen from at least two of the following subject areas: the arts and humanities, the social and behavioral sciences, and the physical and biological sciences.

Each course must be worth at least 3 semester units.

NOTE: For UCI, in fulfilling items i and ii, applicants for fall should complete the courses in English and mathematics no later than the spring term.

Transfer Admission Guarantee (TAG) Requirements

Highest admission priority is extended only to California Community College applicants who will have completed 60 UC-transferable semester (90 quarter) units by the end of the spring quarter prior to the fall enrollment. A TAG community college applicant is defined as a student:

1. who was enrolled at one or more California Community Colleges for a least two terms, excluding summer sessions;
2. for whom the last college attended before admission to a UC campus was a California Community College, excluding summer sessions; and

3. who has completed at least 30 semester (45 quarter) UC-transferable units at one or more California Community Colleges, excluding Advanced Placement (AP) and International Baccalaureate (IB) credit.

Students may be eligible for admission to UCI through TAG if they will have met **all four** of the following requirements:

1. completion of 60 UC-transferable semester (90 quarter) units by the end of the quarter prior to enrolling at UCI (units must be completed by spring 2015 for fall 2015) and attainment of at least the minimum GPA specified by the major. TAG details are available at the Admissions (http://www.admissions.uci.edu) website;
2. completion of the minimum UC transfer eligibility requirements in English (two courses) and transferable mathematics (one course). The first mathematics and English courses must be completed at the time of the TAG submission. The second English course must be completed by **spring 2015 for fall 2015;**
3. completion of additional requirements for the student's prospective major (s) at UCI, *prior to* enrolling at UCI (major requirements to be completed by spring 2015 for fall 2015); and
4. maintained UC eligibility.

NOTE: The majors in Biochemistry and Molecular Biology, Business Administration, Cognitive Sciences, Dance, Developmental and Cell Biology, Genetics, Human Biology, Microbiology and Immunology, Music, Music Theatre, Neurobiology, and Nursing Science will not participate in the TAG program for fall 2015. For the most current information, visit the Admissions (http://www.admissions.uci.edu) **website.**

Nonresident Transfer Admission Requirements

Nonresident transfer applicants must meet the same minimum admission requirements as those for residents, *except,* nonresidents must have a grade point average of 2.8 or higher in all transferable college coursework. Refer to the Expenses, Tuition, and Fees (p. 39) section of this *Catalogue* for information regarding residence classification for tuition purposes and the Nonresident Supplemental Tuition.

Admission of International Students

See the Admission of International Students section below on this page for information regarding English proficiency and other details.

Admission for a Second Bachelor's Degree

A student whose educational objective has changed substantially after receiving the bachelor's degree may be considered for admission to a program for a second degree. Admission as a candidate for a second bachelor's degree requires that the applicant be fully eligible for admission to the University and have strong promise of academic success in the new major. All such admissions are subject to the approval of the dean or director of the UCI school or program in which the second degree will be earned.

Students who have *not* attended UCI as undergraduates during a regular academic quarter should complete the undergraduate application for admission and scholarships, available at the University of California Admissions (http://www.universityofcalifornia.edu/apply) website. Students who have attended UCI as undergraduates during a regular academic quarter should contact the Academic Advising Office of the major of interest to initiate the electronic Second Baccalaureate/Readmission Process. For more information, visit the Registrar's Readmission (http://www.reg.uci.edu/enrollment/readmission.html) website.

Admission of International Students

The credentials of an international undergraduate applicant—a student who holds or expects to hold a student, exchange, visitor, or diplomatic visa and who wishes to attend school in the United States—are evaluated in accordance with the general regulations governing admission. The application should be submitted at University of California Admissions (http://www.universityofcalifornia.edu/apply) website early in the appropriate application filing period. This will allow time for exchange of necessary correspondence and, if the applicant is admitted, will help the student in obtaining the necessary passport visa. Official certificates and detailed transcripts of records should be submitted directly to the UCI Office of Admissions and Relations with Schools only when requested.

International applicants whose native language is not English will be required to demonstrate their English proficiency. This is most often accomplished by achieving a minimum score of 550 (paper-based) or 80 (Internet-based) on the Test of English as a Foreign Language (TOEFL), or with a 7 or better band score (academic modules) on the International English Language Testing System (IELTS) examination. Information about these exams is available at most U.S. consulates and overseas U.S. educational advising offices, as well as by mail and online:

TOEFL Services
P.O. Box 6151
Princeton, NJ 08541-6151, USA

IELTS International

Students must ask the TOEFL Services or IELTS to forward results of their tests to the UCI Office of Admissions and Relations with Schools. These scores must be received no later than January for students applying for the fall term. Completion of two *acceptable* English composition courses (as

determined by the Office of Admissions and Relations with Schools) with a grade of C or better will also clear the English proficiency requirement for international applicants.

Students who wish to improve their English proficiency to meet the TOEFL or IELTS requirement may enroll in the intensive Program in English as a Second Language sponsored by UC Irvine Extension. Information is available from:

International Programs
UC Irvine Extension
P.O. Box 6050
Irvine, CA 92616-6050
(949) 824-5991
E-mail: uciesl@uci.edu

In addition to achieving a minimum TOEFL or IELTS score, all international students whose native language is other than English must take an Academic English/English as a Second Language Placement Test upon arrival and prior to registration. Based upon the results of this test, students may be required to improve certain language skills by enrolling in Academic English/English as a Second Language courses during their first year, with other major coursework being adjusted accordingly.

Generally, financial assistance and scholarships from the University are not available to the non-immigrant-visa student. International students must provide proof that sufficient funds will be available to meet their educational commitments while studying in the United States. International undergraduate students are considered as nonresidents of California and are required to pay Nonresident Supplemental Tuition in addition to fees paid by legal residents of California.

Please direct all inquiries regarding the undergraduate admission of international students to the Office of Admissions and Relations with Schools.

English Language Proficiency of Permanent Resident, Refugee, and International (F-1 Visa) Students: Academic English/English as a Second Language

Any student (1) whose first or native language is not English, (2) whose verbal scores on the Writing section of the SAT Reasoning Test fall below a set level, (3) who has not satisfied the UC Entry Level Writing requirement, and (4) who has received a letter from the AE/ESL Program requiring them to take the AE placement test, or any such student without a verbal SAT Reasoning Test score, must take the AE placement test prior to the first quarter of enrollment, regardless of the student's TOEFL (Test of English as a Foreign Language) score, IELTS (International English Language Testing System) score, or TSWE (Test of Standard Written English) score. Also, any student who is identified as an ESL student through the UC Analytical Writing Placement Examination must take the AE placement test. The test is given prior to the beginning of each quarter, during Welcome Week prior to the beginning of fall quarter instruction, and on dates to be announced. Information is available from the Academic Testing Center, telephone (949) 824-6207, and the Academic English/English as a Second Language Program, telephone (949) 824-6781.

Based upon the results of the test, students may be required to enroll in AE/ESL courses prior to enrolling in any other required writing courses. Students required to enroll in AE/ESL courses must begin satisfying their AE/ESL requirements within their first or second quarter at UCI. They must take these courses in consecutive quarters. The AE/ESL requirements are to be completed within the first six quarters at UCI. Students who have not satisfied the AE/ESL requirements by the end of their sixth quarter will be ineligible to enroll for a seventh quarter at UCI. The UC Entry Level Writing requirement must be satisfied during the quarter following the completion of AE/ESL requirements. If the AE/ESL requirements are completed during the first quarter of enrollment, the UC Entry Level Writing requirement must be satisfied before the beginning of the fourth quarter of enrollment.

AE/ESL courses, offered by the School of Humanities and listed in the School's section of this *Catalogue*, include classes in writing, speaking and listening, and reading and vocabulary development.

Credit for AE/ESL Coursework

Students whose first language is not English may receive up to 12 baccalaureate credits for AE/ESL coursework. Students may receive workload credit for courses taken beyond this 12-unit limit but will not receive additional credits applicable to the bachelor's degree.

Credit for Native Language

Students whose first language is not English may receive credit for coursework in their native language and literature, provided such courses were completed at the college level in the country of the vernacular, or at the upper-division or graduate level at UCI or another accredited English-speaking institution. Some restrictions apply; see the School of Humanities section for information.

Advanced Placement and International Baccalaureate Credit

Duplicate Credit. Students should be aware that AP examinations, IB examinations, and college courses taken prior to or after enrolling at the university may be duplicative. In these cases, the university will award credit for only one of these. Students cannot earn units or grade points at UCI in courses from which they have been exempted on the basis of AP or IB credit. Students who elect to enroll in courses for which they have already received AP or IB credit will have those courses specially coded on their transcript without unit or grade credit. However, some examinations exempt the

student from a greater number of UCI units than the number of AP or IB units earned. In such cases, the student may elect to take the final course in the series for credit.

Advanced Placement (AP). Students who earn scores of 3, 4, or 5 on the College Board AP examinations will receive credit toward graduation at UCI. The unit and subject credit allowed toward degree requirements assigned to each test are shown in the accompanying chart.

College Board Advanced Placement

Advanced Placement Examination	AP Score	Unit Credit	Credit Allowed Toward Degree
Art			
- Art History	3	8	One course toward Art History major, minor, category IV of the UCI GE requirement from the Art History 40 or 42 series, and satisfaction of category VIII, plus 4 units of elective credit; may not replace School of Humanities requirements.
	4 or 5	8	Two courses toward Art History major, minor, category IV of the UCI GE requirement from the Art History 40 or 42 series, and satisfaction of category VIII; may not replace School of Humanities requirements.
- Studio Art[1]			
- - Drawing	3, 4, or 5	8	Elective credit only.
- - 2-D Design Portfolio	3, 4, or 5	8	Elective credit only.
- - 3-D Design Portfolio	3, 4, or 5	8	Elective credit only.
Biology	3, 4, or 5	8	Non-Bio. Sci. majors earn one Biological Sciences course toward Category II of the UCI GE requirement. Bio. Sci. majors earn elective credit only.
Chemistry	3	8	Elective credit only.
	4 or 5	8	CHEM 1A plus 4 units of elective credit.
Chinese Language and Culture[2]	3	8	Elective credit only.
	4 or 5	8	CHINESE 1A-CHINESE 1B-CHINESE 1C, CHINESE 2A. Satisfies categories VI and VIII of the UCI GE requirement. Additional course credit may be awarded following placement examination.
Computer Science[3]			
- A Exam	3, 4, or 5	2	I&C SCI 21/CSE 21 or ENGRMAE 10.
Economics			
- Macroeconomics	3	4	Elective credit only.
	4 or 5	4	ECON 20B. May not replace School of Social Sciences requirements for the bachelor’s degree.
- Microeconomics	3	4	Elective credit only.
	4 or 5	4	ECON 20A. May not replace School of Social Sciences requirements for the bachelor’s degree.
English[1]	3 (on either or both exams)	8	Elective credit only. Fulfills UC Entry Level Writing requirement.

- Composition and Literature	4 or 5 (on either exam)	8	One course toward category IV of the UCI GE requirement from the English 28 series plus 4 units of elective credit; may not replace Literary Journalism major or minor, English major or minor, or School of Humanities requirements.
- Language and Composition	4 or 5 (on either exam)	8	One course toward category IV of the UCI GE requirement from the English 28 series plus 4 units of elective credit; may not replace Literary Journalism major or minor, English major or minor, or School of Humanities requirements.
	4 or 5 (on both exams)	8	Two courses toward category IV of the UCI GE requirement from the English 28 series; may not replace Literary Journalism major or minor, English major or minor, or School of Humanities requirements.
Environmental Science	3	4	Elective credit only.
	4 or 5	4	EARTHSS 1 or SOCECOL E8.
French			
- French Language and Culture (French Language before 5/12)	3	8	FRENCH 1A-FRENCH 1B-FRENCH 1C. Satisfies category VI of the UCI GE requirement.
	4 or 5	8	FRENCH 2A-FRENCH 2B-FRENCH 2C. Satisfies categories VI and VIII of the UCI GE requirement.
Geography			
- Human Geography	3, 4, or 5	4	Elective credit only.
German Language and Culture (German Language before 5/12)	3	8	GERMAN 1A-GERMAN 1B-GERMAN 1C. Satisfies category VI of the UCI GE requirement.
	4 or 5	8	GERMAN 2A-GERMAN 2B-GERMAN 2C. Satisfies categories VI and VIII of the UCI GE requirement.
Government and Politics			
- American Government	3, 4, or 5	4	Elective credit only.
- Comparative Government	3, 4, or 5	4	Elective credit only.
History			
- European	3, 4, or 5	8	Elective credit only.
- United States	3, 4, or 5	8	Elective credit only.
- World	3, 4, or 5	8	Elective credit only.
Italian Language and Culture (Italian Language before 5/12)	3	8	ITALIAN 1A-ITALIAN 1B-ITALIAN 1C. Satisfies category VI of the UCI GE requirement.
	4 or 5	8	ITALIAN 2A-ITALIAN 2B-ITALIAN 2C. Satisfies categories VI and VIII of the UCI GE requirement.
Japanese Language and Culture[2] (Japanese before 5/12)	3	8	JAPANSE 1A-JAPANSE 1B-JAPANSE 1C. Satisfies category VI of the UCI GE requirement.
	4 or 5	8	JAPANSE 2A-JAPANSE 2B-JAPANSE 2C. Satisfies categories VI and VIII of the UCI GE requirement.
Latin	3	4	Elective credit only.

	4 or 5	4	Satisfies categories VI and VIII of the UCI GE requirement. Course credit toward the Classics major or School of Humanities language requirement awarded upon petition.
Mathematics[1]			
- AB Exam	3	4	Elective credit only.
	4 or 5	4	MATH 2A.
- BC Exam[4]	3	8	MATH 2A.
	4 or 5	8	MATH 2A-MATH 2B.
Music Theory	3	8	Elective credit only.
	4 or 5	8	Elective credit only.
Physics[1]			
- Physics 1	3, 4, 5	8	Elective credit only.
- Physics 2	3, 4, 5	8	Elective credit only.
- Exam B (Not offered after 5/13)	3, 4, or 5	8	Elective credit only.
- Exam C, Part I or II	3	4	Elective credit only.
	4 or 5	4	PHYSICS 2.
- Exam C, Part I (Mechanics)	5	4	PHYSICS 3A.
- Exam C, Part II (Electricity and Magnetism)	5	4	PHYSICS 3B.
Psychology	3	4	Elective credit only.
	4 or 5	4	PSY BEH 9 or PSYCH 7A.
Spanish[2]			
- Spanish Language	3	8	SPANISH 1A-SPANISH 1B-SPANISH 1C. Satisfies category VI of the UCI GE requirement.
	4 or 5	8	SPANISH 2A-SPANISH 2B-SPANISH 2C or SPANISH 2. Satisfies categories VI and VIII of the UCI GE requirement.
- Spanish Literature (Spanish Literature and Culture before 5/12)	3	8	SPANISH 1A-SPANISH 1B-SPANISH 1C. Satisfies category VI of the UCI GE requirement.
	4 or 5	8	SPANISH 2A-SPANISH 2B-SPANISH 2C or SPANISH 2. Satisfies categories VI and VIII of the UCI GE requirement.
Statistics	3, 4, or 5	4	STATS 7 or MGMT 7 or SOCECOL 13.

1 Maximum credit 8 units.

2 Students who wish to enroll in any Chinese, Japanese, or Spanish course at UCI are still required to take the placement examination (and oral interview, if necessary). Students, however, cannot earn units or grade points in courses from which they have been exempted on the basis of Advanced Placement credit, even if placement results require enrollment in such a level.

3 Maximum credit 4 units.

4 Students who take the Calculus BC examination and earn a subscore of 3 or higher on the Calculus AB portion will receive credit for the Calculus AB examination, even if they do not receive a score of 3 or higher on the BC examination.

* NOTE: All students should refer to the Duplicate Credit section that appears before the AP chart.

International Baccalaureate (IB). Students completing the IB diploma with a score of 30 or above will receive 30 quarter units (20 semester units) total toward their UC undergraduate degree. The University grants 8 quarter units (51/3 semester units) credit for certified IB Higher Level examinations on which a student scores 5, 6, or 7. The University does not grant credit for Standard Level examinations. Some higher-level examinations may be used to fulfill course requirements in lower-division major or general education requirements. For detailed information see the UCI Office of Admissions and Relations with Schools (http://www.admissions.uci.edu/applicants/ib_exams.html) website.

IB Exam	IB Score	Unit Credit	Credit Allowed Toward Degree
Biology	5, 6, or 7	8	Satisfies one Biological Science course toward category II of the UCI GE requirement.
Business & Management			No credit awarded.
Chemistry	5, 6, or 7	8	Elective credit only.
Classical Languages[1]			
- Classical Greek	5	8	GREEK 100A, GREEK 103, or GREEK 100B, GREEK 104.
- Classical Greek	6 or 7	8	GREEK 100A, two courses of GREEK 103 or GREEK 100B, and two courses of GREEK 104.
- Latin	5	8	LATIN 100A, LATIN 103, or LATIN 100B, LATIN 104.
- Latin	6 or 7	8	LATIN 100A, two courses of LATIN 103 or LATIN 100B, and two courses of LATIN 104.
Computer Science	5, 6, or 7	8	Satisfies categories V and IX of the UCI GE requirement.
Design Technology			No credit awarded.
Dance	5, 6, or 7	8	Elective credit only.
Economics	5, 6, or 7	8	ECON 20A-ECON 20B satisfies the major requirement for Economics and International Studies; satisfies category III of the UCI GE requirement.
Environmental Systems	5, 6, or 7	8	EARTHSS 1
Film	5, 6, or 7	8	Elective credit only.
Geography	5, 6, or 7	8	Satisfies two Geography courses toward category III of the UCI GE requirement.
History[2]			
History of the Americas	5, 6, or 7	8	Satisfies two courses toward HISTORY 40A-HISTORY 40B-HISTORY 40C for category IV of the UCI GE requirement.
Non-U.S. exams	5, 6, or 7	8	Satisfies two courses toward HISTORY 21A-HISTORY 21C-HISTORY 21C for category IV; satisfies category VIII of the UCI GE requirement.
Language A: Literature[3]			
- (Native Language)			
- (Replaced Language A1 in May 2013)			
- Arabic	5, 6, or 7	8	ARABIC 2C
- Chinese*	5, 6, or 7	8	CHINESE 2C
- English	5, 6, or 7	8	Satisfies the UC Entry Level Writing Requirement.
- French*	5, 6, or 7	8	FRENCH 2C
- German	5, 6, or 7	8	GERMAN 2C
- Hebrew	5, 6, or 7	8	HEBREW 2C
- Italian	5, 6, or 7	8	ITALIAN 2C
- Japanese*	5, 6, or 7	8	JAPANSE 2C
- Persian	5, 6, or 7	8	PERSIAN 2C

- Portuguese	5, 6, 7	8	PORTUG 2C
- Russian	5, 6, or 7	8	RUSSIAN 2C
- Spanish*	5 or 6	8	SPANISH 3A
- Spanish*	7	8	SPANISH 3B
- Afrikaans, Danish, Dutch, Finnish, Greek (Modern), Hindi, Indonesian, Malay, Norwegian, Pilipino, Polish, Serb-Croat, Slovene, Swahili, Swedish, Turkish, Urdu, Welsh	5, 6, or 7	8	Course credit for requirements may be awarded upon petition.
Language A: Language & Literature			No credit awarded (under review by UCOP).
Language A: Literature & Performance			No credit awarded (under review by UCOP).
Language B[3] [4] (Non-native Language)			
- Arabic	5, 6, or 7	8	ARABIC 2C
- Mandarin or Cantonese*	5, 6, or 7	8	CHINESE 2C
- English	5, 6, or 7	8	Elective credit (does not clear ELWR)
- French*	5, 6, or 7	8	FRENCH 2C[4]
- German	5, 6, or 7	8	GERMAN 2C[4]
- Italian	5, 6, or 7	8	ITALIAN 2C[4]
- Japanese*	5, 6, or 7	8	JAPANSE 2C[4]
- Portuguese	5, 6, or 7	8	PORTUG 2C[4]
- Russian	5, 6, or 7	8	RUSSIAN 2C[4]
- Spanish*	5 or 6	8	SPANISH 2C[4]
- Spanish	7	8	SPANISH 3A or SPANISH 3B
- Danish, Dutch, Finnish, Hindi, Indonesian, Swahili, Swedish	5, 6, or 7	8	Elective credit only.
Mathematics	5, 6, or 7	8	MATH 2A
Mathematics, Further			Pending review (offered beginning Spring 2014)
Music	5, 6, or 7	8	Elective credit only.
Philosophy	5, 6, or 7	8	Elective credit only.
Physics	5, 6, or 7	8	Satisfies two Physics courses toward category II of the UCI breadth requirement.
Psychology	5	8	Satisfies category III of the UCI GE requirement.
Psychology	6 or 7	8	PSYCH 9A-PSYCH 9B-PSYCH 9C satisfies major requirements for Psychology; satisfies category III of the UCI GE requirement.
Social & Cultural Anthropology	5, 6, or 7	8	ANTHRO 2A satisfies the School requirement for School of Social Sciences major; satifies one Anthropology course toward category III, and one course toward category VIIIB of the UCI GE requirement.
Theater Arts	5, 6, or 7	8	Elective credit only.
Visual Arts	5, 6, or 7	8	Elective credit only.

Diploma Programme[5]	Up to 30	The Diploma Programme included six IB exams, with varying GE and/or course credit. Students are granted 30 quarter units if they earn 30 total Diploma Programme points.

1 Course credit satisfies the School of Humanities language other than English requirement for School of Humanities majors; satisfies categories VI and VIII of the UCI GE requirement.

2 History exam credit is only applicable toward GE, not School of Humanities major requirements.

3 Course credit applies toward the School of Humanities language other than English requirement for School of Humanities majors and International Studies; satisfies both categories VI and VIII of the UCI GE requirement.

4 Additional course credit may be awarded toward the major, upon petition. Course credit applies toward the School of Humanities language other than English requirement for School of Humanities majors and International Studies; satisfies both categories VI and VIII of the UCI GE requirement.

* Students who wish to enroll in any Chinese, French, Japanese or Spanish course at UCI are still required to take the placement exam (and oral interview if necessary). Students, however, cannot earn units or grade points in courses from which they have been exempted on the basis of IB credit, even if placement results require enrollment in such a level.

The units granted for IB examinations are not counted toward the maximum number of credits required for formal declaration of an undergraduate major or the maximum number of units a student may accumulate prior to graduation from the University. Students who enter the University with IB credit do not have to declare a major earlier than other students nor are they required to graduate earlier.

Application Procedures

Students may apply to the University of California using the online application at the University of California Admissions (http://www.universityofcalifornia.edu/apply) website.

Applications must be submitted by the last day of the filing period. The nonrefundable application fee is $70 ($80 for international students) for each campus to which the student applies.

When to Apply for Admission

To ensure that applications will be considered for admission by both UCI (or other UC campuses) and the student's choice of major or program of study, the completed application and the application fee should be submitted during the priority filing period, November 1–30, 2014, for fall quarter 2015. Each campus accepts for consideration all applications it receives during this period. Additionally, students required to fulfill the examination requirements for freshman admission should make arrangements to take the standardized tests early. Completing the examination requirement (SAT Reasoning Test or ACT Plus Writing Test) no later than the December testing date of the senior year of high school is required for students applying for the fall quarter.

After the priority filing period has ended, campuses will accept applications only if they still have openings for new students. Most campuses are unable to accept applications after the formal filing period closes.

UC Irvine does not accept applications for the winter and spring terms.

Academic Record. On the application, students must report all high schools and colleges attended, regardless of credit earned or courses completed. All courses taken must also be reported, regardless of grades earned. This includes reporting courses repeated with both the original and repeated grade.

Failure to submit an accurate academic record will result in any admissions offer being rescinded.

Transcripts

The UCI Office of Admissions and Relations with Schools (OARS) requires complete, accurate, and up-to-date information about a student's academic program and work in progress in order to process and respond to the application in a timely manner. The transcript and other documents submitted as part of the application become the property of the University; they cannot be returned or forwarded in any form to another college or university.

Freshman Applicants. *Freshman applicants should not send transcripts unless requested to do so. Applicants will be notified if a preliminary high school transcript is required.* Applicants are also responsible for asking testing agencies to report examination scores for either the SAT Reasoning Test or ACT Plus Writing Test to UC. Once students are admitted and decide to enroll at UCI, *an official final high school transcript showing an official graduation date must be forwarded to OARS even if a student attends summer session.* Official final transcripts are due in OARS by July 1 for those students admitted for fall quarter. [A California Certificate of Proficiency, the results from a proficiency test from any state, or a General Educational Development (GED) Certificate can be accepted in place of a high school diploma.] Delays in receiving official transcripts will disadvantage students in the academic advising process and can affect enrollment in appropriate courses.

Transfer Applicants. *Transfer applicants should not send transcripts unless requested to do so.* It is essential that applicants accurately complete the self-reported college credit information in the application because it will be used for initial admission screening. *Once students are admitted and decide*

to enroll at UCI, an official transcript from each college attended and the high school from which they graduated must be sent to OARS even if a student attends summer session. Final official transcripts are due in OARS by July 1 for those students admitted for the fall quarter. Summer-session transcripts must be submitted by September 15. Delays in receiving official transcripts will disadvantage students in the academic advising process and can affect enrollment in appropriate courses.

Examination Arrangements

Students should make arrangements to take the SAT Reasoning Test with the College Board (http://www.collegeboard.org). For the ACT Plus Writing Test, students should contact ACT (http://www.actstudent.org). (Test fees should be paid to the testing services, not to the University.)

Freshmen applicants must also report ACT Plus Writing or SAT Reasoning Test scores on their original UC Application, then request that the testing agency send an official score report to UC. Applicants can have their official score report sent to one UC campus, and all campuses they apply to will receive it. Ensure that all scores are sent to UC. UC will use the highest scores from a single administration.

To prevent confusion or unnecessary delay, it is important to use precisely the same form of the student's name on both the application for admission and the test materials.

The 2014–15 SAT Reasoning Test and SAT Subject Tests schedule is available at College Board (http://www.collegeboard.org) website.

In 2014–15 the ACT Plus Writing Test is scheduled to be offered on the following dates: September 13, 2014; October 25, 2014; December 13, 2014; February 7, 2015 (no test centers are scheduled in New York for the February test date); April 18, 2015; and June 13, 2015. The ACT schedule is available at ACT (http://www.actstudent.org/regist/dates.html) website.

Detailed information, including confirmation of test dates, is available from the College Board, ACT, and from most high school counseling offices.

Notification of Admission

Most fall quarter freshmen applicants are notified of their status on a rolling basis between February 1 and March 31. Transfer applicants are usually notified by May 1. In some cases for transfer applicants, complete transcripts of coursework and/or a mid-term progress report are required before a final decision can be made; such records will be requested by OARS. Note that these target dates apply only to those applicants who submitted their applications during the fall priority filing period (November 1–30). Those students who apply after the priority period will be notified as soon as possible after the other applicants.

Statement of Intent to Register

Students who wish to attend UCI must return a Statement of Intent to Register (SIR). The SIR serves to notify UCI of the student's decision to accept or not accept its offer of admission. Before completing and returning their SIR, students who have applied to more than one campus are advised to take as much time as is appropriate in considering their response to each campus. However, it is essential that students allow enough time to meet the stipulated deadline. Once they have decided which UC campus to attend, students should submit their positive SIR and nonrefundable $100 deposit (if applicable) either electronically or by mail. (This deposit, known as the Undergraduate Acceptance of Admission Fee, is applied to the Student Services Fee when the student enrolls.)

Students must submit their SIR by the following deadline:

Freshmen entering fall 2015: May 1, 2015

Transfers entering fall 2015: June 1, 2015

Electronic Filing: Students are encouraged to return their SIR electronically. Log in to MyAdmission, the UCI admissions (http://www.admissions.uci.edu) portal. Students submitting an SIR electronically are required to pay their $100 Acceptance of Admission Fee by credit card. Fee waivers are also available online.

Filing by Mail: Students who are unable to submit their SIR online may download and print an SIR from the OARS Web site. Students must return the printed SIR along with the $100 Acceptance of Admission Fee (if requested), made payable to:

UC Regents
Office of Admissions and Relations with Schools
260 Aldrich Hall
University of California
Irvine, CA 92697-1075

Students who are not able to either submit their SIR electronically or download an SIR from the OARS Web site should contact OARS at the address listed above and/or call (949) 824-6703.

Admission to UCI is not an assurance of receiving financial aid nor does it guarantee assignment to University housing. Separate applications are required of applicants desiring financial aid and/or University housing, and receipt of communications from the Office of Financial Aid and Scholarships, the Housing Office, or any office other than the OARS does not imply that eligibility for admission has been established.

Student Records Access and Disclosure

At UCI, an “applicant” becomes a “student” at the time of submission of the SIR. Information regarding access to student records and disclosure of student record information (both public and confidential) may be found in the Appendix (p. 1920).

Information for Admitted Students

Orientation

Undergraduate Students

Each May, information about UCI's Orientation Programs (http://www.orientation.uci.edu), sponsored by Student Life & Leadership (http://www.studentlife.uci.edu), is made available to admitted students who plan to enroll in the fall.

Summer Programs

Student Parent Orientation Program (SPOP). All freshmen are required to attend an orientation program (except for Summer Bridge and CAMP participants). SPOP provides the opportunity for freshmen and their parents or guardians to attend a comprehensive orientation program. Each two-day, one-night program includes academic advising and registration for fall classes. In addition, information on housing, financial aid, campus resources, student life and more is included. SPOP is designed for all domestic freshmen and for international freshmen who attended high school in the United States.

International Student Orientation (ISO) is a mandatory orientation program for all incoming international freshmen who did not attend high school in the United States, and optional for international students who did but who cannot attend SPOP. ISO is a three-day, two-night program specifically designed to help orient new international freshmen to life at UCI and in the United States. A wealth of important resources for international students is shared, including language support service, getting around Irvine, academic and classroom culture, and student health and wellness.

Transfer Success is a unique one-day program geared to the needs of transfer students. Held in early summer, the program provides information on campus resources, student life and making the transition to academic life at a research university.

Transfer Student Parent Orientation Program (TSPOP) is an optional orientation for transfer students looking for a more comprehensive introduction to life at UCI. This two-day, one-night program coincides with SPOP and offers transfer students a thorough overview of what to expect during their transition to a research university as well as information on housing, financial aid, campus resources, student life and more.

For more information about all of the orientation programs, visit the Orientation Programs (http://www.orientation.uci.edu) website; telephone 949-824-5182; or e-mail orientation@uci.edu.

Welcome Week

Welcome Week is held each fall a few days prior to the beginning of classes. A variety of academic and social activities for new and returning students are held during this time. For more information, visit the Welcome Week (http://studentlife.uci.edu/welcomeweek) website.

Graduate Students

Incoming graduate students are strongly encouraged to attend the Campuswide New Graduate Student Orientation, held during the third week of September each fall. This orientation covers all aspects of navigating graduate education at UC Irvine, including graduate student services. It augments school/department-based orientations, and students should attend both. Information about the Campuswide New Graduate Student Orientation is e-mailed to incoming graduate students the summer prior to the event. Inquiries may be directed to gradorientation@uci.edu, and details are available at the Campuswide New Graduate Student Orientation (http://www.grad.uci.edu/services/campuswide-orientation/grad-orientation.html) website.

Requirements for a Bachelor's Degree

- University Requirements (p. 72)
- General Education (GE) Requirement (p. 73)

There are four groups of requirements that must be met to earn a baccalaureate degree from UCI: general UC requirements; UCI requirements, including the General Education (GE) requirement; school or program requirements; and degree-specific requirements.

UC and UCI requirements are described below. School or program and major-specific requirements are described in full in the academic unit sections.

Students with identified learning and/or physical disabilities, including language-acquisition problems, are eligible to receive support through the Disability Services Center; telephone (949) 824-7494 (voice), 824-6272 (TTY), e-mail: dsc@uci.edu. Staff can assist students from the time they are admitted to UCI until they graduate.

Catalogue Rights

Students enrolled at UCI from their freshman year may elect to meet as graduation requirements (UC, UCI, school, and major): (1) those in effect at the time of entrance, or (2) those subsequently established after entrance.

A readmitted student who has not been enrolled at UCI for three or more consecutive quarters (excluding summer sessions) must adhere to the graduation requirements: (1) in effect for the quarter in which the student is readmitted; or (2) those subsequently established.

Students transferring from other collegiate institutions may elect to meet as graduation requirements either: (1) those in effect at the time of enrollment at UCI; (2) those subsequently established; or (3) those in effect at UCI when the student first entered a previous, accredited collegiate institution, provided that the student has been continuously enrolled in a collegiate institution and that entry was not more than four years prior to the time of enrollment at UCI.

A transfer student who has had a break of enrollment of two consecutive semesters or three consecutive quarters (excluding summer sessions) may follow the requirements in effect at UCI: (1) at the time of enrollment at UCI; (2) those subsequently established; or (3) those in effect at the time of reentry into a previous, accredited collegiate institution, provided that reentry was not more than four years prior to enrollment at UCI.

A transfer student who has been continuously enrolled in college for more than four years prior to transfer may use: (1) the requirements in effect at the time of enrollment at UCI; (2) those subsequently established; or (3) those in effect at UCI four years prior to enrollment at UCI.

All students, whether enrolled at UCI from their freshman year, readmitted, or transfer, may elect to fulfill general education requirements as specified above, independent of how they choose to meet all other graduation requirements (UC, UCI [with the exception of general education], school, and major).

Students choosing to complete a minor, whether enrolled at UCI from their freshman year, readmitted, or transfer, may elect to fulfill minor requirements as specified above, independent of how they choose to meet all other graduation requirements (UC, UCI, school, and major).

Transfer students who complete one of the following options will be considered to have met the total UCI general education requirement except the upper-division writing requirement: (1) students who transfer from a four-year institution and who have completed the general education requirements of that college, upon approval of petition; (2) students who transfer from another UC campus and provide official documentation that they have met the general education requirements of that campus; (3) students who transfer from another UC campus and are in the process of completing the general education requirements of that campus, upon approval of petition, and who subsequently complete the remaining requirements of that campus at UCI; or (4) California Community College transfer students who have completed the Intersegmental General Education Transfer Curriculum. Transfer students may also elect to complete the UCI general education requirement.

University Requirements

English (UC Entry Level Writing)

Every undergraduate must demonstrate a proficiency in writing. The Entry Level Writing Requirement may be satisfied *before admission* in any of the following ways:

1. Score 3 or higher on the College Board Advanced Placement (AP) Examination in English (Language or Literature); *or*
2. Score 5 or higher on the International Baccalaureate (IB) Higher Level Examination in English (Language A only), or score 6 or higher on the IB Standard Level Examination in English (Language A only); *or*
3. Score 680 or higher on the Writing section of the SAT Reasoning Test, or score 30 or higher on the ACT Combined English/Writing test.

The UC Entry Level Writing requirement may be met *after admission* by one of the following options:

1. Passing the UC Analytical Writing Placement Examination given in mid-May (and on subsequent dates) to all entering freshmen admitted for fall quarter (see Placement Testing). Freshmen admitted to UC will receive detailed information in April about the exam. Freshman students who are not California residents may take the exam in the fall after they enroll. Transfer students who have not satisfied the UC Entry Level Writing requirement should contact the UCI Composition Program Office, 420 Humanities Instructional Building; telephone (949) 824-6717.
2. Prior to enrolling in the University, complete with a grade of C or better a transferable college course in English composition worth four quarter or three semester units. (Once a student enrolls at a UC campus, courses from institutions other than UC may not be used to satisfy the Entry Level Writing Requirement.) Students who meet the University's basic requirements for minimal transfer eligibility, which include two transferable college courses in English composition, satisfy the Entry Level Writing Requirement.

NOTE: Those students who have not met the requirement before entrance must satisfy the requirement before the beginning of their fourth quarter at UCI. Students who have not satisfied the requirement by that time will be ineligible to enroll for a fourth quarter.

The UC Entry Level Writing requirement may be met *after enrollment* by one of the following options:

1. Enrolling in Humanities Core writing courses designated "ES." (NOTE: Students held for UC Entry Level Writing and enrolled in the Humanities Core must enroll in an ES section of the Humanities Core during their first quarter. Successful completion of these writing courses with a letter grade of C or better will satisfy the requirement. Students who do not receive a letter grade of C or better in HUMAN 1AES in the fall quarter and who continue to be held for UC Entry Level Writing must enroll in HUMAN 1BES during the winter quarter and satisfy the requirement by earning a letter grade of C or better.)
2. Taking either WRITING 37 or WRITING 39A and receiving a letter grade of C or better in the course.

Students enrolled in Essentials of Academic Writing (AC ENG 20A, AC ENG 20B, AC ENG 20C, AC ENG 20D) must enroll in WRITING 39A immediately after they are authorized to do so by the Academic English/English as a Second Language Program. Students with a score of 2, 3, or 4 from the UC Analytical Writing Placement Examination are also required to enroll in WRITING 39A; some students with these scores may be required to take the Academic English Placement Test before enrolling in WRITING 39A.

The Pass/Not Pass grade option may not be used to satisfy the UC Entry Level Writing requirement.

Students enrolled at UCI may take only UCI courses in satisfaction of the UC Entry Level Writing requirement. Continuing UCI students may not take summer courses at another institution to satisfy this requirement.

American History and Institutions

This requirement may be met by one of the following options:

1. Completion in an accredited high school of a one-year course in United States history with a grade of C or better, *or* a half-year course in United States history and a half-year course in American government with grades of C or better; *or*
2. Achieving a score of 3, 4, or 5 on the College Board Advanced Placement Examination in United States History; *or*
3. Achieving a score of 550 or better on the SAT Subject Test in United States history; *or*
4. Presentation of a certificate of completion of the requirement at another California institution; *or*
5. Completion at UCI or another U.S. institution of one year of college-level United States history with grades of C or better, *or* one course in United States history and one in United States government with grades of C or better. Acceptable UCI courses: United States history—HISTORY 40A, HISTORY 40B, HISTORY 40C; United States government—POL SCI 21A.

UCI Requirements

Unit Requirement

Credit for a minimum of 180 quarter units, earned by examination, by other evaluation, or course work is required. A course normally offers four quarter units of credit.

Grade Requirement

A minimum grade average of at least C (2.0) is required (1) overall, (2) in all of the courses required for the major program, and (3) in the upper-division courses required for the major program. Higher averages than this may be required only in honors programs. Students who fail to attain a C (2.0) average in courses required in the major program may, at the option of the major unit, be denied the privilege of pursuing a major program in that unit. In this context, “the courses required in the major program” are defined as the courses required for the major and offered by the program of the student’s major (or programs, in the case of an interdisciplinary or interdepartmental major). A major can include additional courses required for the major in this set, with the approval of the Council on Education Policy. In this case, the list of additional courses is published in the *Catalogue* with the requirements for the major.

Residence Requirement

At least 36 of the final 45 units completed by a student for the bachelor’s degree must be earned in residence at the UCI campus. Exceptions to this rule may be allowed, with prior departmental approval, to students enrolled in the Education Abroad Program, the UCDC Academic Internship Program, the UC Center Sacramento Scholar Intern Program, or the International Opportunities Program with International Study Advance Contract.

General Education (GE) Requirement

UCI is committed to the values of a liberal education. One component of that commitment is the requirement that all undergraduates complete a set of general education (GE) requirements. General education courses introduce students to a range of ideas and intellectual activities that engage UCI scholars, providing both scope and balance to a University degree beyond the study of a specific major.

The general education requirements are intended to help undergraduates place the specialized study undertaken in the major within a broader context. They are designed to cultivate the skills, knowledge, and understanding that will make students effective contributors to society and the world. The general education requirements should enable UCI undergraduates to apply the abilities developed in their studies to identify significant issues, gather and evaluate available evidence, analyze alternatives, reach conclusions, communicate the results effectively, and take considered actions.

The general education requirement is a *graduation* requirement and, with the exception of the lower-division writing requirement, need *not* be satisfied during only the lower-division years. To satisfy the general education requirement, courses are required in each of the following categories:

I. Writing (p. 74) (two lower-division plus one upper-division course)

II. Science and Technology (p. 79) (three courses)

III. Social and Behavioral Sciences (p. 82) (three courses)

IV. Arts and Humanities (p. 85) (three courses)

V. Quantitative, Symbolic, and Computational Reasoning (p. 90)**, with subcategories Va and Vb** (three courses that may also satisfy another GE category)

VI. Language Other Than English (p. 93) (one course)

VII. Multicultural Studies (p. 95) (one course that may also satisfy another GE category)

VIII. International/Global Issues (p. 97) (one course that may also satisfy another GE category)

The specific courses in each area that students may use to satisfy the requirements are listed below. When a general education course is cross-listed with another course, that course also is available for fulfillment of the requirement. Students should refer to the *Catalogue* descriptions of the courses to determine which are cross-listed.

A course qualifies for a particular GE category based on its content rather than on the academic unit that offers it. However, to increase students' exposure to a variety of disciplinary approaches, students are encouraged to choose GE courses from a wide range of schools and departments outside of the student's major.

NOTE: The following list of courses approved for GE is effective for the 2013–14 academic year only. Because changes occur each year, students should consult the GE list annually to ensure that the courses they enroll in are on the list. GE credit is awarded for a course only if it appears on the list during the academic year when it is taken. To check the GE course offerings in a particular quarter, consult the *Schedule of Classes* on the Registrar's (http://www.reg.uci.edu.) website.

General Education Categories

I. Writing

Because of the importance of visual, oral, electronic, and written communication in every academic discipline, in the professions, and in public life, the University is committed to developing a variety of communication abilities in students at all levels and in all areas. The Writing Requirement expresses this broad commitment, but the concern for and attention to rhetorically effective, accurate writing is expected in all courses.

The Writing Requirement consists of two courses at the lower-division level beyond the UC Entry Level Writing requirement and one upper-division course in a discipline.

Except where otherwise noted below, students must satisfy the UC Entry Level Writing requirement prior to fulfilling the UCI writing requirement.

Students who have not completed the lower-division writing requirement before the beginning of their seventh quarter at UCI will be subject to probation. Students transferring to UCI normally should have satisfied the lower-division writing requirement before entering UCI; if, however, they have not, they must complete it within their first three quarters of enrollment or they will be subject to probation. Academic English/English as a Second Language students must complete the lower-division writing requirement before the beginning of the seventh quarter following the completion of their AE/ESL courses or they will be subject to probation.

The third course must be an upper-division writing course, and it must be taken only after the successful completion of the lower-division requirement.

Students enrolled at UCI may take only UCI courses in satisfaction of the lower-division and upper-division writing requirements. Continuing UCI students may not take summer courses at another institution to satisfy lower-division or upper-division writing requirements.

After completing this GE requirement, successful students should be able to do the following:

Lower-division writing

- demonstrate rhetorically effective, accurate academic writing and communication across a variety of contexts, purposes, audiences, and media using appropriate stance, genre, style, and organization;
- develop flexible strategies for generating, revising, editing, and proofreading texts;
- develop abilities in critical reading across a variety of genres and media;
- and demonstrate information literacy skills by locating, evaluating, and integrating information gathered from multiple sources into a research project.

Upper-division writing

- demonstrate rhetorically effective, discipline-specific writing for appropriate academic, professional, and public audiences;
- demonstrate, at an advanced level of competence, use of discipline-specific research methods, genres, modes of development, and formal conventions;
- and demonstrate advanced information literacy skills by locating, evaluating, and integrating information gathered from multiple sources into discipline-specific writing.

Ia. Lower-Division Requirement

The two courses taken to fulfill the lower-division requirement must be completed with a minimum grade of C (or a Pass or Credit grade equivalent to C). Students may select from the courses specified below:

1. WRITING 39B Critical Reading and Rhetoric and WRITING 39C Argument and Research.
2. WRITING 37 Intensive Writing and WRITING 39C Argument and Research. Recommended students only.
3. Completion of the writing component of Humanities Core with a grade of C or better in (HUMAN 1AS or HUMAN H1AS or HUMAN 1BS or HUMAN H1BS or HUMAN 1BES), and in HUMAN 1CS or HUMAN H1CS.
4. Students who complete WRITING 37 or WRITING 39B with a grade of B (3.0) or better may substitute as the second course of the lower-division writing requirement one of the following courses in creative writing: WRITING 30 or WRITING 31.
5. WRITING 39B and completion of a First-Year Integrated Program (FIP) sequence, with a grade of C (or Pass) or better in the third quarter of the sequence.

Ib. Upper-Division Requirement

The course taken to fulfill the upper-division requirement must be completed with a minimum grade of C (or a Pass or Credit grade equivalent to C). The requirement may be satisfied by completing one of the following options:

1. An upper-division course designated on a list of approved courses in the quarterly *Schedule of Classes* on the Registrar's (http://www.reg.uci.edu) website. NOTE: All courses approved to fulfill the upper-division writing requirement should have a "W" suffix. Students are encouraged to consult the *Schedule of Classes* or their advisor to determine the current upper-division writing requirement course offerings. If a course on the approved list is offered without the "W" suffix, it does not satisfy the upper-division writing requirement.
2. Majors in the School of Biological Sciences, Physics majors, and Pharmaceutical Sciences majors satisfy the upper-division writing requirement in the manner specified in those academic unit sections of the *Catalogue.*

Students who fail to attain the required grades in the courses taken in fulfillment of the writing requirement should refer to the Academic Regulations and Procedures (p. 109) section for further information.

Courses with an asterisk (*) can meet one or more GE requirement. Click on the course for more information.

Ib. Upper-Division Requirement

Academic English and ESL (AC ENG)	
AC ENG 139W	Advanced Academic Writing Across the Curriculum
African American Studies (AFAM)	
AFAM 162W	The Black Protest Tradition
Anthropology (ANTHRO)	
ANTHRO 121AW	Kinship and Social Organization
ANTHRO 134GW	HIV/AIDS in a Global Context*
ANTHRO 161TW	Field Research: Asian Immigrants and Refugees in Orange County
ANTHRO 162BW	Indian North America*
ANTHRO 180AW	Anthropology Majors Seminar
ANTHRO H191W	Honors Senior Thesis
Art (ART)	
ART 101W	Artists as Writers
Art History (ART HIS)	
ART HIS 190W	Practicum for Majors
Arts and Humanities (ARTSHUM)	
ARTSHUM 100	The Arts in Theory and Practice
Asian American Studies (ASIANAM)	
ASIANAM 100W	Research Methodologies for Asian American Studies
Biological Sciences (BIO SCI)	
BIO SCI E106L	Habitats and Organisms
BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI E112L	Physiology Laboratory
BIO SCI N113L	Neurobiology Laboratory
BIO SCI M114L	Biochemistry Laboratory
BIO SCI E115L	Evolution Laboratory

BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
BIO SCI E131L	Image Analysis in Biological Research
BIO SCI E142W	Writing/Philosophy of Biology
BIO SCI E161L	Biology of Birds Lab
BIO SCI E166L	Field Biology
BIO SCI E172L	Plant Systematics Laboratory
BIO SCI E179L	Field Freshwater Ecology
BIO SCI 191CW	Writing/Senior Seminar on Global Sustainability III
Chicano/Latino Studies (CHC/LAT)	
CHC/LAT 102W	Chicano/Latino Research Seminar
CHC/LAT 148W	Racial and Ethnic Relations in the United States
CHC/LAT 156W	Chicano/Latinos and Labor
CHC/LAT 158W	Feminisms of Color*
CHC/LAT 177W	Culture and Close Relationships*
CHC/LAT H190CW	Honors Thesis
Chemistry (CHEM)	
CHEM 177LW	Medicinal Chemistry Lab
CHEM H181W	Honors Seminar in Chemistry
Classics (CLASSIC)	
CLASSIC 160W	Topics in Classical Literature in English Translation
Comparative Literature (COM LIT)	
COM LIT 102W	Comparative Studies in Literature and Theory
COM LIT 190W	Advanced Seminar in Comparative Literature and Theory
Computer Science and Engineering (CSE)	
CSE 181CW	Senior Design Project
Dance (DANCE)	
DANCE 185W	Critical Issues in Dance
Drama (DRAMA)	
DRAMA 109W	Special Topics in Theory and Criticism
DRAMA 110W	Special Topics in Classical Dramas
DRAMA 112W	Special Topics in Early Modern and Neoclassical Theatre
DRAMA 116W	Special Topics in Nineteenth-Century Dramas
DRAMA 118W	Special Topics in Modern and Contemporary Drama
DRAMA 126W	African American Film and Drama
DRAMA 129W	Advanced Topics in Performance
DRAMA 132AW	Writing for Performance
DRAMA 180W	Contemporary Dramatic Criticism and Theory
Earth System Science (EARTHSS)	
EARTHSS 190CW	Writing/Senior Seminar on Global Sustainability III
EARTHSS 198W	Senior Thesis in Earth System Science
EARTHSS H198	Honors Thesis in Earth System Science
Economics (ECON)	
ECON 122CW	Data Analysis Writing
ECON 123CW	Econometrics III
ECON 142CW	Industrial Organization III
ECON 144CW	Urban Economics III

ECON 145FW	Economics of the Environment II
ECON 149W	Special Topics in Economics of Public and Private Organizations
ECON 153W	Political Institutions, Legal Systems, and Economic Development
ECON 158W	Economics of Education
ECON 164AW	The Industrial Revolution in Western Europe
ECON 190BW	Economics Honors Colloquium II
Education (EDUC)	
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II*
EDUC 179W	Advanced Composition for Teachers
Electrical Engineering & Computer Science (EECS)	
EECS 159CW	Senior Design Project III
English (ENGLISH)	
ENGLISH 101W	Undergraduate Seminar in Critical Writing: Topics in Literary History
Engineering (ENGR)	
ENGR 190W	Communications in the Professional World
ENGR 196W	Engineering Thesis
ENGR H196W	Honors Thesis
European Studies (EURO ST)	
EURO ST 190W	Senior Seminar in European Studies
Film and Media Studies (FLM&MDA)	
FLM&MDA 139W	Writing on Film and Media
French (FRENCH)	
FRENCH 139W	Literature and Society
Gender and Sexuality Studies (GEN&SEX)	
GEN&SEX 139W	Topics in Gender Studies
German (GERMAN)	
GERMAN 140W	Topics in Literary Theory and Criticism
GERMAN 150W	German Literature and Culture in Translation
GERMAN 160W	German Cinema
GERMAN 170W	Topics in German Linguistics
History (HISTORY)	
HISTORY 100W	Writing About History
Humanities (HUMAN)	
HUMAN H142W	Senior Honors Colloquium
HUMAN 183CW	Seminar Conflict Resolution
Information and Computer Science (I&C SCI)	
I&C SCI 139W	Critical Writing on Information Technology
Informatics (IN4MATX)	
IN4MATX 162W	Organizational Information Systems
International Studies (INTL ST)	
INTL ST 154W	Ethics and Justice in International Affairs
INTL ST 155BW	Media Writing
Literary Journalism (LIT JRN)	
LIT JRN 101BW	Literary Journalism Core Writing Seminar
Logic and Philosophy of Science (LPS)	
LPS 100W	Writing Philosophy
LPS 142W	Writing/Philosophy of Biology
Management (MGMT)	
MGMT 191W	Business Communication
Music (MUSIC)	
MUSIC 142W	Studies in Baroque Music

MUSIC 143W	Studies in Classical Music
MUSIC 144W	Studies in Romantic Music
MUSIC 145W	Studies in Twentieth-Century Music
MUSIC 180AW	Music and Material Culture
MUSIC 180W	Music Criticism
Nursing Science (NUR SCI)	
NUR SCI 110W	Frameworks for Professional Nursing Practice
Philosophy (PHILOS)	
PHILOS 100W	Writing Philosophy
PHILOS 102W	Introduction to the Theory of Knowledge
PHILOS 142W	Writing/Philosophy of Biology
Pharmaceutical Sciences (PHRMSCI)	
PHRMSCI 174LW	Biopharmaceutics Laboratory
PHRMSCI 177LW	Medicinal Chemistry Lab
Physical Science (PHY SCI)	
PHY SCI 139W	Technical Writing and Communication Skills
Physics (PHYSICS)	
PHYSICS 121W	Advanced Laboratory
Political Science (POL SCI)	
POL SCI 120W	Public Opinion
POL SCI 122BW	California Politics
POL SCI 125AW	The United States Congress
POL SCI 134JW	Sexism and Power
POL SCI 137BW	Types of Political Representation
POL SCI 138CW	Ethics of Difference
POL SCI 150AW	Seminar on Regime Change in East Asia
POL SCI 151EW	Are Chinese Politics Changing?
POL SCI 156CW	Citizen Politics
POL SCI 157AW	Nationalism
POL SCI 171AW	Law and Society
POL SCI 171CW	Comparative Constitutional Politics
POL SCI 174CW	U.S. Supreme Court
POL SCI 190W	Senior Thesis
Psychology and Social Behavior (PSY BEH)	
PSY BEH 192RW	Culture and Close Relationships*
Cognitive Sciences (PSYCH)	
PSYCH 111BW	Honors Advanced Experimental Psychology
PSYCH 112BW	Advanced Experimental Psychology
PSYCH 146MW	Writing about Memory
Public Health (PUBHLTH)	
PUBHLTH 195W	Public Health Practicum and Culminating Experience
Social Science (SOC SCI)	
SOC SCI 172AW	American Culture
SOC SCI 183CW	Seminar Conflict Resolution
SOC SCI 184GW	Media Writing
SOC SCI 185W	People in Society
SOC SCI H190C	Honors Thesis
Social Ecology (SOCECOL)	
SOCECOL 183CW	Seminar Conflict Resolution
SOCECOL 186CW	Writing/Senior Seminar on Global Sustainability III
SOCECOL H190W	Honors Research
SOCECOL 194W	Naturalistic Field Research

Sociology (SOCIOL)	
SOCIOL 110W	Research Methods
SOCIOL 120W	Sociological Theory
SOCIOL 145W	Occupations and Professions
SOCIOL 147AW	Cities and Social Change
SOCIOL 152W	Sociology of Art and Popular Culture
SOCIOL 154W	Medical Sociology
SOCIOL 155BW	Baseball and Society
SOCIOL 158CW	Money, Work, and Social Life
SOCIOL 161W	Sociology of Sex and Gender
SOCIOL 164W	Aging and Society
SOCIOL 165AW	Social Inequality: Sociological Perspectives*
SOCIOL 167AW	Racial and Ethnic Relations in the United States
SOCIOL 168W	Sexism and Power
SOCIOL 177W	Immigration and Social Policy
SOCIOL 180AW	Sociology Majors Seminar
SOCIOL 188BW	Honors Research and Thesis
Writing (WRITING)	
WRITING 101W	Undergraduate Seminar: Applications in Literary Theory and Criticism for Creative Writing
WRITING 139W	Advanced Expository Writing
WRITING 179W	Advanced Composition for Teachers

II. Science and Technology

Understanding the nature of scientific inquiry and the operation of the biological, physical, and technological world is essential for making personal and public policy decisions in a technological society.

After completing this GE requirement, successful students should be able to do the following:

- demonstrate a broad understanding of the fundamental laws of science, the principles underlying the design and operation of technology, and the interrelations among science and technology disciplines;
- demonstrate a broad understanding of various natural phenomena that surround and influence our lives;
- describe how scientists approach and solve problems;
- solve problems and draw conclusions based on scientific information and models, using critical thinking and qualitative and quantitative analysis of data and concepts;
- and explain the scope and limitations of scientific inquiry and the scientific method.

Courses with an asterisk (*) can meet one or more GE requirement. Click on the course for more information.

Students must complete three courses from the following list:

II. Science and Technology

Arts (ARTS)	
ARTS 80	Art, Technology, and Science*
Biological Sciences (BIO SCI)	
BIO SCI 1A	Life Sciences
BIO SCI 5	Introduction to Molecular Biology
BIO SCI 6	Tropical Biology: Race to Save the Tropics
BIO SCI 9A	Nutrition Science
BIO SCI 9B	Biology and Chemistry of Food and Cooking
BIO SCI 9D	Diseases of the Twenty-First Century
BIO SCI 9E	Horticulture Science
BIO SCI 9J	Biology of Oriental Medicine
BIO SCI 9K	Global-Change Biology
BIO SCI 9N	Introduction to Complementary and Alternative Medicine

BIO SCI 10	The Biology of Human Diseases
BIO SCI 11	Topics in Biological Sciences
BIO SCI 12B	Disease and Civilization
BIO SCI 12D	Molecular Basis of Human Disease
BIO SCI 20	California Natural History
BIO SCI 23	Sustainable Landscaping: Design and Practices
BIO SCI 25	Biology of Cancer
BIO SCI 35	The Brain and Behavior
BIO SCI 36	Drugs and the Brain
BIO SCI 37	Brain Dysfunction and Repair
BIO SCI 38	Mind, Memory, Amnesia, and the Brain
BIO SCI 41	Aspects of Mood Disorder
BIO SCI 42	Origin of Life
BIO SCI 43	Media on the Mind
BIO SCI 44	Stem Cells and Brain Repair
BIO SCI 45	AIDS Fundamentals
BIO SCI 47	Stress
BIO SCI 55	Introduction to Ecology
BIO SCI 65	Biodiversity & Conservation
BIO SCI 75	Human Development: Conception to Birth
BIO SCI H90	The Idiom and Practice of Science
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
Chemistry (CHEM)	
CHEM 1A	General Chemistry*
CHEM 1B	General Chemistry*
CHEM 1C	General Chemistry*
CHEM H2A	Honors General Chemistry*
CHEM H2B	Honors General Chemistry*
CHEM H2C	Honors General Chemistry*
CHEM M3C	Majors Quantitative Analytical Chemistry*
CHEM 12	Chemistry Around Us*
CHEM H90	The Idiom and Practice of Science*
Computer Science and Engineering (CSE)	
CSE 21	Introduction to Computer Science I *
CSE 22	Introduction to Computer Science II*
CSE 41	Introduction to Programming*
CSE 42	Programming with Software Libraries*
CSE 43	Intermediate Programming*
Dance (DANCE)	
DANCE 3	Scientific Concepts of Health
DANCE 4	Introduction to Quantitative Research in Exercise Science
Earth System Science (EARTHSS)	
EARTHSS 1	Introduction to Earth System Science*
EARTHSS 3	Oceanography*
EARTHSS 5	The Atmosphere*
EARTHSS 7	Physical Geology*
EARTHSS 11	Climate Change and Policy

EARTHSS 13	Global-Change Biology
EARTHSS 15	Introduction to Global Climate Change
EARTHSS 17	Hurricanes, Tsunamis, and other Catastrophes
EARTHSS 19	Introduction to Modeling the Earth System
EARTHSS 21	On Thin Ice: Climate Change and the Cryosphere*
EARTHSS 23	Air Pollution: From Urban Smog to Global Change *
EARTHSS H90	The Idiom and Practice of Science*
Economics (ECON)	
ECON 11	The Internet and Public Policy*
Engineering (ENGR)	
ENGR 1A	General Chemistry for Engineers
Information and Computer Science (I&C SCI)	
I&C SCI 4	Human Factors for the Web
I&C SCI 5	Global Disruption and Information Technology
I&C SCI 6N	Computational Linear Algebra*
I&C SCI 8	Practical Computer Security
I&C SCI 10	How Computers Work
I&C SCI 11	The Internet and Public Policy*
I&C SCI 21	Introduction to Computer Science I *
I&C SCI H21	Honors Introduction to Computer Science I*
I&C SCI 22	Introduction to Computer Science II*
I&C SCI H22	Honors Introduction to Computer Science II*
I&C SCI 31	Introduction to Programming*
I&C SCI 32	Programming with Software Libraries*
I&C SCI 33	Intermediate Programming*
I&C SCI 51	Introductory Computer Organization
I&C SCI 61	Game Systems and Design
I&C SCI 77A	Mathematics and Computation in the Digital Age: Introduction to Signal Processing*
I&C SCI 77B	Mathematics and Computation in the Digital Age: Introduction to Collaborative Filtering*
I&C SCI 77C	Mathematics and Computation in the Digital Age: Introduction to Image Processing*
I&C SCI 77D	Mathematics and Computation in the Digital Age: Intro to Game Simulation and Analysis*
Informatics (IN4MATX)	
IN4MATX 12	Barter to Bitcoin: Society, Technology and the Future of Money*
IN4MATX 41	Informatics Core Course I*
IN4MATX 42	Informatics Core Course II*
Logic and Philosophy of Science (LPS)	
LPS 29	Critical Reasoning*
LPS 31	Introduction to Inductive Logic*
LPS 40	The Nature of Scientific Inquiry
LPS H80	Scientific Realism and Instrumentalism
Mathematics (MATH)	
MATH 77A	Mathematics and Computation in the Digital Age: Introduction to Signal Processing*

MATH 77B	Mathematics and Computation in the Digital Age: Introduction to Collaborative Filtering*
MATH 77C	Mathematics and Computation in the Digital Age: Introduction to Image Processing*
MATH 77D	Mathematics and Computation in the Digital Age: Intro to Game Simulation and Analysis*
Philosophy (PHILOS)	
PHILOS 29	Critical Reasoning*
PHILOS 31	Introduction to Inductive Logic*
Physics (PHYSICS)	
PHYSICS 3A	Basic Physics*
PHYSICS 3B	Basic Physics*
PHYSICS 3C	Basic Physics*
PHYSICS 7C	Classical Physics*
PHYSICS 7D	Classical Physics*
PHYSICS 7E	Classical Physics*
PHYSICS 12	Science Fiction and Science Fact*
PHYSICS 14	Physics of Energy and the Environment
PHYSICS 15	Physics of Music
PHYSICS 17	Physics of Athletics
PHYSICS 18	How Things Work
PHYSICS 19	Great Ideas of Physics
PHYSICS 20A	Introduction to Astronomy*
PHYSICS 20B	Cosmology: Man's Place in the Universe*
PHYSICS 20C	Observational Astronomy*
PHYSICS 20D	Space Science*
PHYSICS 20E	Life in the Universe*
PHYSICS 21	Special Topics in Physics
PHYSICS H90	The Idiom and Practice of Science*
Public Health (PUBHLTH)	
PUBHLTH 30	Human Environments
PUBHLTH 60	Environmental Quality and Health
PUBHLTH 80	AIDS Fundamentals
PUBHLTH 90	Natural Disasters
University Studies (UNI STU)	
UNI STU 13A	Introduction to Global Sustainability I
UNI STU 13B	Introduction to Global Sustainability II
UNI STU 17C	Water III*

III. Social and Behavioral Sciences

Courses will focus on principles, sources, and interpretations of human behavior and on how people organize, govern, understand, and explain social life. This category includes the analysis of human behavior at all levels, from the individual to collective social, economic, and political life, and on the scientific methods used in the acquisition of knowledge and the testing of competing theories.

After completing this GE requirement, successful students should be able to do the following:

- demonstrate knowledge and understanding of principles, sources, and interpretations of human behavior and how people organize, govern, understand, and explain social life;
- demonstrate an understanding of contemporary and historical perspectives on human behavior;

- understand and explain the scientific methods used in the acquisition of knowledge and the testing of competing theories in the social and behavioral sciences;
- and critically evaluate methods, findings, and conclusions in the research literature on human behavior.

Courses with an asterisk (*) can meet one or more GE requirement. Click on the course for more information.

Students must complete three courses from the following list:

III. Social and Behavioral Sciences

African American Studies (AFAM)	
AFAM 40A	African American Studies I*
AFAM 40B	African American Studies II*
AFAM 40C	African American Studies III*
Anthropology (ANTHRO)	
ANTHRO 2A	Introduction to Sociocultural Anthropology*
ANTHRO 2B	Introduction to Biological Anthropology
ANTHRO 2C	Introduction to Archaeology
ANTHRO 2D	Introduction to Language and Culture
ANTHRO 20B	Anthropology of Food*
ANTHRO 41A	Global Cultures and Society*
ANTHRO 134B	Anthropology of Drugs
Asian American Studies (ASIANAM)	
ASIANAM 50	Asian American Histories*
ASIANAM 51	The U.S. and Asia*
ASIANAM 52	Asian American Communities*
ASIANAM 53	Asian Americans and Comparative Race Relations*
Chicano/Latino Studies (CHC/LAT)	
CHC/LAT 61	Introduction to Chicano/Latino Studies I*
CHC/LAT 62	Introduction to Chicano/Latino Studies II*
CHC/LAT 63	Introduction to Chicano/Latino Studies III*
CHC/LAT 64	Introduction to Race and Ethnicity in Political Science*
CHC/LAT 66	Anthropology of Food*
Criminology, Law and Society (CRM/LAW)	
CRM/LAW C7	Introduction to Criminology, Law and Society
CRM/LAW C10	Fundamentals of Criminology, Law and Society
CRM/LAW C40	Forms of Criminal Behavior
Economics (ECON)	
ECON 1	Introduction to Economics
ECON 11	The Internet and Public Policy*
ECON 13	Global Economy*
ECON 17	An Economic Approach to Religion
ECON 20A	Basic Economics I
ECON 20B	Basic Economics II
ECON 23	Basic Economics for Engineers
Education (EDUC)	
EDUC 10	Educational Research Design
EDUC 30	21st Century Literacies
EDUC 40	Theories of Development and Learning Applied to Education
EDUC 55	Knowing and Learning in Mathematics and Science
English (ENGLISH)	

ENGLISH 11	Society, Law, and Literature*
Engineering, Civil and Environmental (ENGRCEE)	
ENGRCEE 60	Contemporary and Emerging Environmental Challenges
European Studies (EURO ST)	
EURO ST 10	Historical Foundations*
EURO ST 11	Contemporary Issues and Institutions*
Gender and Sexuality Studies (GEN&SEX)	
GEN&SEX 60A	Gender and Science
GEN&SEX 60B	Gender and Law
History (HISTORY)	
HISTORY 15C	Asian American Histories*
HISTORY 15F	What to Eat? Immigrants and the Development of American Cuisines*
Humanities (HUMAN)	
HUMAN 55	What is the Origin of Language?*
Information and Computer Science (I&C SCI)	
I&C SCI 3	Internet Technologies and their Social Impact
I&C SCI 11	The Internet and Public Policy*
I&C SCI 60	Computer Games and Society
Informatics (IN4MATX)	
IN4MATX 12	Barter to Bitcoin: Society, Technology and the Future of Money*
International Studies (INTL ST)	
INTL ST 11	Global Cultures and Society*
INTL ST 13	Global Economy*
INTL ST 14	Introduction to International Relations*
Linguistics (LINGUIS)	
LINGUIS 3	Introduction to Linguistics*
LINGUIS 10	Introduction to Phonology*
LINGUIS 20	Introduction to Syntax*
LINGUIS 51	Acquisition of Language
LINGUIS 68	Introduction to Language and Culture
Philosophy (PHILOS)	
PHILOS 22	Introduction to Law and Society
Political Science (POL SCI)	
POL SCI 6A	Introduction to Political Science: Political Analysis*
POL SCI 6B	Introduction to Political Science: Macropolitics
POL SCI 6C	Introduction to Political Science: Micropolitics
POL SCI 21A	Introduction to American Government
POL SCI 31A	Introduction to Political Theory
POL SCI 41A	Introduction to International Relations*
POL SCI 44A	Global Issues and Institutions*
POL SCI 51A	Introduction to Politics Around the World*
POL SCI 61A	Introduction to Race and Ethnicity in Political Science*
POL SCI 71A	Introduction to Law
Planning, Policy, and Design (PP&D)	
PP&D 4	Introduction to Urban Studies
Psychology and Social Behavior (PSY BEH)	
PSY BEH 9	Introduction to Psychology
PSY BEH 11A	Psychology Fundamentals

PSY BEH 11B	Psychology Fundamentals
PSY BEH 11C	Psychology Fundamentals
Cognitive Sciences (PSYCH)	
PSYCH 7A	Introduction to Psychology
PSYCH 9A	Psychology Fundamentals
PSYCH 9B	Psychology Fundamentals
PSYCH 9C	Psychology Fundamentals
PSYCH 21A	Adolescent Psychology
PSYCH 46A	Introduction to Human Memory
PSYCH 56L	Acquisition of Language
PSYCH 78A	Self-Identity and Society
Religious Studies (REL STD)	
REL STD 17	An Economic Approach to Religion
REL STD 60	Gender and Religion*
Social Science (SOC SCI)	
SOC SCI 1A	Principles in the Social Sciences
SOC SCI H1E	Honors: Critical Issues on the Social Sciences
SOC SCI H1F	Honors: Critical Issues on the Social Sciences
SOC SCI H1G	Honors: Critical Issues on the Social Sciences
SOC SCI 2A	Introduction to Social Science Analysis
SOC SCI 5A	Introduction to Human Geography
SOC SCI 5D	US & World Geography*
SOC SCI 40	Social Policy and Public Service
SOC SCI 70C	Comparing Cultures*
SOC SCI 78A	Asian American Histories*
SOC SCI 78B	Asian American Communities*
SOC SCI 78C	Asian Americans and Comparative Race Relations*
Social Ecology (SOCECOL)	
SOCECOL E8	Introduction to Environmental Analysis and Design
SOCECOL H20A	Honors: Critical Issues on the Social Sciences
SOCECOL H20B	Honors: Critical Issues on the Social Sciences
SOCECOL H20C	Honors: Critical Issues on the Social Sciences
Sociology (SOCIOL)	
SOCIOL 1	Introduction to Sociology*
SOCIOL 2	Globalization and Social Change*
SOCIOL 3	Social Problems*
SOCIOL 31	Self-Identity and Society
SOCIOL 62	Families and Intimate Relations
University Studies (UNI STU)	
UNI STU 13C	Introduction to Global Sustainability III
UNI STU 15C	Consciousness III*
UNI STU 16C	How Race Is Made III*
UNI STU 17C	Water III*

IV. Arts and Humanities

Study of the Arts and Humanities expands the student's sense of diverse forms of cultural expression, past and present. Students develop their critical capacity as they discover how meaning is created and experience variously interpreted.

After completing this GE requirement, successful students should be able to do the following:

- demonstrate knowledge and understanding of how visual and verbal communication is used in literature and film, art and music, and philosophy and history;
- communicate an understanding and appreciation of diverse forms of cultural expression, past and present;
- understand and explain the research methods used in the acquisition of knowledge and the testing of competing theories in the arts and humanities;
- and think critically about how meaning is created and how experience is variously interpreted.

Courses with an asterisk (*) can meet one or more GE requirement. Click on the course for more information.

Students must complete three courses from the following list:

IV. Arts and Humanities

African American Studies (AFAM)	
AFAM 40A	African American Studies I*
AFAM 40B	African American Studies II*
AFAM 40C	African American Studies III*
Art (ART)	
ART 1A	Art in Context: History, Theory, and Practice
ART 1B	Art in Context: History, Theory, and Practice
ART 1C	Art in Context: History, Theory, and Practice
ART 9A	Visual Culture: Media, Art, and Technology
ART 9B	Visual Culture: A Culture Divided
ART 9C	Visual Culture: Thematic Investigations
ART 12A	Art, Design, and Electronic Culture
ART 12B	Art, Science and Society: Steam to Steampunk
Art History (ART HIS)	
ART HIS 40A	Ancient Egyptian, Greek, and Roman Art and Architecture*
ART HIS 40B	Arts of Europe: Medieval and Renaissance*
ART HIS 40C	Early Modern and Modern Art in Europe and America*
ART HIS 42A	History of Asian Art: Arts of India*
ART HIS 42B	History of Asian Art: Arts of China*
ART HIS 42C	History of Asian Art: Arts of Japan*
ART HIS 42D	History of Asian Art: Arts of Islam*
Arts (ARTS)	
ARTS 1	ArtsCore
ARTS 80	Art, Technology, and Science*
Asian American Studies (ASIANAM)	
ASIANAM 50	Asian American Histories*
ASIANAM 51	The U.S. and Asia*
ASIANAM 54	Asian American Stories*
ASIANAM 55	Asian Americans and the Media*
Classics (CLASSIC)	
CLASSIC 36A	The Formation of Ancient Greek Society: Early Greece
CLASSIC 36B	The Formation of Ancient Greek Society: Late Archaic and Classical Greece
CLASSIC 36C	The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece
CLASSIC 37A	The Formation of Ancient Roman Society: Origins to Roman Republic
CLASSIC 37B	The Formation of Ancient Roman Society: Roman Empire
CLASSIC 37C	The Formation of Ancient Roman Society: The Fall of Rome
CLASSIC 45A	Classical Mythology: The Gods
CLASSIC 45B	Classical Mythology: The Heroes

CLASSIC 45C	Classical Mythology: Ancient and Modern Perspectives of Classical Mythology
Comparative Literature (COM LIT)	
COM LIT 8	Travels in Comparative Literature
COM LIT 9	Introduction to Multiculturalism*
COM LIT 10	Topics in World Literature*
COM LIT 40B	Development of Drama*
COM LIT 40C	Development of Drama*
COM LIT 60A	World Literature*
COM LIT 60B	Reading with Theory*
COM LIT 60C	Cultural Studies*
Dance (DANCE)	
DANCE 80	Introduction to Ballet and Modern Dance*
DANCE 81	American Ballet and Modern Dance since 1900
DANCE 83	Dance in Feature Film
DANCE 85	Gender, Meaning, and Culture in Ballet
DANCE 90A	Dance History 1A*
DANCE 90B	Dance History 1B*
DANCE 90C	Dance History 1C*
Drama (DRAMA)	
DRAMA 10	Introduction to Theatre
DRAMA 11	The Rock and Roll Spectacle Show
DRAMA 15	Performance Now
DRAMA 16	Performing Culture
DRAMA 20A	Culture in Performance
DRAMA 20B	Culture in Performance
DRAMA 20C	Culture in Performance
DRAMA 40A	Development of Drama*
DRAMA 40B	Development of Drama*
DRAMA 40C	Development of Drama*
East Asian Languages and Literatures (E ASIAN)	
E ASIAN 40	Topics in East Asian Popular Culture*
E ASIAN 55	Introduction to East Asian Cultures *
English (ENGLISH)	
ENGLISH 8	Multicultural American Literature*
ENGLISH 10	Topics in English and American Literature
ENGLISH 11	Society, Law, and Literature*
ENGLISH 12	Young Adult Fiction
ENGLISH 28A	The Poetic Imagination
ENGLISH 28B	Comic and Tragic Vision
ENGLISH 28C	Realism and Romance
ENGLISH 28D	The Craft of Poetry
ENGLISH 28E	The Craft of Fiction
European Studies (EURO ST)	
EURO ST 10	Historical Foundations*
EURO ST 11	Contemporary Issues and Institutions*
Film and Media Studies (FLM&MDA)	
FLM&MDA 85A	Introduction to Film and Visual Analysis

FLM&MDA 85B	Broadcast Media History and Analysis
FLM&MDA 85C	New Media and Digital Technologies
French (FRENCH)	
FRENCH 50	French Culture and the Modern World*
Gender and Sexuality Studies (GEN&SEX)	
GEN&SEX 20	Queer Studies*
GEN&SEX 50A	Gender and Feminism in Everyday Life*
GEN&SEX 50B	Gender and Power*
GEN&SEX 50C	Gender and Popular Culture*
German (GERMAN)	
GERMAN 50	Science, Society, and Mind*
Hebrew (HEBREW)	
HEBREW 50	Hebrew and Israeli Culture*
History (HISTORY)	
HISTORY 10	The Holocaust*
HISTORY 12	Introductory Topics in History
HISTORY 15A	Native American History*
HISTORY 15C	Asian American Histories*
HISTORY 15D	History of Sexuality in the US *
HISTORY 15E	Memory and Migration: American Families on the Move*
HISTORY 15F	What to Eat? Immigrants and the Development of American Cuisines*
HISTORY 16A	World Religions I*
HISTORY 16B	World Religions II*
HISTORY 16C	Religious Dialogue*
HISTORY 18A	Introduction to Jewish Cultures*
HISTORY 21A	World: Innovations*
HISTORY 21B	World: Empires and Revolutions*
HISTORY 21C	World: Wars and Rights*
HISTORY 36A	The Formation of Ancient Greek Society: Early Greece
HISTORY 36B	The Formation of Ancient Greek Society: Late Archaic and Classical Greece
HISTORY 36C	The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece
HISTORY 37A	The Formation of Ancient Roman Society: Origins to Roman Republic
HISTORY 37B	The Formation of Ancient Roman Society: Roman Empire
HISTORY 37C	The Formation of Ancient Roman Society: The Fall of Rome
HISTORY 40A	Colonial America: New Worlds
HISTORY 40B	Nineteenth-Century U.S.: Crisis and Expansion
HISTORY 40C	Modern America: Culture and Power
HISTORY 50	Crises and Revolutions*
HISTORY 60	The Making of Modern Science
HISTORY 70A	Problems in History: Asia*
HISTORY 70B	Problems in History: Europe*
HISTORY 70C	Problems in History: United States
HISTORY 70D	Problems in History: Latin America*
HISTORY 70E	Problems in History: Middle East and Africa*
HISTORY 70F	Problems in History: Transregional History*

Humanities (HUMAN)	
HUMAN 1A	Humanities Core Lecture
HUMAN 1B	Humanities Core Lecture
HUMAN 1C	Humanities Core Lecture*
HUMAN 10	Masterpieces of Literature*
HUMAN 55	What is the Origin of Language?*
Literary Journalism (LIT JRN)	
LIT JRN 20	Introduction to Literary Journalism
Logic and Philosophy of Science (LPS)	
LPS 60	The Making of Modern Science
Music (MUSIC)	
MUSIC 3	Introduction to Music
MUSIC 4	Introduction to Opera
MUSIC 8	The Beatles and the Sixties
MUSIC 9	Rock: The Early Years
MUSIC 14A	European and American Music 1700 - Twentieth Century
MUSIC 14B	European and American Music 1700 - Twentieth Century
MUSIC 14C	European and American Music 1700 - Twentieth Century
MUSIC 40B	History of European Music: Josquin to Wagner*
MUSIC 40C	History of European Music: Josquin to Wagner*
MUSIC 40D	Twentieth-Century Music*
MUSIC 42	Music and Gender*
MUSIC 44	Classical Music in Society*
MUSIC 45	History of Film Music
MUSIC 51	Music Technology and Computers
MUSIC 78	History of Jazz*
Persian (PERSIAN)	
PERSIAN 50	Persian Culture*
Philosophy (PHILOS)	
PHILOS 1	Introduction to Philosophy
PHILOS 2	Puzzles and Paradoxes*
PHILOS 4	Introduction to Ethics
PHILOS 5	Contemporary Moral Problems
PHILOS 6	Philosophy and Psychoanalysis
PHILOS 7	Introduction to Existentialism
PHILOS 9	Feminist Moral and Political Philosophy
PHILOS 10	History of Ancient Philosophy
PHILOS 11	History of Medieval Philosophy
PHILOS 12	History of Modern Philosophy
PHILOS 13	History of Contemporary Philosophy
PHILOS 23	Introduction to Problems of Self and Mind
Religious Studies (REL STD)	
REL STD 5A	World Religions I*
REL STD 5B	World Religions II*
REL STD 5C	Religious Dialogue*
REL STD 90	Aspects of Religion
Russian (RUSSIAN)	
RUSSIAN 50	Russian Culture *
Social Science (SOC SCI)	

SOC SCI 78A	Asian American Histories*
Spanish (SPANISH)	
SPANISH 50	Latin America, U.S. Latino, and Iberian Cultures*
University Studies (UNI STU)	
UNI STU 15B	Consciousness II
UNI STU 15C	Consciousness III*
UNI STU 16B	How Race Is Made II
UNI STU 16C	How Race Is Made III*
UNI STU 17C	Water III*

V. Quantitative, Symbolic, and Computational Reasoning

This category consists of two subcategories. Students are required to take one course in each of the subcategories and an additional course from either subcategory, for a total of three courses. A course approved for the GE requirement in category V and also approved for the GE requirement in a category other than V may be used to satisfy the requirements of both categories simultaneously. However, courses approved for both subcategories in category V may only be used once to satisfy one of the subcategories. The two subcategories are indicated as **Va** and **Vb**.

Va. Quantitative Literacy

Courses in this category focus on the quantitative description, evaluation, and assessment of events occurring in nature or in human social and political systems. This includes quantitative measurements made or data collected to study such events, analysis of the data, and implications of the analysis for our understanding of the events.

After taking a course in category Va, successful students will be able to do all of the following:

- identify appropriate tools for quantitative analysis of processes or events;
- have a basic familiarity with fundamental principles underlying quantitative descriptions of natural or social processes;
- and be able to do one or more of the following:
  - evaluate studies and reports that assess risk and probability in everyday life;
  - use models of natural phenomena to make quantitative predictions of future behavior or events;
  - use models of economic and social structures to make quantitative predictions of future behavior or events.

Courses with an asterisk (*) can meet one or more GE requirement. Click on the course for more information.

Va. Quantitative Literacy

Anthropology (ANTHRO)	
ANTHRO 10A	Probability and Statistics
ANTHRO 10B	Probability and Statistics
Chemistry (CHEM)	
CHEM 1A	General Chemistry*
CHEM 1B	General Chemistry*
CHEM 1C	General Chemistry*
CHEM H2A	Honors General Chemistry*
CHEM H2B	Honors General Chemistry*
CHEM H2C	Honors General Chemistry*
CHEM M3C	Majors Quantitative Analytical Chemistry*
CHEM 12	Chemistry Around Us*
CHEM H90	The Idiom and Practice of Science*
Computer Science and Engineering (CSE)	
CSE 42	Programming with Software Libraries*
Earth System Science (EARTHSS)	
EARTHSS 1	Introduction to Earth System Science*
EARTHSS 3	Oceanography*
EARTHSS 5	The Atmosphere*

EARTHSS 7	Physical Geology*
EARTHSS 15	Introduction to Global Climate Change
EARTHSS 17	Hurricanes, Tsunamis, and other Catastrophes
EARTHSS 21	On Thin Ice: Climate Change and the Cryosphere*
EARTHSS 23	Air Pollution: From Urban Smog to Global Change *
EARTHSS H90	The Idiom and Practice of Science*
Economics (ECON)	
ECON 15A	Probability and Statistics in Economics I
ECON 15B	Probability and Statistics in Economics II
Education (EDUC)	
EDUC 15	Statistics for Education Research
Information and Computer Science (I&C SCI)	
I&C SCI 7	Introducing Modern Computational Tools
I&C SCI 32	Programming with Software Libraries*
I&C SCI 77A	Mathematics and Computation in the Digital Age: Introduction to Signal Processing*
I&C SCI 77B	Mathematics and Computation in the Digital Age: Introduction to Collaborative Filtering*
I&C SCI 77C	Mathematics and Computation in the Digital Age: Introduction to Image Processing*
I&C SCI 77D	Mathematics and Computation in the Digital Age: Intro to Game Simulation and Analysis*
Logic and Philosophy of Science (LPS)	
LPS 31	Introduction to Inductive Logic*
Mathematics (MATH)	
MATH 77A	Mathematics and Computation in the Digital Age: Introduction to Signal Processing*
MATH 77B	Mathematics and Computation in the Digital Age: Introduction to Collaborative Filtering*
MATH 77C	Mathematics and Computation in the Digital Age: Introduction to Image Processing*
MATH 77D	Mathematics and Computation in the Digital Age: Intro to Game Simulation and Analysis*
Management (MGMT)	
MGMT 7	Statistics for Business Decision Making
Philosophy (PHILOS)	
PHILOS 31	Introduction to Inductive Logic*
Physics (PHYSICS)	
PHYSICS 3A	Basic Physics*
PHYSICS 3B	Basic Physics*
PHYSICS 3C	Basic Physics*
PHYSICS 7C	Classical Physics*
PHYSICS 7D	Classical Physics*
PHYSICS 7E	Classical Physics*
PHYSICS 12	Science Fiction and Science Fact*
PHYSICS 20A	Introduction to Astronomy*
PHYSICS 20B	Cosmology: Man's Place in the Universe*
PHYSICS 20C	Observational Astronomy*

PHYSICS 20D	Space Science*
PHYSICS 20E	Life in the Universe*
PHYSICS H90	The Idiom and Practice of Science*
Political Science (POL SCI)	
POL SCI 10A	Probability and Statistics in Political Science I
POL SCI 10B	Probability and Statistics in Political Science II
Cognitive Sciences (PSYCH)	
PSYCH 10A	Probability and Statistics in Psychology I
PSYCH 10B	Probability and Statistics in Psychology II
Public Health (PUBHLTH)	
PUBHLTH 7	Introduction to Public Health Statistics
Social Science (SOC SCI)	
SOC SCI 9A	General Statistics and Probability I
SOC SCI 9B	General Statistics and Probability II
SOC SCI 10A	Probability and Statistics in Social Sciences I
SOC SCI 10B	Probability & Statistics in Social Sciences II
Social Ecology (SOCECOL)	
SOCECOL 13	Statistical Analysis in Social Ecology
Sociology (SOCIOL)	
SOCIOL 10A	Probability and Statistics
SOCIOL 10B	Probability and Statistics
Statistics (STATS)	
STATS 7	Basic Statistics
STATS 8	Introduction to Biological Statistics
STATS 67	Introduction to Probability and Statistics for Computer Science

Vb. Formal Reasoning

Courses in this category focus on aspects of formal reasoning including symbolic logic, mathematical modeling, and algorithmic reasoning.

After taking a course in category Vb, successful students will be able to do all of the following:

- understand the concept and purpose of formal languages such as propositional and first-order logic, simple programming languages, mathematical models or linguistic formalisms;
- possess an elementary grasp of the power and limits of formal methods; and be able to do one or both of the following:
  - apply formal tools of logic or mathematics to the analysis and evaluation of everyday and/or scientific arguments, texts, and communicative situations;
  - apply basic algorithms for the generation of logical deductions, linguistic structures, or computational processes.

Courses with an asterisk (*) can meet one or more GE requirement. Click on the course for more information.

Vb. Formal Reasoning

Anthropology (ANTHRO)	
ANTHRO 10C	Probability and Statistics
Computer Science and Engineering (CSE)	
CSE 21	Introduction to Computer Science I *
CSE 22	Introduction to Computer Science II*
CSE 41	Introduction to Programming*
CSE 42	Programming with Software Libraries*
CSE 43	Intermediate Programming*
CSE 46	Data Structure Implementation and Analysis
Earth System Science (EARTHSS)	
EARTHSS 19	Introduction to Modeling the Earth System
Humanities (HUMAN)	

HUMAN 55	What is the Origin of Language?*
Information and Computer Science (I&C SCI)	
I&C SCI 6B	Boolean Algebra and Logic
I&C SCI 6D	Discrete Mathematics for Computer Science
I&C SCI 6N	Computational Linear Algebra*
I&C SCI 21	Introduction to Computer Science I *
I&C SCI H21	Honors Introduction to Computer Science I*
I&C SCI 22	Introduction to Computer Science II*
I&C SCI H22	Honors Introduction to Computer Science II*
I&C SCI H23	Honors Introduction to Computer Science III
I&C SCI 31	Introduction to Programming*
I&C SCI 32	Programming with Software Libraries*
I&C SCI 33	Intermediate Programming*
I&C SCI 46	Data Structure Implementation and Analysis
Informatics (IN4MATX)	
IN4MATX 41	Informatics Core Course I*
IN4MATX 42	Informatics Core Course II*
IN4MATX 45	Patterns of Software Construction
Linguistics (LINGUIS)	
LINGUIS 3	Introduction to Linguistics*
LINGUIS 10	Introduction to Phonology*
LINGUIS 20	Introduction to Syntax*
Logic and Philosophy of Science (LPS)	
LPS 29	Critical Reasoning*
LPS 30	Introduction to Symbolic Logic
Mathematics (MATH)	
MATH 2A	Single-Variable Calculus
MATH 2B	Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 4	Mathematics for Economists
MATH 6G	Linear Algebra
Philosophy (PHILOS)	
PHILOS 2	Puzzles and Paradoxes*
PHILOS 29	Critical Reasoning*
PHILOS 30	Introduction to Symbolic Logic
Political Science (POL SCI)	
POL SCI 10C	Probability and Statistics in Political Science III
Cognitive Sciences (PSYCH)	
PSYCH 10C	Probability and Statistics in Psychology III
Social Science (SOC SCI)	
SOC SCI 9C	General Statistics and Probability III
SOC SCI 10C	Probability & Statistics in Social Sciences III
Sociology (SOCIOL)	
SOCIOL 10C	Probability and Statistics

VI. Language Other Than English

Study of a language other than English expands students' horizons by encouraging understanding of another culture through its language and heightens awareness of one's own language through the investigation of another linguistic system.

After completing this GE requirement, successful students should be able to do the following:

- demonstrate competency in reading, writing, speaking, and listening in a non-English language;
- demonstrate an understanding of another (non-English speaking) culture through its language;
- and demonstrate an understanding of one's own language through the investigation of another, non-English linguistic system.

Students must demonstrate competency in a language other than English (includes American Sign Language) by completing one of the following six options:

- College-level course work equivalent to UCI's third quarter of study in a language other than English. UCI courses approved to satisfy this requirement are:

Courses with an asterisk (*) can meet one or more GE requirement. Click on the course for more information.

VI. Language Other Than English

Arabic (ARABIC)	
ARABIC 1C	Fundamentals of Arabic
ARABIC S1BC	Introductory Arabic
Chinese (CHINESE)	
CHINESE 1C	Fundamental Mandarin Chinese
CHINESE 1DC	Fundamentals of Mandarin Chinese - Dialect Background Track
CHINESE 1MC	Fundamentals of Mandarin Chinese - Mandarin Background Track
CHINESE S1BC	Fundamentals of Mandarin Chinese
French (FRENCH)	
FRENCH 1C	Fundamentals of French
FRENCH S1BC	Fundamentals of French
German (GERMAN)	
GERMAN 1BC	Intensive German Fundamentals
GERMAN 1C	Fundamentals of German
GERMAN S1BC	Fundamentals of German
Greek (GREEK)	
GREEK 1C	Fundamentals of Greek
GREEK S1BC	Fundamentals of Greek
Hebrew (HEBREW)	
HEBREW 1C	Fundamentals of Hebrew
Italian (ITALIAN)	
ITALIAN 1B	Fundamentals of Italian
ITALIAN 1C	Fundamentals of Italian
ITALIAN S1BC	Italian Fundamentals
Japanese (JAPANSE)	
JAPANSE 1C	Fundamental Japanese
JAPANSE S1BC	Fundamentals of Japanese
Korean (KOREAN)	
KOREAN 1C	Fundamental Korean
KOREAN 1KC	Fundamental Korean for Students with a Previous Background in Korean
KOREAN S1BC	Fundamentals of Korean
Latin (LATIN)	
LATIN 1C	Fundamentals of Latin
LATIN S1BC	Fundamentals of Latin
Persian (PERSIAN)	
PERSIAN 1C	Fundamentals in Persian
PERSIAN S1AB	Fundamentals of Persian
PERSIAN S1BC	Fundamentals of Persian
Russian (RUSSIAN)	
RUSSIAN 1BC	Intensive Russian Fundamentals

RUSSIAN 1C	Fundamentals of Russian
Spanish (SPANISH)	
SPANISH 1C	Fundamentals of Spanish
SPANISH S1BC	Fundamentals of Spanish
Vietnamese (VIETMSE)	
VIETMSE 1C	Fundamentals of Vietnamese
VIETMSE S1BC	Fundamentals

For information on UCI's prerequisites, course placement policies, and the grade required to advance to the next level of instruction, consult the School of Humanities (p. 625) *(Language Other Than English Placement and Progression) section in this* Catalogue.

- Credit for three years of high school study or its equivalent in a single language other than English with a C average or better in the third year.
- A score of 3, 4, or 5 on a College Board Advanced Placement Examination in a language other than English. NOTE: Students who earn a 3, 4, or 5 on the AP Chinese Examination must take the UCI Chinese placement examination to determine course credit.
- A score of 570 or better on a College Board SAT Subject Test in a language other than English, with the exception of the test in Modern Hebrew for which a score of 500 or better is required.
- Completion of an approved course of study through the UC Education Abroad Program (EAP). Careful planning is required to ensure that this requirement is fulfilled. Check with an EAP counselor at the Study Abroad Center to determine the programs in countries that fulfill this requirement.
- The equivalent as determined by an appropriate and available means of evaluation. For information on availability of such examinations and testing schedules, consult the Academic Testing Center, (949) 824-6207. If an appropriate means of evaluating competence in a non-English language of instruction does not exist, satisfactory completion, with a C average or better, of one year of formal schooling at the sixth grade level or higher in an institution where the language of instruction is not English will meet the requirement. Appropriate documentation must be presented to substantiate that the course work was completed.

VII. Multicultural Studies

This requirement develops students' awareness and appreciation of the history, society, and/or culture of one or more underrepresented groups in California and the United States.

After completing this GE requirement, successful students should be able to do the following:

- demonstrate knowledge of one or more historically underrepresented groups' culture, history, and development in California and the United States;
- demonstrate an awareness and appreciation of cultural differences and inequities;
- and demonstrate an understanding that cooperation and mutual understanding among all cultural groups is needed to interact successfully in a culturally diverse society.

Students must complete one course from the following list. In fulfilling category VII, students are encouraged to use courses that are also being used in fulfillment of other GE categories. For example, HUMAN 1C simultaneously satisfies category VII and a portion of category IV.

Courses with an asterisk (*) can meet one or more GE requirement. Click on the course for more information.

VII. Multicultural Studies

African American Studies (AFAM)	
AFAM 40A	African American Studies I*
AFAM 40B	African American Studies II*
AFAM 40C	African American Studies III*
Anthropology (ANTHRO)	
ANTHRO 20B	Anthropology of Food*
ANTHRO 85A	Cultures in Collision: Indian-White Relations Since Columbus
ANTHRO 128B	Race, Gender, and Science
ANTHRO 136K	The Woman and the Body
ANTHRO 137A	Reading Images Culturally
ANTHRO 162B	Indian North America
ANTHRO 162BW	Indian North America*
Asian American Studies (ASIANAM)	
ASIANAM 50	Asian American Histories*
ASIANAM 52	Asian American Communities*

ASIANAM 53	Asian Americans and Comparative Race Relations*
ASIANAM 54	Asian American Stories*
ASIANAM 55	Asian Americans and the Media*
ASIANAM 144	The Politics of Protest
Chicano/Latino Studies (CHC/LAT)	
CHC/LAT 61	Introduction to Chicano/Latino Studies I*
CHC/LAT 62	Introduction to Chicano/Latino Studies II*
CHC/LAT 63	Introduction to Chicano/Latino Studies III*
CHC/LAT 64	Introduction to Race and Ethnicity in Political Science*
CHC/LAT 65	Ethnic and Immigrant America
CHC/LAT 66	Anthropology of Food*
CHC/LAT 114	Film Media and the Latino Community
CHC/LAT 116	Reading Images Culturally
CHC/LAT 142	Latinos and the Law
CHC/LAT 151	Latinos in U.S. Politics
CHC/LAT 153	Cross-Cultural Research on Urban Gangs
CHC/LAT 154	Latino Metropolis
CHC/LAT 158	Feminisms of Color
CHC/LAT 158W	Feminisms of Color*
CHC/LAT 160	Perspectives on the U.S. - Mexican Border
CHC/LAT 163	U.S. Immigration Policy
CHC/LAT 168	Chicano/Latino Social Psychology
CHC/LAT 176	Race, Gender, and Science
CHC/LAT 177	Culture and Close Relationships
CHC/LAT 177W	Culture and Close Relationships*
CHC/LAT 178	Health and the Latino Paradox
CHC/LAT 183	Multicultural Education in K-12 Schools
Comparative Literature (COM LIT)	
COM LIT 9	Introduction to Multiculturalism*
Criminology, Law and Society (CRM/LAW)	
CRM/LAW C156	Cross-Cultural Research on Urban Gangs
CRM/LAW C171	Latinos and the Law
Education (EDUC)	
EDUC 124	Multicultural Education in K-12 Schools
EDUC 143BW	Classroom Interactions II*
English (ENGLISH)	
ENGLISH 8	Multicultural American Literature*
Gender and Sexuality Studies (GEN&SEX)	
GEN&SEX 20	Queer Studies*
GEN&SEX 50A	Gender and Feminism in Everyday Life*
GEN&SEX 50B	Gender and Power*
GEN&SEX 50C	Gender and Popular Culture*
GEN&SEX 188A	Race, Gender, and Science
History (HISTORY)	
HISTORY 15A	Native American History*
HISTORY 15C	Asian American Histories*
HISTORY 15D	History of Sexuality in the US *
HISTORY 15E	Memory and Migration: American Families on the Move*

HISTORY 15F	What to Eat? Immigrants and the Development of American Cuisines*
Humanities (HUMAN)	
HUMAN 1C	Humanities Core Lecture*
International Studies (INTL ST)	
INTL ST 177B	Perspectives on the U.S. - Mexican Border
Linguistics (LINGUIS)	
LINGUIS 2	Discovering Language
Music (MUSIC)	
MUSIC 78	History of Jazz*
Political Science (POL SCI)	
POL SCI 61A	Introduction to Race and Ethnicity in Political Science*
POL SCI 124A	The Politics of Protest
POL SCI 124B	Latinos in U.S. Politics
POL SCI 126C	U.S. Immigration Policy
Planning, Policy, and Design (PP&D)	
PP&D 172	Latino Metropolis
Psychology and Social Behavior (PSY BEH)	
PSY BEH 192Q	Chicano/Latino Social Psychology
PSY BEH 192R	Culture and Close Relationships
PSY BEH 192RW	Culture and Close Relationships*
PSY BEH 192S	Health and the Latino Paradox
Social Science (SOC SCI)	
SOC SCI 70A	Race and Ethnicity
SOC SCI 70C	Comparing Cultures*
SOC SCI 78A	Asian American Histories*
SOC SCI 78B	Asian American Communities*
SOC SCI 78C	Asian Americans and Comparative Race Relations*
SOC SCI 173G	Film Media and the Latino Community
SOC SCI 173I	Perspectives on the U.S. - Mexican Border
Sociology (SOCIOL)	
SOCIOL 1	Introduction to Sociology*
SOCIOL 3	Social Problems*
SOCIOL 51	Asian American Family & Community
SOCIOL 63	Race and Ethnicity
SOCIOL 65	Cultures in Collision: Indian-White Relations Since Columbus
SOCIOL 68A	Ethnic and Immigrant America
University Studies (UNI STU)	
UNI STU 16C	How Race Is Made III*

VIII. International/Global Issues

Courses in this category focus on significant cultural, economic, geographical, historical, political, and/or sociological aspects of one or more countries other than the United States.

After completing this GE requirement, successful students should be able to do the following:

- demonstrate specific knowledge of the cultural, historical, social, economic, scientific, and political aspects of one or more foreign countries, and the connections among these aspects;
- develop a broader understanding of the formation of different cultures and countries through the world;
- and be prepared to engage in positive interaction with peoples of different cultures and nationalities.

Students must complete one course from the following list. In fulfilling category VIII, students are encouraged to use courses that are also being used in fulfillment of other GE categories. In addition, category VIII may be satisfied by one quarter's participation in the UC Education Abroad Program (EAP) or

one quarter's participation in an International Opportunities Program (IOP) with an approved IOP Credit Contract. Summer study abroad on an EAP or IOP (with approved IOP Credit Contract) satisfies this requirement when the program is at least five weeks long and the student completes at least one course worth at least four quarter units.

Courses with an asterisk (*) can meet one or more GE requirement. Click on the course for more information.

VIII. International/Global Issues

Anthropology (ANTHRO)	
ANTHRO 2A	Introduction to Sociocultural Anthropology*
ANTHRO 20A	People, Cultures, and Environmental Sustainability
ANTHRO 30A	Global Issues in Anthropological Perspective
ANTHRO 41A	Global Cultures and Society*
ANTHRO 125X	Transnational Migration
ANTHRO 134A	Medical Anthropology
ANTHRO 134G	HIV/AIDS in a Global Context
ANTHRO 134GW	HIV/AIDS in a Global Context*
ANTHRO 135I	Modern South Asian Religions
ANTHRO 136A	Nationalism and Ethnicity in the Contemporary World
ANTHRO 136D	Conflict Resolution in Cross-Cultural Perspective
ANTHRO 138Q	Latino Music: A View of Its Diversity and Strength
ANTHRO 162A	Peoples and Cultures of Latin America
ANTHRO 163A	Peoples of the Pacific
ANTHRO 164P	Peoples and Cultures of Post-Soviet Eurasia
Arabic (ARABIC)	
ARABIC 2A	Intermediate Arabic Language and Culture
ARABIC 2B	Intermediate Arabic Language and Culture
ARABIC 2C	Intermediate Arabic Language and Culture
Art History (ART HIS)	
ART HIS 40A	Ancient Egyptian, Greek, and Roman Art and Architecture*
ART HIS 40B	Arts of Europe: Medieval and Renaissance*
ART HIS 40C	Early Modern and Modern Art in Europe and America*
ART HIS 42A	History of Asian Art: Arts of India*
ART HIS 42B	History of Asian Art: Arts of China*
ART HIS 42C	History of Asian Art: Arts of Japan*
ART HIS 42D	History of Asian Art: Arts of Islam*
Asian American Studies (ASIANAM)	
ASIANAM 51	The U.S. and Asia*
Chicano/Latino Studies (CHC/LAT)	
CHC/LAT 115A	Latino Music: A View of Its Diversity and Strength
CHC/LAT 130	Introduction to Cuba: History, Culture, and Society
CHC/LAT 161	Transnational Migration
CHC/LAT 178A	Medical Anthropology
Chinese (CHINESE)	
CHINESE 2A	Intermediate Mandarin Chinese
CHINESE 2B	Intermediate Mandarin Chinese
CHINESE 2C	Intermediate Mandarin Chinese
CHINESE 2DA	Intermediate Mandarin Chinese - Dialect Background Track
CHINESE 2DB	Intermediate Mandarin Chinese - Dialect Background Track
CHINESE 2DC	Intermediate Mandarin Chinese - Dialect Background Track
CHINESE 2MA	Intermediate Mandarin Chinese - Mandarin Background Track
CHINESE 2MB	Intermediate Mandarin Chinese - Mandarin Background Track

CHINESE 2MC	Intermediate Mandarin Chinese - Mandarin Background Track
CHINESE 3A	Advanced Mandarin Chinese
CHINESE 3B	Advanced Mandarin Chinese
CHINESE 3C	Advanced Mandarin Chinese
Comparative Literature (COM LIT)	
COM LIT 10	Topics in World Literature*
COM LIT 40B	Development of Drama*
COM LIT 40C	Development of Drama*
COM LIT 60A	World Literature*
COM LIT 60B	Reading with Theory*
COM LIT 60C	Cultural Studies*
Dance (DANCE)	
DANCE 80	Introduction to Ballet and Modern Dance*
DANCE 82	Topics in World Dance
DANCE 90A	Dance History 1A*
DANCE 90B	Dance History 1B*
DANCE 90C	Dance History 1C*
Drama (DRAMA)	
DRAMA 40A	Development of Drama*
DRAMA 40B	Development of Drama*
DRAMA 40C	Development of Drama*
East Asian Languages and Literatures (E ASIAN)	
E ASIAN 20	Asian Religions
E ASIAN 40	Topics in East Asian Popular Culture*
E ASIAN 55	Introduction to East Asian Cultures *
Earth System Science (EARTHSS)	
EARTHSS 15	Introduction to Global Climate Change
EARTHSS 17	Hurricanes, Tsunamis, and other Catastrophes
EARTHSS 21	On Thin Ice: Climate Change and the Cryosphere*
EARTHSS 23	Air Pollution: From Urban Smog to Global Change *
Economics (ECON)	
ECON 13	Global Economy*
European Studies (EURO ST)	
EURO ST 10	Historical Foundations*
EURO ST 11	Contemporary Issues and Institutions*
French (FRENCH)	
FRENCH 2A	Intermediate French
FRENCH 2B	Intermediate French
FRENCH 2C	Intermediate French
FRENCH S2AB	Intermediate French
FRENCH S2BC	Intermediate French
FRENCH 50	French Culture and the Modern World*
German (GERMAN)	
GERMAN 2A	Intermediate German
GERMAN 2B	Intermediate German
GERMAN 2C	Intermediate German
GERMAN S2AB	Intermediate German
GERMAN S2BC	Intermediate German

GERMAN 50	Science, Society, and Mind*
Hebrew (HEBREW)	
HEBREW 2A	Intermediate Hebrew
HEBREW 2B	Intermediate Hebrew
HEBREW 2C	Intermediate Hebrew
HEBREW 50	Hebrew and Israeli Culture*
History (HISTORY)	
HISTORY 10	The Holocaust*
HISTORY 16A	World Religions I*
HISTORY 16B	World Religions II*
HISTORY 16C	Religious Dialogue*
HISTORY 18A	Introduction to Jewish Cultures*
HISTORY 21A	World: Innovations*
HISTORY 21B	World: Empires and Revolutions*
HISTORY 21C	World: Wars and Rights*
HISTORY 50	Crises and Revolutions*
HISTORY 70A	Problems in History: Asia*
HISTORY 70B	Problems in History: Europe*
HISTORY 70D	Problems in History: Latin America*
HISTORY 70E	Problems in History: Middle East and Africa*
HISTORY 70F	Problems in History: Transregional History*
Humanities (HUMAN)	
HUMAN 1C	Humanities Core Lecture*
HUMAN 10	Masterpieces of Literature*
International Studies (INTL ST)	
INTL ST 11	Global Cultures and Society*
INTL ST 13	Global Economy*
INTL ST 14	Introduction to International Relations*
INTL ST 114A	International Political Economy
INTL ST 117A	Transnational Migration
INTL ST 145A	International Law
INTL ST 153E	Nationalism and Ethnicity in the Contemporary World
INTL ST 158A	Modern South Asian Religions
INTL ST 158B	Peoples of the Pacific
INTL ST 162B	Peoples and Cultures of Post-Soviet Eurasia
INTL ST 177F	Introduction to Cuba: History, Culture, and Society
INTL ST 177J	Peoples and Cultures of Latin America
INTL ST 183E	Conflict Resolution in Cross-Cultural Perspective
Italian (ITALIAN)	
ITALIAN 2A	Intermediate Italian
ITALIAN 2B	Intermediate Italian
ITALIAN 2C	Intermediate Italian
Japanese (JAPANSE)	
JAPANSE 2A	Intermediate Japanese
JAPANSE 2B	Intermediate Japanese
JAPANSE 2C	Intermediate Japanese
JAPANSE S2AB	Intermediate Japanese
JAPANSE S2BC	Intermediate Japanese

JAPANSE 3A	Advanced Japanese
JAPANSE 3B	Advanced Japanese
JAPANSE 3C	Advanced Japanese
Korean (KOREAN)	
KOREAN 2A	Intermediate Korean
KOREAN 2B	Intermediate Korean
KOREAN 2C	Intermediate Korean
KOREAN 2KA	Intermediate Korean for Students with a Previous Background in Korean
KOREAN 2KB	Intermediate Korean for Students with a Previous Background in Korean
KOREAN 2KC	Intermediate Korean for Students with a Previous Background in Korean
KOREAN S2AB	Intensive Intermediate Korean
KOREAN S2BC	Intensive Intermediate Korean
KOREAN 3A	Advanced Korean
KOREAN 3B	Advanced Korean
KOREAN 3C	Advanced Korean
Linguistics (LINGUIS)	
LINGUIS 1	Languages of the World
Music (MUSIC)	
MUSIC 40B	History of European Music: Josquin to Wagner*
MUSIC 40C	History of European Music: Josquin to Wagner*
MUSIC 40D	Twentieth-Century Music*
MUSIC 42	Music and Gender*
MUSIC 44	Classical Music in Society*
MUSIC 49A	Asian in Western Music
Persian (PERSIAN)	
PERSIAN 2A	Intermediate Persian
PERSIAN 2B	Intermediate Persian
PERSIAN 2C	Intermediate Persian
PERSIAN 3A	Advanced Persian
PERSIAN 3B	Advanced Persian
PERSIAN 50	Persian Culture*
Political Science (POL SCI)	
POL SCI 6A	Introduction to Political Science: Political Analysis*
POL SCI 41A	Introduction to International Relations*
POL SCI 43D	Global Security and Cooperation
POL SCI 44A	Global Issues and Institutions*
POL SCI 51A	Introduction to Politics Around the World*
POL SCI 141B	International Political Economy
POL SCI 141C	International Political Economy of East Asia
POL SCI 154F	Peoples and Cultures of Post-Soviet Eurasia
POL SCI 154G	Conflict Resolution in Cross-Cultural Perspective
POL SCI 172A	International Law
Religious Studies (REL STD)	
REL STD 5A	World Religions I*
REL STD 5B	World Religions II*
REL STD 5C	Religious Dialogue*
REL STD 60	Gender and Religion*
Russian (RUSSIAN)	
RUSSIAN 2A	Intermediate Russian

RUSSIAN 2B	Intermediate Russian
RUSSIAN 2C	Intermediate Russian
RUSSIAN 50	Russian Culture *
Social Science (SOC SCI)	
SOC SCI 5D	US & World Geography*
SOC SCI 173Q	Introduction to Cuba: History, Culture, and Society
SOC SCI 183E	Conflict Resolution in Cross-Cultural Perspective
Sociology (SOCIOL)	
SOCIOL 2	Globalization and Social Change*
SOCIOL 44	Births, Deaths, and Migration
SOCIOL 165AW	Social Inequality: Sociological Perspectives*
Spanish (SPANISH)	
SPANISH 2	Accelerated Intermediate Spanish
SPANISH 2A	Intermediate Spanish
SPANISH 2AB	Intermediate Intensive Spanish
SPANISH 2B	Intermediate Spanish
SPANISH 2C	Intermediate Spanish
SPANISH S2AB	Intermediate Spanish
SPANISH S2BC	Intermediate Spanish
SPANISH 3A	Grammar and Composition
SPANISH 3B	Composition and Grammar
SPANISH 44	Hispanic Literatures for Nonmajors
SPANISH 50	Latin America, U.S. Latino, and Iberian Cultures*
Vietnamese (VIETMSE)	
VIETMSE 2A	Intermediate Vietnamese
VIETMSE 2B	Intermediate Vietnamese
VIETMSE 2C	Intermediate Vietnamese

Or, students may complete one of the following fourth-quarter language options:

1. Credit for four years of high school study or its equivalent in a single language other than English with a C average or better in the fourth year.
2. A score of 4 or 5 on a College Board Advanced Placement Examination in a language other than English. NOTE: Students who earn a 3, 4, or 5 on the AP Chinese Examination must take the UCI Chinese placement examination to determine course credit.
3. A score of 620 or better on a College Board SAT Subject Test in a language other than English, with the exception of the test in Modern Hebrew for which a score of 540 or better is required.
4. The equivalent as determined by an appropriate and available means of evaluation. For information on availability of such examinations and testing schedules, consult the Academic Testing Center, (949) 824-6207. If an appropriate means of evaluating competence in a non-English language of instruction does not exist, satisfactory completion, with a C average or better, of two years of formal schooling at the sixth grade level or higher in an institution where the language of instruction is not English will meet the requirement. Appropriate documentation must be presented to substantiate that the course work was completed.

First-Year Integrated Program (FIP)

University Studies 13–17 are three-quarter multidisciplinary sequences for freshmen or lower-division students only. These integrated courses are designed to introduce students to the ways different disciplines approach similar problems and to provide a freshman learning community experience. Successful completion of all three quarters will satisfy several courses toward partial fulfillment of different general education (GE) requirement categories. Additional information is available in the First-Year Integrated Program (p. 138) section of this *Catalogue*.

School, Departmental, and Major Requirements

In addition to the University and UCI requirements listed above, each undergraduate student must satisfy the degree requirements for the major and, if applicable, the minor or concentration selected. UCI, school, and departmental or major and minor requirements may overlap; courses taken to fulfill a school or departmental requirement may also help fulfill the UCI general education requirement. Students are urged to make sure that they understand how many courses are permitted to satisfy more than one requirement. Information on specific degree requirements and courses is available in the academic unit sections of this *Catalogue.*

Students must declare a major by the time they reach junior status (90 units excluding college work completed prior to high school graduation), and should make certain that the background and the preparation prerequisite to junior and senior work in the major have been accomplished. Transfer students should read the section on Information for Transfer Students: Fulfilling Requirements for a Bachelor's Degree.

Students should note that with the exception of courses designated Pass/Not Pass Only, courses taken Pass/Not Pass may *not* be used to satisfy specific course requirements of the student's school and major, unless authorized by the appropriate dean. Additional information on grading is located in the Academic Regulations and Procedures section.

Minor Programs

For certification in a minor, a student must obtain a minimum overall grade point average of at least C (2.0) in all courses required for the minor program. No more than two courses applied to a minor may be taken Pass/Not Pass. Completion of the minor is noted on a student's transcript. (Students are *not* required to minor in a program in order to graduate from UCI.)

Application for Graduation

In order to receive a degree, an undergraduate student must submit an online Application for Graduation via the Student Access link at the Registrar's Office (http://www.reg.uci.edu) website no later than the published deadline. Specific deadline dates for filing are established quarterly so that candidates' academic records can be reviewed to verify that all graduation requirements have been met. These dates vary among academic units. Students should contact their academic counseling office for deadline and degree audit information.

Information for Transfer Students: Fulfilling Requirements for a Bachelor's Degree

This section provides a guide for transfer students in understanding how their coursework from another collegiate institution applies to fulfilling UCI degree requirements. Transfer students should use this information in conjunction with the previous section, Requirements for a Bachelor's Degree. Transfer students are required to meet University, general education, school, department, and major requirements described in the *Catalogue.* The courses and descriptions in this *Catalogue* may be used by prospective transfer students as a guide for selecting courses of similar content and purpose in their own institutions. No student who has taken a course which is accepted for credit by the Office of Admissions and Relations with Schools (OARS) and which has been mutually determined with a community college as being acceptable toward completion of the UCI general education requirement shall incur any loss of credit in satisfaction of the requirement.

Transfer students are *strongly* advised to check with the academic counselor in their prospective major or the UCI Office of Admissions and Relations with Schools about courses that may be used to satisfy UCI requirements.

Transfer Students: Completion of the UCI General Education Requirement

Students transferring to UCI must satisfy the UCI general education (GE) requirement by completing either:

1. the current UCI GE requirement;
2. one of the options listed in the Catalogue Rights section; or
3. the Intersegmental General Education Transfer Curriculum.

Transfer students should not feel that the UCI GE requirement must be completed prior to matriculating to UCI. The GE requirement, which must be completed prior to graduation, may be satisfied by college-level courses appropriate to UCI offerings and may be met *at any time* during the undergraduate years, *except* in the case of the lower-division writing requirement, which must be completed within the first three quarters of residency at UCI.

NOTE: Transfer students should be aware that UCI is on the quarter system. For the purpose of counting courses for the UCI GE requirement, one semester course is equivalent to one quarter course, and two semester courses are equivalent to three quarter courses.

Intersegmental General Education Transfer Curriculum

California Community College transfer students may receive credit for the UCI GE requirement by completing the Intersegmental General Education Transfer Curriculum (IGETC). The IGETC consists of a series of subject areas and types of courses which will satisfy the general education requirements at any campus of the University of California. Fulfillment of the IGETC does not satisfy the UCI upper-division writing requirement.

Students who do not complete IGETC prior to transfer may be eligible for partial certification from their community college. Partial certification is defined as completing all but two (2) courses on the IGETC pattern. **Warning:** Students need to meet minimum UC transfer admission requirements. Therefore, partial certification that acknowledges a deficiency in Area 1 and/or Area 2 may also indicate a student does not meet minimum transfer requirements.

Please note:

1. IGETC must be completed in total or partial IGETC certification must be completed prior to enrolling at UCI;
2. students are responsible for requesting IGETC certification from their community college; and
3. the IGETC certification should be submitted to the UCI Office of Admissions and Relations with Schools no later than the end of the first quarter of UCI enrollment.

Courses used to fulfill the IGETC must be completed with a grade of C or better. (Courses may also be taken on a Pass/No Pass basis provided Pass is equal to a letter grade of C or better.)

Lists of specific approved courses which may be taken in fulfillment of the IGETC are available from California Community Colleges and at the ASSIST (http://www.assist.org).

Intersegmental General Education Transfer Curriculum

Area 1. English Communication: One course in English composition and one course in critical thinking/English composition.

Area 2. Mathematical Concepts and Quantitative Reasoning: One course in mathematics or mathematical statistics which has a prerequisite of intermediate algebra.

Area 3. Arts and Humanities: At least three courses with at least one from the arts and one from the humanities.

Area 4. Social and Behavioral Sciences: At least three courses from at least two different disciplines.

Area 5. Physical and Biological Sciences: At least two courses, with one from the physical sciences and one from the biological sciences; one course must include a laboratory.

Area 6. Language Other Than English: Proficiency equivalent to two years of high school courses in the same language.

Transferability of Credit

The University is committed to serve as fully as possible the educational needs of students who transfer from other California collegiate institutions. The principles covering transferability of unit credit and course credit are explained below and, unless otherwise indicated, are much the same whether transfer is from a two-year or a four-year institution.

Duplicate Credit Prohibited. Students may not receive unit credit or earn grade points for college courses in which the content duplicates material of a previously completed course or examination for which the student has been granted college credit. Exceptions related to Advanced Placement and International Baccalaureate (p. 62) credit and repeat of deficient grades (p. 112) can be found in their respective sections.

Unit Credit for Work Taken Elsewhere

The University of California grants unit credit for courses completed at other accredited colleges and universities when such courses are consistent with the functions of the University as set forth in the Master Plan for Higher Education in California. Equivalent advanced standing credit from institutions on the semester calendar may be determined at a ratio of one semester unit to one and one-half quarter units. (To graduate from UCI a minimum of 180 quarter units, equivalent to approximately 45 UCI quarter courses, are needed.)

Limitations on Transfer Credit

Students will be granted up to 70 semester/105 quarter units of credit for lower division coursework completed at any institution or combination of institutions. For units beyond the maximum, subject credit for appropriate coursework taken in excess of this unit limitation will be granted and may be used to satisfy requirements

Please note:

1. Units earned through Advanced Placement, International Baccalaureate, and/or A-Level examinations are not included in the limitation and do not put applicants at risk of being denied admissions.

2. Lower or upper division units earned at any University of California campus (including regular academic year enrollment, summer session enrollment, extension courses, cross/concurrent enrollment, and the UC Education Abroad Program) are not included in the limitation, but are added to the maximum transfer credit allowed. Excessive units may put applicants at risk of being denied admission.

In addition, there is a limit to the number of units for which UC grants credit in the following areas:

- English as a Second Language courses: a maximum of 8 semester (12 quarter) units
- Physical Education activity courses: a maximum of 4 semester (6 quarter) units

Community Colleges

Students anticipating transfer to UCI are urged to consult with their community college counselors. The counselors, with the aid of that college's UC Transfer Course Agreement (UCTCA), can advise students about California Community College courses and units which will transfer to the University.

In addition, staff in the UCI Office of Admissions and Relations with Schools can advise students about the transferability of courses. UCTCAs for all California Community Colleges are available at the ASSIST (http://www.assist.org) website.

Four-Year Institutions

Unit credit is granted for courses consistent with the University of California's functions and which have been completed in colleges or universities accredited by the appropriate agencies. While limitations of credit may be imposed in certain subject areas, these are consonant with the curricula for all students in the University of California. No defined maximum number of units which can be earned toward the degree is set for students transferring from four-year institutions. However, see the Residence Requirement in the UCI Requirements (p. 71) section.

University of California Extension

Extension courses prefixed by XB, XD, XI, XR, XSB, and XSD are granted unit credit on the same basis as courses taken in residence at any accredited collegiate institution.

Students intending to transfer Extension course credit for a degree at another college or university should verify acceptance of the course with that institution. Resident students of the University of California must obtain the consent of the dean of their school or college prior to enrolling for credit in an Extension course. Extension courses are not accepted as part of the residence requirements of the University. Grades earned in University Extension are not used in calculating the University grade point average.

Decisions regarding the acceptability of extension courses taken in institutions other than the University of California rest with the UCI Office of Admissions and Relations with Schools. Decisions regarding the applicability of such courses toward specific degrees and majors rest with the student's academic dean.

Course Credit for Work Taken Elsewhere

The policies above refer only to the unit transferability of courses and are uniformly implemented on all UC campuses. Thus, courses which are determined by the University of California to be transferable are assured only of being granted elective course credit. The application of transfer work to specific course and major requirements is determined by the student's academic dean.

The Irvine campus makes every effort to eliminate all barriers to orderly progress from California Community Colleges into UCI's programs. To this end, courses from many California Community Colleges have been reviewed by UCI faculty and approved as acceptable toward meeting lower-division major or general education requirements. Although course equivalencies for the general education requirement may be liberally interpreted for purposes of transfer, courses to be applied toward school and departmental major requirements must be more precisely equated with UCI courses in unit value and in content.

All California Community Colleges have entered into articulation agreements with UCI so that the specific application of their courses to UCI's general education, school, and/or departmental major requirements may be readily communicated to prospective transfer students. By careful selection of courses, it is possible for students to satisfy some or all of the lower-division requirements of their intended program or school prior to transfer. It is recommended that transfer students complete as much of the lower-division general education, school, and major requirements as possible prior to transferring to UCI. Articulation agreements are available at the ASSIST (http://www.assist.org) website.

Students are urged to consult community college counselors or the UCI Office of Admissions and Relations with Schools for information on planning a program for transfer. Prospective transfer students with specific questions about coursework in their major should contact the respective school or department at UCI.

Registration and Other Procedures

Except where noted, all information applies to both undergraduate and graduate students. Additional information concerning registration and academic policies applying only to graduate students is presented in the Graduate Division (p. 154) section of the *Catalogue.*

Schedule of Classes and Registration Information

The *Schedule of Classes* contains current class offerings including time, room, instructor, capacity, number of enrolled students and number of students on the waitlist, Web links, status (open, waitlisted, full), and more. Access the *Schedule of Classes* on the Registrar's (http://www.reg.uci.edu) website. The *Schedule of Classes* is available just prior to the beginning of each quarter's registration period (six weeks before the end of the current quarter).

The Registrar's Web site also includes registration and related information such as quarterly academic calendars, final examination schedules, and the Academic Honesty policy. The Registrar's Web site is the most timely source of information on new or changed policies, procedures, tuition and fees that could not be included in the *Catalogue* because of the latter's annual publication schedule.

Registration Procedures

To receive academic credit for regular courses and other supervised instruction or research, a student must be officially registered prior to undertaking such activities. **The registration process consists of two steps: payment of tuition and fees and enrollment in classes.**

A Quarterly Academic Calendar of dates for enrollment and payment of tuition and fees is available on the Registrar's (http://www.reg.uci.edu) website.

The general procedures for registration are:

1. Consult the appropriate academic advisor to develop an approved program of study. Secure necessary authorizations for courses that require special approval.
   New undergraduate students entering in the fall should attend one of the Student-Parent Orientation Program (SPOP) sessions during the summer for academic advising and enrollment.
2. Enroll in classes during the published registration period.
3. Pay required tuition and fees online or to the Central Cashier on or before the published deadline. Other outstanding obligations must be satisfied at this time also.

Enrolling in Classes

Using WebReg, students may add and drop classes, inquire about open sections, change their grading option or unit value for a variable unit course, put themselves on an official waiting list, and list their confirmed class schedule. Immediate feedback on the availability of a class and a student's eligibility to enroll is provided. This includes course restrictions that may be placed or removed at any time throughout the enrollment periods by the department offering the course. Complete information about WebReg is available on the Registrar's (http://www.reg.uci.edu) website.

Students must enroll in classes before the end of the second week of instruction. Students enrolled in zero (0) units at the close of business at the end of the second week of instruction are assessed a $50 late enrollment charge.

Payment of Tuition and Fees

Tuition and fees are assessed quarterly and appear on ZOT Account Online (https://zotaccount.uci.edu). Students who do not pay all required tuition and fees online or to the Central Cashier by the published fee payment deadline are subject to a $50 late payment charge.

Late Registration

The student is subject to *both* late charges if tuition and fees are not paid online or to the Central Cashier and the student does not enroll in classes by the registration deadlines, published in the Quarterly Academic Calendar on the Registrar's (http://www.reg.uci.edu) website.

Students who have not paid tuition and fees and/or have not enrolled in classes by 4 p.m. at the end of the third week of instruction will lose their student status. Visit the Registrar's (http://www.reg.uci.edu) website for more information on the loss of student status.

To avoid the expense and inconvenience of late registration, students are urged to enroll and pay tuition and fees well before the published registration deadlines. Students with financial need should make advance arrangements with the Office of Financial Aid and Scholarships, or another source, to have funds available when tuition and fees are due.

Late registration (payment of tuition and fees and/or enrollment in classes) is permitted only in exceptional circumstances with the authorization of the student's dean. A student who is allowed to apply late and, as a result, must pay tuition and fees and enroll late, is required to pay both late charges.

Change of Class Enrollment

Once instruction begins, a student may add or drop classes, change the unit value of a variable unit course, or change the grading option via WebReg.

Generally, an undergraduate student may not enroll in more than 20 units or fewer than 12 units of course work during a given quarter without the permission of the student's academic dean or, for undecided/undeclared students, the Dean of the Division of Undergraduate Education. However, during initial enrollment, undergraduate enrollment will be limited to 18 units. The maximum returns to 20 units during Open Enrollment. Changes to Pass/Not Pass grading must not cause the student to exceed the limitations to Pass/Not Pass enrollment. See the Pass/Not Pass (p. 111) section.

Graduate students may not enroll in more than 16 or fewer than eight units of graduate or upper-division credit without prior approval of the departmental graduate advisor.

Students may add courses through the end of the second week of instruction via WebReg. After the second week of instruction, an Enrollment Exception request is required.

Students may drop courses through the end of the second week of instruction via WebReg. After the second week of instruction through the end of the sixth week of instruction, an Enrollment Exception request is required.

Beginning the seventh week of instruction through the end of instruction, withdrawing from a course will result in the student receiving a W grade. W grades carry no grade points and are not calculated in the UC GPA.

Students may change the grading option and/or unit value of a course through the end of the second week of instruction via WebReg. After the second week of instruction through the end of the sixth week of instruction, an Enrollment Exception request is required.

An Enrollment Exception request requires the authorization of the dean or equivalent of the school or academic unit offering the course and the dean or equivalent of the student's major. The authorization of the instructor may also be required when adding a course or changing the unit value of a variable unit course. Detailed information on Enrollment Exception requests is available on the Registrar's (http://www.reg.uci.edu) website.

Individual courses may occasionally have unique deadlines due to course impaction or instructional needs. Students should refer to the *Schedule of Classes* for information on specific courses.

Students are responsible for their enrollments. They must officially drop or withdraw from classes they have ceased attending. Students cannot simply discontinue attendance in a class. Adds, withdrawals, and changes to class enrollment are not permitted after the last day of instruction.

Withdrawal from the University

Undergraduate students who pay tuition and fees for a regular academic quarter and then decide to withdraw from the University must submit a Withdrawal form to the Registrar's Office after obtaining the signatures of their academic dean (or the Dean of the Division of Undergraduate Education, for undecided/undeclared students). Medical students must submit the form to the Curricular Affairs Office in the School of Medicine. Law students must visit the School of Law Registrar's Office to obtain and submit the withdrawal form. This form serves two purposes: (1) a refund of tuition and fees, if applicable (see the Tuition and Fee Refund (p. 46) section); and (2) automatic withdrawal from classes.

The effective date of withdrawal is used in determining the percentage of tuition and fees to be refunded. This date is normally the date that the student submits the form to the appropriate dean for approval.

A W grade, indicating "withdrawal," will be recorded for each course in which enrollment is withdrawn if the student's effective date of withdrawal is after the end of the sixth week of classes. (See W grade in the Grading System section.)

A graduate student in good academic standing who wishes to withdraw and intends to return within one year should submit both the Withdrawal form and an application for a Leave of Absence. Further information appears in the Graduate Division section.

New undergraduate students are encouraged to seek advice from their admissions or academic counselor to understand the consequences of withdrawal and their eligibility to return.

If an undergraduate student plans to leave the University after completing all academic work for the latest quarter of enrollment and has not paid tuition and fees for the next quarter, a formal notice of withdrawal is not necessary.

Lapse of Status

A student's status may lapse for the following reasons:

Failure to pay required tuition and fees by the prescribed deadline; failure to respond to official notices; failure to settle financial obligations when due or to make satisfactory arrangements with Campus Billing Services; failure to complete the admission health requirements; or failure to comply with admission conditions.

Each student who becomes subject to lapse of status is given advance notice and ample time to deal with the situation. However, if the student fails to respond to initial notices, action will be taken without further notice. A "hold" will be placed on all of the student's records and the student will be entitled to no further services of the University except assistance toward clearing the hold. A student must satisfy the conditions which caused the lapse of status before the hold can be cleared.

Enrollment at Other Institutions

Various programs exist that enable currently registered UCI students in good standing to take courses at other UC campuses, as well as at California State University and California Community College campuses. More information is available on the Registrar's (http://www.reg.uci.edu) website and from the academic advising offices.

Enrollment in UC Irvine Extension (ACCESS UCI)

If a UCI student wishes to enroll in a UC Irvine Extension course concurrently with enrollment in regular courses, the entire program of study must be approved in advance by the dean of the student's school (the Dean of the Division of Undergraduate Education, for undecided/undeclared students; the Dean of the Graduate Division, for graduate students). Fee information is available from the UC Irvine Extension Registration Office.

Change of Major

Each school or program has its own standards for change of major. Once a student selects a major, or decides to change majors, the student should visit the academic advising office for their prospective major to obtain current information about prerequisites, program planning, and policies and procedures. For most majors, students may request a change of major by submitting an online application through StudentAccess. Further information and a list of excluded majors is available on the Registrar's (http://reg.uci.edu/request/changemajor) website.

All schools with exceptional requirements have major-change criteria approved by the Academic Senate and published on the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Students changing majors may meet the approved major-change criteria of the unit they wish to enter that are in place at the time of their change of major or those in effect up to one year before.

Transcripts and Verifications

Retention of Student Records

The Registrar's Office maintains a permanent record of academic work completed by each student. Support documents for the academic record are kept for one year.

Students are strongly advised to carefully check their academic record quarterly. (Student copies of the academic record are available from the Registrar's Office shortly after the close of each quarter.) Discrepancies in the academic record should be reported to the Registrar immediately. After one year, it is assumed that the student accepts the accuracy of their academic record, and supporting source documents are destroyed.

Student academic records may not be changed after one year or, in some cases, in less than one year if Academic Senate regulations specify a shorter time limit. For example, the notation "NR," which means that no grade has been reported, must be removed within one quarter of subsequent enrollment or it will automatically be converted to the grade "F" (Fail), "NP" (Not Pass), or "U" (Unsatisfactory), whichever is appropriate. Similarly, an "I" grade (Incomplete) will convert to either an "F" (Fail), "NP" (Not Pass), or "U" (Unsatisfactory), whichever is appropriate, after remaining on the student's record for 12 months. Both policies are defined under Senate Regulation IR A345.

Transcript of Records

The official transcript of a student's academic record will be released only upon receipt of a signed request from the student authorizing the release. All outstanding debts to the University (with the exception of long-term financial aid loans not yet due and payable) must be paid in full before a transcript will be released. There is a $17 fee for each official transcript. See the instructions on the Registrar's (http://www.reg.uci.edu) website.

Requests for transcripts by anyone other than the student whose transcript is being sought can be honored only (1) if the request is accompanied by a written authorization signed by the student whose transcript is sought, and (2) upon approval of the Registrar.

Unofficial transcripts are available, free of charge, at the Registrar's Office, to students who present photo identification. Currently enrolled students can view their unofficial transcript in StudentAccess at the Registrar's (http://www.reg.uci.edu) website.

Verification of Student Status

The Registrar's Office provides verifications of student status. Verifications may be needed for reference checks, bank loans, applications for good-student-driver insurance rates, and social security payments. There is a $17 fee for each verification, however verifications for the purpose of student loan deferments are free of charge. Instructions are available on the Registrar's (http://www.reg.uci.edu) website. For verification purposes, enrollment in 12 units or more in regular sessions is considered full-time status; enrollment in 6.0–11.9 units is considered half-time status; enrollment in 5.9 units or less is considered less than half-time status. Enrollment in six units between all three summer sessions will be considered full-time.

Readmission

Undergraduate Student Readmission

Students are strongly urged to consider the readmission policy in formulating plans for leaving or returning to UCI. Every effort will be made to readmit UCI students who were in good academic standing at the time they ceased attending and who have filed readmission applications by the deadline.

Former UCI students seeking readmission must contact the academic advising office of the school or program which offers their intended major to initiate an electronic readmission application. A nonrefundable $70 Application Fee will be applied to the student's ZOTBill.

Readmission is subject to dean's approval and campus deadlines (August 1 for fall quarter, November 1 for winter quarter, and February 1 for spring quarter).

New undergraduate students who cancel registration prior to the first day of the quarter must reapply to UCI; they are not eligible to file for readmission as described above.

If a student has been academically disqualified from the University or has left the University while on probation or is subject to disqualification, or has lost their student status, the student must apply for readmission.

Transcripts for courses taken at other institutions must be submitted to both the Office of Admissions and the academic advising office of the school or program which offers the intended major of the student applying for readmission.

Graduate Student Readmission

A graduate student who withdraws and has not been granted a leave of absence approved by the Dean of the Graduate Division is considered to have lapsed student status (i.e., no longer has student status). A student whose status has lapsed must re-apply to a graduate program and can resume graduate study only if readmitted; readmission is not guaranteed. The online *Application for Graduate Study,* including the nonrefundable application fee,

must be submitted by the published deadline for graduate admission applications. Refer to the statement on readmission which appears in the Graduate Division section for additional information.

Commencement

UCI Commencement (http://www.commencement.uci.edu) ceremonies are held each June for all students who graduate any quarter of that academic year. The School of Law ceremony is held in May. The School of Medicine ceremony is held on the Saturday following Memorial Day. Additional information is available at the Commencement Office (http://www.commencement.uci.edu) website.

Application for Graduation. In order to receive a degree, an undergraduate student must submit an online Application for Graduation via the StudentAccess link at the Registrar's Office (http://www.reg.uci.edu) website no later than the published deadline. Specific deadline dates for filing the application are established quarterly so that candidates' academic records can be reviewed to verify that all graduation requirements have been met. Students should contact their academic advising office for deadline and degree audit information.

Graduation *in Absentia.* Undergraduate students planning to graduate after a period of absence from the university must graduate *in absentia*. To graduate *in absentia*, the student must apply to graduate through StudentAccess. Upon degree certification, which takes place six weeks after the end of the quarter, a Graduation *in Absentia* filing will be submitted on behalf of the student. The student will not be subject to tuition and fees. The student will be required to pay the readmission fee only if the period of absence was for more than one certifying term.

Graduate Hooding Ceremony. Students completing a Ph.D., Ed.D., or M.F.A. are eligible to walk in the Graduate Hooding Ceremony. Students are required to meet all filing deadlines (http://www.grad.uci.edu/academics/filing%20deadlines) and satisfy degree requirements in order to participate in the ceremony. Registration for eligible students opens in March.

Diplomas. Students are advised by e-mail when their diplomas are available, which is typically three months after the quarter in which the student graduated ends. Students may pick up their diplomas at the Registrar's Office or authorize the Registrar to send their diplomas by USPS certified mail to domestic addresses, or USPS registered mail to addresses outside the United States. All outstanding debts due to the university, with the exception of long-term financial aid loans, must be paid in full before a student's diploma will be released.

Academic Regulations and Procedures

Except where noted, all information applies to both undergraduate and graduate students. Additional information concerning academic regulations applying only to graduate students is included in the Graduate Division (p. 154) section.

Grading System

Grade	Description
A[1]	Excellent (4.0 grade points per unit)
B[1]	Good (3.0 grade points per unit)
C[1]	Average (2.0 grade points per unit)
D[1]	Lowest passing grade (1.0 grade point per unit)
F	Not passing (no grade points)
I	Incomplete
P	Pass (equal to grade C or better)
NP	Not Pass (equal to grade C- or below)
S	Satisfactory (equal to grade B or better; graduate students only in courses designated by the Graduate Council)
U	Unsatisfactory (graduate students only in courses so designated by the Graduate Council)
IP	In Progress (restricted to certain sequential courses, so designated by the Subcommittee on Courses or Graduate Council, for which the final quarter grade of a multiquarter course is assigned to the previous quarter(s) of the sequence).

NR	No Report (given when an instructor does not submit final grades for a class or individual grades for students whose names appear on the official class roster; NR becomes an “F” (Fail), “NP” (Not Pass), or “U” (Unsatisfactory), whichever is appropriate, after one quarter of subsequent enrollment or at the end of the quarter immediately preceding award of the degree, whichever comes first. The instructor may replace an NR with a grade within one quarter of subsequent enrollment or may authorize the student to drop the class, which would result in the NR becoming a W).
UR	Unauthorized Repeat. A UR notation is recorded for the grade when a student already has a passing grade for a nonrepeatable course and has taken it again.
W	Withdrawal. A W grade is recorded on a student’s permanent record for each course a student drops after the end of the sixth week of instruction in a quarter. Courses in which a W has been entered on a student’s record carry no grade points, are not calculated in the UC GPA, and will not be considered as courses attempted in assessing the student’s satisfaction of the normal progress requirement.

[1] Plus and minus suffixes may be attached to the grades A, B, C, and D.

The academic record may not be altered except in those cases where a documented procedural or clerical error has occurred.

Grade Points and Grade Point Average

Grade points are assigned on a four point basis:

Grade	Grade Points
A	4 points per unit
B	3 points per unit
C	2 points per unit
D	1 point per unit
F and I	zero points per unit

Plus or minus suffixes modify the above by plus or minus 0.3 grade point per unit, with the exception of the A+ grade which is assigned 4 points per unit.

Requirements for a bachelor’s degree include the accumulation of baccalaureate credit for a minimum of 180 quarter units with an average of at least C (grade point average of at least 2.0). A course at UCI normally offers four quarter units of credit, and, in the following text, the term “course” may be understood to carry four units. The grade point average is the sum of all accumulated grade points (grade points earned in a course taken for a letter grade times the unit value of the course) divided by the sum of all units attempted. P, NP, S, U, NR, IP, and I grades, as well as workload credit, are excluded in computing grade point average.

Baccalaureate credit counts toward degree requirements and is used to compute the grade point average. Workload credit is used to determine full-time status for financial aid, housing, student loans, and other purposes. For most courses at UCI, baccalaureate credit and workload credit are identical. Courses differing in this credit or “workload credit only” courses are identified in the course description.

It should be noted that final grades as reported by instructors are normally permanent and final. An instructor may not change a final grade except to correct a clerical or procedural error. Clerical or procedural errors should be corrected within one regular academic quarter after the grade is assigned. No grade may be revised by reexamination or, with the exception of I and IP grades, by completing additional work. If a student is dissatisfied with a grade, the student should review their work with the instructor and receive an explanation of the grade assigned. A grade may be appealed on any reasonable grounds to the instructor, the chair of the department, and the dean of the school. If the matter is not resolved, the student may go for counsel to the Office of the University Ombudsman.

Under circumstances explained in *The Manual of the Irvine Division of the Academic Senate (*Appendix II: Student Academic Grievance Procedures Relating to Nondiscrimination), a grade may be changed if the Academic Grievance Panel has determined that the grade was assigned on the basis of discrimination.

Incomplete Grades

The grade Incomplete (I) is assigned when a student’s work is of passing quality but is incomplete for good cause. The I grade may be replaced by a permanent grade, provided the student completes the course work in a way authorized by the instructor and within the time limits expressed. During the time allowed for replacing an I grade, the I grade will not be used in computation of a student’s grade point average.

Beginning fall 2010, students assigned an I grade must complete the course work within the period set by the instructor, or within 12 months following the quarter in which the grade Incomplete was originally awarded, or prior to the end of the quarter immediately preceding award of the degree, whichever comes first. The instructor is not obligated to allow the maximum time period. The student must consult with the instructor to determine how the Incomplete may be made up. It is strongly recommended that the student and the instructor prepare a written agreement specifying how the Incomplete can be made up and the deadline for doing so. Once the work is completed within the time agreed upon by the instructor, the student should ask the instructor to submit an Academic Record Change Request to the advising office of the school in which the course was offered. The student should not re-enroll in the course to make up the Incomplete. If the incomplete course work is not completed in the manner authorized by the instructor and within the time limits stated above, the I grade shall automatically be replaced with the permanent grade of F (Fail), NP (Not Pass), or U (Unsatisfactory), as appropriate in accordance to the grading option selected when the student enrolled in the course, and will be used in computation of the student's grade point average.

Students who have been assigned an I grade prior to fall 2010 have a maximum of 12 months following the quarter in which the grade Incomplete was originally assigned to complete the course work. However, in exceptional individual cases involving the student's prolonged inability to pursue a course of study, extensions of up to two additional years may be granted by the instructor with the approval of the dean of the unit offering the course; students must petition for such an extension within 12 months following award of the I grade. The grade Incomplete assigned prior to fall 2010 will remain permanently on the student's record if the required course work is not completed in the manner authorized by the instructor and within the time limits stated above.

Pass/Not Pass

The Pass/Not Pass option is available to encourage students to enroll in courses outside their major field. Courses graded Pass or Not Pass are not included in computation of the grade point average which appears on a student's permanent record. However, if a student receives a Pass in a class, course and unit credit for the class is received, except as provided below. If a Not Pass is received, the student receives no credit for the class.

Some courses are designated by academic units as Pass/Not Pass Only. Students do not have the option of taking these courses for a letter grade.

The use of Pass/Not Pass is governed by all of the following provisions:

1. A student in good standing may take up to an average of four units per quarter on a Pass/Not Pass basis.
2. In addition, students may count a total of 12 units of courses designated Pass/Not Pass Only toward their graduation requirements.
3. A student who earns a grade of C (2.0) or better will have a Pass/Not Pass grade recorded as Pass. If the student earns a grade of C- or below, the grade will be recorded as a Not Pass, and no unit credit will be received for the course. In both cases, the student's grade will not be computed into the grade point average.
4. Courses taken under the Pass/Not Pass option may count toward the unit requirement for the bachelor's degree and toward the general education requirement. With the exception of courses designated Pass/Not Pass Only, courses taken Pass/Not Pass may not be used to satisfy specific course requirements of the student's school and major, unless authorized by the appropriate dean. No more than two courses applied to a minor may be taken Pass/Not Pass.

   Graduate students may take one course (up to four units) per quarter on a Pass/Not Pass basis. However, such courses are not considered part of the student's graduate program, may not be applied to the requirements for an advanced degree, and do not count toward the minimum number of units for which a graduate student must enroll.
5. Changes to or from the Pass/Not Pass option can be made during the enrollment period. No changes can be made after the first two weeks of classes without the approval of the dean of the student's school. No changes in the Pass/Not Pass option can be made after the last day of instruction of the quarter.
6. A student on academic probation may not enroll in a course with the Pass/Not Pass option unless the course is offered on that basis only.

Satisfactory/Unsatisfactory Grades (Graduate Students Only)

Satisfactory/Unsatisfactory grading, unlike Pass/Not Pass, is not a student option. With the consent of the academic units involved, and upon approval of the Graduate Council, individual study and research or other individual graduate work undertaken by a graduate student may be evaluated by means of the grades S or U. Also, with the approval of the Graduate Council, certain graduate courses are graded S/U Only. Additionally, the grade S or U may be assigned provisionally in each but the last quarter of a graduate course extending over more than one quarter. Upon completion of the last quarter, letter grades (A to F) replace such provisional grades. When a grade of S or U has been assigned on a provisional basis and the student does not complete all quarters of the course sequence, the instructor may assign a final letter grade or the grade of I to replace the S or U, or let the grade of S or U stand as a final grade. The grade S is defined as equivalent to a grade of B (3.0) or better. No credit will be allowed for work graded Unsatisfactory.

NOTE: When adding a course via WebReg, there is no option for S/U. In order to select S/U, students must first select the grade option and then, once the course has started, inform the professor of their preference for the S/U option, not a letter grade. (The Pass/Not Pass option does not correlate to the S/U option and should not be selected.)

Grades In Progress

IP is a transcript notation, restricted to sequential courses which extend over two or more quarters, indicating that the final grade for the individual quarters will not be assigned until the last quarter of the sequence is completed. The grade for the final quarter is then assigned for all of the previous

quarters of the sequence. No credit is given until the student has completed the entire sequence. IP notations may be given only for courses designated by the Academic Senate Subcommittee on Courses or Graduate Council for use of this notation. IP notations are not included in computations of the student's grade point average and do not contribute to the number of quarter units completed.

Grades Not Reported

A No Report (NR) is assigned when the student's name was on the official class roster but the instructor did not submit a final grade. A student who receives an NR must immediately contact the instructor and arrange for the removal or replacement of the NR. An NR becomes an "F" (Fail), "NP" (Not Pass), or "U" (Unsatisfactory), whichever is appropriate, after one quarter of subsequent enrollment or at the end of the quarter immediately preceding award of the degree, whichever comes first. NR transcript notations are not included in computations of the grade point average and do not contribute to the number of quarter units completed.

Repetition of Courses

Undergraduate. Repetition of courses by undergraduate students not authorized by the Subcommittee on Courses to be taken more than once for credit is subject to the following provisions. Undergraduates may repeat courses only when grades of C-, D+, D, D-, F, or NP were received. (A C- earned before fall quarter, 1984, is not repeatable.) Unit credit for courses so repeated will be given only once, but the grade assigned at each enrollment shall be permanently recorded. In computing the grade point average of an undergraduate with repeated courses in which a C-, D+, D, D-, F, or NP (if repeated for a letter grade) was received, only the most recently received grades and grade points shall be used for the first 16 units repeated. In case of further repetitions, the grade point average shall be based on all additional grades assigned. Repetition of a course more than once requires approval in all instances of the School (or equivalent) in which the student is enrolled.

All courses which were originally taken for a letter grade must be repeated for a letter grade. Courses originally taken on a Pass/Not Pass basis may be repeated for a Pass/Not Pass or for a letter grade if the course is so offered.

Information regarding the repetition of language other than English courses is available in the School of Humanities section.

Graduate. A graduate student may repeat only once a course in which a grade below B or a grade of U was received. Only the most recently earned grade shall be used in computing the student's grade point average for the first eight units of repeated work; thereafter both the earlier and the later grades will be used.

Duplicate Credit Prohibited. Other than the exceptions related to the repeat of deficient grades as noted above, and the exceptions related to Advanced Placement and International Baccalaureate Credit (p. 52), undergraduate and graduate students may not receive unit credit or earn grade points for college courses in which the content duplicates material of a previously completed course or examination for which the student has been granted college credit.

If a student repeats a course for which a passing grade has already been received and the course is not approved as repeatable for credit, the student will receive a UR and no credit will be given.

Satisfaction of the Writing Requirement

Students enrolled at UCI may take only UCI courses in satisfaction of the lower-division and upper-division writing requirements. Continuing UCI students may not take summer courses at another institution to satisfy lower-division or upper-division writing requirements. The two courses taken to fulfill the lower-division writing requirement must be completed with a grade of C or better (or a Pass or Credit grade equivalent to C).

1. Students who fail to attain a letter grade of C or better in WRITING 37 must repeat the course or enroll in the equivalent. It is recommended that these students enroll in WRITING 39A - WRITING 39B - WRITING 39C to assure completion of this requirement. Students who fail to attain a grade of C or better in WRITING 39C must repeat the course.
2. Students who fail to attain a grade of C or better in one or both courses of the WRITING 39B - WRITING 39C sequence must repeat the course or courses in question.
3. Students who fail to attain a grade of C or better in at least two quarters of the writing component of the Humanities Core Course after satisfying the UC Entry Level Writing requirement by attaining a grade of C or better in HUMAN 1AES, should substitute WRITING 39C if they need one quarter of additional work to complete the requirement, or WRITING 39B - WRITING 39C if they need two quarters to complete the requirement. Students who fail to attain a grade of C or better in HUMAN 1AES, enroll in HUMAN 1BES and attain a grade of C or better, but fail to attain a grade of C or better in the writing component of HUMAN 1C, should substitute WRITING 39C to complete the requirement.
4. Students who fail to attain a grade of C or better in either HUMAN 1AES or HUMAN 1BES , should substitute WRITING 39A - WRITING 39B - WRITING 39C to complete the requirement.
5. Students who fail to attain a grade of C (or Pass) or better in each quarter of a First-Year Integrated Program (FIP) sequence should see their academic counselor.

The course taken to fulfill the upper-division writing requirement must be completed with a grade of C or better (or a Pass or Credit grade equivalent to C). See the UCI Requirements section for further information. Majors in the School of Biological Sciences, Physics majors, and Pharmaceutical Sciences majors who fail to attain a grade of C or better in each of the courses taken to satisfy upper-division writing should see their academic counselor.

Students who have not completed the lower-division writing requirement before the beginning of their seventh quarter at UCI will be subject to probation. Students transferring to UCI normally should have satisfied the lower-division writing requirement before entering UCI; if, however, they have not, they must complete it within their first three quarters of enrollment or they will be subject to probation. Academic English/English as a Second Language students must complete the lower-division writing requirement before the beginning of the seventh quarter following the completion of their AE/ESL courses or they will be subject to probation.

Credit by Examination

An enrolled student may obtain credit for course material previously mastered by taking a special examination administered by a faculty member who normally teaches that course. Detailed procedures for obtaining credit by examination may be obtained from the advising office of the school which offers the course. Approval of any petition for credit by examination must be obtained from the dean or designee of that school *before* the examination can be administered. After the dean has signed the petition, the student must have it validated by paying a $5 Credit by Examination service charge at the Cashier's Office.

The instructor giving the examination retains the prerogative: (1) to decide whether the course can be taken by examination, (2) to determine the form such an examination may take, and (3) to stipulate whether the grade will be reported as Pass/Not Pass or as a letter grade (e.g., A, B, C, etc.).

A student may take the examination for a particular course only one time. After receiving the grade, the student may accept it or reject it. If the student is not satisfied with the grade received on the examination, the student may choose not to receive credit or a grade. If the student does choose to accept the results of the examination, grades and grade points (if applicable) will be entered on the record in the same manner as those for regular courses of instruction.

Independent Study: Undergraduates Only

A unique class option is available primarily to upper-division students at UCI. The independent-study option allows the student to plan with the instructor a course having a clear relationship to the student's academic program. The plan for the course will include a reading list, a group of assignments, examinations, papers, or similar evidence of intellectual achievement on which academic credit will be based. A description of the course and of its requirements must be approved by the instructor responsible for it and by the department chair or dean.

Final Examinations

Final examinations, or their equivalent, are obligatory in all undergraduate courses except laboratory and studio courses, as individually determined by the Subcommittee on Courses. Normally each such examination shall be conducted in writing and must be completed by all participants by the time scheduled by the Registrar for the quarter in question. These examinations may not exceed three hours duration. Special arrangements may be made for disabled students.

Examinations normally are not required in laboratory and studio courses. At its option, the department concerned may require a final examination subject to prior announcement in the *Schedule of Classes* for the term.

Final grades from professors are due in the Registrar's Office within 72 hours after the final examination.

Student Copies of Quarterly Grades

After each quarter, a complimentary copy of the student's permanent record is available from the Registrar's Office. On the copy, the student will find grades for all the quarters taken at UCI, a computation of grade point average at the University of California, and a list of the University requirements completed (UC Entry Level Writing, American History and Institutions).

Declaration of Major

All students are required to declare a major by the time they reach junior status (90 units excluding college work completed prior to high school graduation) or they will become subject to disqualification from further registration in the University.

Undergraduate Scholarship Requirements

Requirements for a bachelor's degree include the accumulation of credit for a minimum of 180 quarter units with an average of at least C (grade point average of at least 2.0).

Class Level

Undergraduate students are classified as freshman, sophomore, junior, or senior students, based on the total number of units completed, as follows:

Class	Units Completed
Freshman	0 - 44.9
Sophomore	45.0 - 89.9
Junior	90.0 - 134.9
Senior	135+

Course Load Limits

An undergraduate may enroll in as few as 12 units or as many as 20 units. To enroll for more than 20 units or fewer than 12 units, students must obtain the authorization of their dean or, for undecided/undeclared students, the Dean of the Division of Undergraduate Education. Information about the Reduced-Fee Part-Time Study Program is available in the Expenses, Tuition, and Fees (p. 39) section of the *Catalogue.*

Academic Standing

To remain in good academic standing a student must maintain a grade point average of at least 2.0 and make progress toward the degree at a satisfactory rate.

An undergraduate student normally is subject to academic probation if at the end of any quarter the grade point average for that quarter, or the cumulative grade point average, is less than 2.0.

A student whose grade point average falls below a 1.5 for any quarter, or who after two consecutive quarters on probation has not achieved a cumulative grade point average of 2.0 or a satisfactory rate of progress, is subject to disqualification.

Normal Progress Requirement

Regular undergraduate students will become subject to probation or to disqualification from further registration in the University if they fail to make normal progress toward the baccalaureate degree, if they fail to declare a major by the time they reach junior status (90 units excluding college work completed prior to high school graduation), or after declaring a major, if they fail to follow the program of study required by the academic unit of their major. Students who have selected undeclared status within a school may be subject to probation or to disqualification if they fail to follow a program of study leading to completion of lower-division school requirements.

A. Normal progress for all regular undergraduate students is defined in the following table, in terms of quarter units completed at the end of quarters enrolled.

Quarter	Normal Progress	Subject to Probation	Subject to Disqualification
1	12-15	8-11	7
2	26-30	18-25	17
3	41-45	27-40	26
4	56-60	41-55	40
5	71-75	56-70	55
6	86-90	72-85	71
7	101-105	88-100	87
8	116-120	105-115	104
9	132-135	124-131	123
10	148-150	141-147	140
11	164-165	159-163	158
12	180	---------	---------

NOTE: This table is effective fall 2005. Students who began college prior to fall 2005 should consult their academic counselor.

B. Status Determination:

1. Undeclared students who have completed the number of units specified in the given quarter of their enrollment, as shown in the table above, and are following a course of study prescribed by their school are making “Normal Progress.”

2. Students who have declared a major must follow the program of study required for their major, as well as complete the units specified in the given quarter of their enrollment, as shown in the table above, in order to make “Normal Progress.” Students must declare a major by the time they reach junior status (90 units excluding college work completed prior to high school graduation).

3. Students who fail to make Normal Progress as defined in (1) or (2) above are subject to being placed on probation by the faculty of their academic unit or its designated agent, or for first-year undecided/undeclared students, by the Faculty Board for Undecided/Undeclared Students or its designated agent.

C. Students who have completed two consecutive quarters on academic probation without having achieved at the end of that period at least the normal rate of progress specified under (A) and (B) above are subject to disqualification.

D. For purposes of calculating “Normal Progress,” “Subject to Probation,” and “Subject to Disqualification,” students admitted to the University with advanced standing will be classified with respect to quarter of enrollment at entrance in accordance with the following table:

Quarter at Entrance	Advanced Standing Quarter Units at Entrance
1	0-14
2	15-29
3	30-44
4	45-59
5	60-74
6	75-89
7	90-104
8	105-119
9	120-134
10	135-149

E. Units earned under the following two circumstances are not to be counted toward determination of the quarter at entrance under (D) above: (1) Advanced Placement Examination; (2) concurrent enrollment in college courses while in high school.

F. UCI students will have the units and grade points of courses taken through Access UCI transferred to their record when they have been admitted or readmitted to regular student status. Units taken through Access UCI will not be counted toward determination of Advanced Standing Quarter Units at Entrance if they are taken under the circumstances cited in sub-section E.

G. The quarter of enrollment at entrance of students (including baccalaureate degree candidates who already hold a baccalaureate degree) seeking admission to the University with 150 or more advanced standing units will be determined by the faculty offering the curriculum in which such students seek to enroll. This determination will be made consistent with the program required for such students to obtain the desired degree and with University residence requirements.

H. For purposes of this regulation students will be understood to have declared a major when they have been formally accepted by the faculty of a degree-granting program or its designated agent to pursue a defined course of study leading to a baccalaureate degree.

I. All undergraduate students are expected to graduate when they have completed the baccalaureate requirements of their declared major or majors.

The Normal Progress requirement described above is not to be confused with the Normal Academic Progress requirement for Financial Aid. The former has to do with academic standing, the latter with receipt of financial aid.

Probation is not a necessary step before disqualification. If a student becomes subject to disqualification, the complete record of grades and other accomplishments will be carefully reviewed by the responsible faculty authorities of the student's school or, for undecided/undeclared students, by a faculty authority designated by the Faculty Board for Undecided/Undeclared Students. If the record indicates little probability that the student will be able to meet the academic standards of the University of California, the student will be disqualified from further enrollment. Faculties of undergraduate-degree-granting units and the Faculty Board for Undecided/Undeclared Students are obliged by Academic Senate regulations to maintain a procedure under which a student may contest disqualification actions.

In order to transfer from one campus to another in the University of California or from one UCI school to another, a student who has been disqualified or who is on academic probation must obtain the approval of the appropriate faculty, or its designated agent, into whose jurisdiction the student seeks to transfer.

Credit Hour Unit Limit (Undergraduate)

A maximum of 216 units is permitted for all students in non-Engineering majors after their 12th quarter of study at UCI. For students in Engineering majors, the maximum number may not exceed 236 units after their 12th quarter of study at UCI. Students with Advanced Placement (AP) or International Baccalaureate (IB) credit may exceed the unit maximum by the amount of that credit.

After completing the maximum number of units, students may not normally continue their enrollment. Students wishing to exceed their unit or quarter maximums, including students pursuing multiple majors, may petition the associate deans of the impacted units (or their delegates) to continue work required to complete their degree.

Full-time transfer students admitted at the junior level are allowed no more than the equivalent of 9 quarters (10 quarters for Engineering majors), regardless of units.

Individual schools may impose additional requirements.

The maximum number of units or quarters does not include units completed at another institution prior to matriculation. After matriculation, work completed over the summer at any institution counts toward the specified unit limit but not the specified quarter count.

This regulation is effective for students who matriculate fall 2011.

Honors (Undergraduate)

Information about honors opportunities at UCI is found in the Division of Undergraduate Education section and the academic unit sections.

Quarterly Undergraduate Honors

Quarterly undergraduate honors are awarded in each school to students who achieve a quarterly grade point average of 3.5 or better in a minimum of 12 graded units.

Honors at Graduation

Of the graduating seniors, no more than 12 percent will receive academic honors: approximately 1 percent *summa cum laude,* 3 percent *magna cum laude,* and 8 percent *cum laude.* The criteria used by each school in selecting candidates for these honors are included in each school's section of the *Catalogue.* A general criterion is that students must have completed at least 72 units in residence at a University of California campus. The student's cumulative record at the end of the final quarter is the basis for consideration for awarding Latin Honors.

Graduate Scholarship Requirements

For a graduate student, only the grades A+, A, A-, B+, B, and S represent satisfactory scholarship and are accepted toward the graduate degree. Students are expected to maintain satisfactory academic progress at all times. Information concerning graduate student course load requirements and satisfactory academic progress is given in the Graduate Division section.

Credits From Other Institutions or University Extension: Undergraduate Students

UCI undergraduate students who plan to enroll in courses at another institution or University Extension in either a summer or regular session and to use such courses to satisfy any UCI requirements should first consult with and secure prior approval from the academic dean or chair of their major who will determine if the credits are applicable to major and general education requirements.

UCI undergraduate students *must* submit an official transcript of all course work earned at another institution or college to the Office of Admissions and Relations with Schools. If such courses are determined by the Office of Admissions and Relations with Schools to be transferable, do not duplicate other credit granted, and do not exceed limitations of credit, then the units earned may be applied toward the total required for graduation.

Beginning winter 2009, matriculated UCI undergraduate students can elect to have the full course record included on their academic transcript for all courses taken through UCI Extension. The full course record contains course title, academic department, course number, grade, and grade points earned. This option also pertains to Access UCI courses (Concurrent Enrollment) taken by students who are applying for readmission. The full course record can be transferred to their academic record when they have been admitted or readmitted to regular student status.

Credits From Other Institutions or University Extension: Graduate Students

In accordance with UC Academic Senate policy, graduate students may be granted unit credit (not grade credit) toward a master's degree for a limited number of acceptable graduate-level courses completed at another institution or through University Extension before enrollment in graduate study at UCI. To receive such credit, the student must submit a formal petition, including an original transcript, after enrollment in graduate study. Approval of the student's graduate advisor and the Dean of the Graduate Division is required. The petition may be downloaded at the Graduate Division (http://www.grad.uci.edu/cascade/forms) website.

While enrolled at UCI a graduate student may receive unit credit for graduate-level courses completed at another institution or through UCI Extension only with the prior approval of the student's graduate advisor and the Dean of the Graduate Division.

See the Graduate Division (p. 154) section for further information about graduate transfer credit and the University's Intercampus Exchange Program.

Supplementary Educational Programs

Summer Session and UC Irvine Extension

Gary W. Matkin**, Dean of Continuing Education, Distance Learning, and Summer Session**

Summer Session

Several summer sessions are held on the Irvine campus. The summer 2015 schedule is: Session I, June 22–July 29; Session II, August 3–September 9; overlapping 10-week session, June 22–August 28. Summer Session offers more than 800 courses and annually enrolls more than 12,000 students, most of whom are UCI matriculated students. Those who enroll in these sessions and take an academic program equivalent to a regular quarter may accelerate their progress toward a degree.

Courses offered include a wide variety from the regular session, supplemented by offerings available only during the summer, including an increasing number of online courses. Admission is open to all university students, high school graduates, qualified high school students who have completed their

sophomore year by summer 2015, and community members. Admission to Summer Session does not constitute admission to a regular session of the University.

Freshman Summer Start Program

Incoming first-year students are invited to take part in the Freshman Summer Start Program. Students begin college during the summer when the campus is more accessible and relaxed. They will be part of a small, highly motivated group of incoming students and have an opportunity to become familiar with the academic rigor and social scene of UCI under ideal conditions of maximum opportunity and support. The program includes special workshops and sessions on various aspects of collegiate life, as well as the lecture series, *INSIDE UCI*, which provides an introduction to research projects and faculty. For more information, including Freshman Summer Start fees and schedules, call (949) 824-7649; e-mail: summer-freshman@uci.edu; http://summer.uci.edu/fssp.

Transfer Summer Start Program

Transfer students can begin their experience in the summer by taking part in the Transfer Summer Start Program, an innovative, experiential opportunity that provides a small community of transfer students with a rich academic, social, and personal foundation. Special workshops and sessions that help students adjust to the academic rigor and social scene of the University include getting to know faculty, career planning, leadership development, public speaking, and writing. The lecture series, *INSIDE UCI,* provides an introduction to research projects and faculty. For more information, including Transfer Summer Start fees and schedules, call (949) 824-7649; e-mail: summer-transfer@uci.edu; http://summer.uci.edu/transfer.

Visiting International Students

International students are welcomed to Summer Session, which is offered on an “open enrollment” basis. International students will need to demonstrate English proficiency with a TOEFL score of 213 computer-based, 550 paper-based, or 79 Internet-based (Summer Session also accepts the equivalent for the IELTS and TOEIC). Inexpensive on-campus housing is available to Summer Session students, as well as a full infrastructure dedicated to helping students succeed with their academic studies. Summer Session also offers students a full range of social activities to broaden and deepen their study abroad experience, and their awareness and understanding of the Orange County area and American culture. For more information, call +1 (949) 824-4270; e-mail: internationalsummer@uci.edu; http://summer.uci.edu/international.

High School Students

Highly qualified high school students have two summer options to get an early start on college. Students who have completed their sophomore year of high school by summer 2015 and have an unweighted high school GPA of 3.0 or higher in college preparatory classes can apply to the High School Summer Scholar Program. This program provides students with the opportunity to experience college-level course work and preview university life through a combination of academic course work and co-curricular activities. Alternatively, students meeting the same GPA requirements above can choose to enroll in any lower-division course (numbered 1–99) that does not have a special prerequisite. The grades and units earned in a Summer Session course will be calculated in the UC grade point average if the student should later be formally admitted to the University. For more information, call (949) 824-7649; e-mail: summer-scholars@uci.edu; http://summer.uci.edu/highschool.

UC Irvine Extension

UC Irvine Extension serves the continuing education needs of the community by providing more than 3,500 credit and noncredit courses, certificate programs, specialized studies, seminars, workshops, and lecture programs annually to more than 14,000 students. For program information, class lists, scheduling and fee details, visit the Extension (http://extension.uci.edu) website, or call the University Extension Student Services office at (949) 824-5414. A free quarterly catalogue is also available.

Individual courses promote career advancement and lifelong learning, while certificate programs offer the opportunity for a distinctive achievement in a wide range of fields. Certificate programs are a sequence of courses designed to develop in-depth expertise to improve career opportunities. Extension offers more than 60 certificate and specialized studies programs in fields as diverse as information technologies, engineering, business, management, teacher education, medical product development, finance and investor relations, and paralegal. Classes are provided both online and on campus.

Customized Employee Education Programs

UC Irvine Extension’s certificate and specialized studies programs are offered for the professional development needs of organizations and their employees. The Corporate Training unit of UC Irvine Extension engages with employers in Orange County, nationwide and globally, providing classes on site and online. Programs are developed following a free consultative intake process and needs assessment. For more information, visit Corporate Training (http://unex.uci.edu/corporate) website or call (949) 824-1847.

Concurrent Enrollment: Access UCI

The general public also has an opportunity to take regular UCI courses without formal admission to the University, through Extension’s Access UCI program (http://unex.uci.edu/courses/access_uci/general.aspx) (also known as concurrent enrollment). Courses are available on a space-available basis with the approval of the course instructor and/or academic department. Call (949) 824-5414 for more information.

Osher Lifelong Learning Institute

UC Irvine Extension supports programs of the Osher Lifelong Learning Institute (OLLI), which offers a wide variety of educational and cultural programs for the retired or semi-retired intellectually active adult, all for one annual membership fee. UC Irvine Extension OLLI members are also eligible for

a 30 percent discount on most Extension courses on a space-available basis. For more information, visit Osher Lifelong Learning Institute (https://unex.uci.edu/olli) website or call (949) 451-1403.

Open Educational Initiatives

UC Irvine is a leading member of the OpenCourseWare Consortium (OCW), committed to making higher education content freely available. UCI is one of a growing list of prestigious U.S. and international institutions supporting the open education movement, offering learning materials through a variety of emerging channels including OpenCourseWare. UC Irvine's participation in these initiatives is consistent with its public and land-grant missions and its desire to play a significant role in contributing to the social welfare of the state, the nation, and the world. UCI's participation in open education showcases the University's top instructional efforts and makes course materials free for everyone in the world. Availability of the learning assets and course materials is significant for educators, students, and self-learners. For more information, visit the OpenCourseWare (http://ocw.uci.edu) website.

International Programs

International Programs offered through UC Irvine Extension prepare international students to pursue their educational objectives in U.S. colleges and universities, as well as provide opportunities for professional development. A full-time, intensive English program, offered four quarters per year, delivers courses in speaking & listening, writing & grammar, and reading & vocabulary development. Topics in these courses include conversation and discussion strategies, note-taking, pronunciation, paragraph & essay writing, and public speaking. Elective courses such as TOEFL test preparation, business English, and idioms also are available. In addition, English language and business English courses are also delivered full-time in four-week sessions, as well as part-time in the evenings.

To prepare international students intending to apply for admission to UCI's undergraduate or graduate programs, International Programs offers an International Undergraduate Preparation Program and International Graduate Studies Preparation Program. These successful programs provide international students with intensive English language assistance, academic test preparation, application assistance to UCI and other top U.S. universities, the opportunity to enroll in credit-bearing university courses or professional certificate programs, and much more.

Professional certificate programs for international students and professionals are offered in an accelerated full-time format. The fast-paced educational format helps individuals become more effective in their English communication skills and increases their career potential in today's competitive global business environment.

More information can be found at the International Programs (http://extension.uci.edu/international) website or by contacting International Programs, UC Irvine Extension, P.O. Box 6050, Irvine, CA 92616-6050; telephone (949) 824-5991; e-mail: uciesl@uci.edu.

An Academic English/ESL program is offered by the School of Humanities to students who are enrolled in degree programs at UCI. Refer to the section on Admission of International Students (p. 61) in this *Catalogue* for information.

ROTC

Qualified UCI students may participate in the Air Force Reserve Officers Training Corps (AFROTC) or the Army Reserve Officers Training Corps (Army ROTC). Additional information is available from the ROTC offices listed below, as well as from the UCI Office of Admissions and Relations with Schools and the UCI Division of Undergraduate Education.

Air Force Reserve Officers Training Corps (AFROTC)

Through arrangements with California State University, San Bernardino (CSUSB), Loyola Marymount University (LMU) in west Los Angeles, the University of California, Los Angeles (UCLA), and the University of Southern California (USC), students may participate in the Air Force Reserve Officers Training Corps (AFROTC) program. Aerospace Studies classes and Leadership Laboratories are conducted at various times during the week on the main campuses of CSUSB, LMU, UCLA, and USC.

AFROTC offers a variety of two-, three-, and four-year scholarships, many of which pay the full cost of tuition, books, and fees. Successful completion of as little as four semesters of AFROTC academic classes and leadership laboratories can lead to a commission as a second lieutenant in the United States Air Force.

Classes consist of one hour of academics and two hours of laboratory for freshman and sophomores, and three hours of academics and two hours of laboratory for juniors and seniors. AFROTC cadets under scholarship and all juniors and seniors receive a monthly tax-free stipend and a textbook allowance. No military commitment is incurred until entering the last two years of the program (Professional Officer Course) or accepting an AFROTC scholarship.

For more information, contact the Department of Aerospace Studies (AFROTC) at one of the following universities: CSUSB at (909) 537-5440, LMU at (310) 338-2770, UCLA at (310) 825-1742, or USC at (213) 740-2670.

Army ROTC

The UCI Army ROTC program offices are located on the third floor of Natural Sciences I, room numbers 3122–3129; telephone (949) 824-8538 and -7581; or visit the ROTC (http://www.rotc.uci.edu) website.

Army ROTC classes are taught at UCI. Physical training and field training are conducted at UCI and other local training areas. Two-, three-, and four-year Army ROTC programs are available to all qualified UCI students. Successful completion of the ROTC program leads to a commission as a Second Lieutenant in the U.S. Army (Active, Reserve, or National Guard). Two-, three-, and four-year competitive scholarships provide payment for tuition or room and board. Fee payments at UCI, payments for books, and stipends ranging from $350–$500 per month are also available. Qualified students currently serving in any Reserve or National Guard unit may transfer to the Army ROTC program to complete their commissioning requirements.

ROTC courses are on the tab above. These courses provide workload credit only, not baccalaureate credit.

Courses

ROTC 10L. Military Science-Basic Leadership Laboratory. 1 Workload Unit.
Provides hands-on and practical military science material covered in the corresponding military science courses.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

ROTC 11. Military Science-Personal Development. 1 Workload Unit.
Focuses on life skills such as physical fitness, nutrition, and time management while providing an introduction to military knowledge, customs, and skills.

ROTC 12. Military Science-Leadership I. 1 Workload Unit.
Focuses on the fundamentals of leadership, Army leadership values, ethics, and counseling techniques.

ROTC 13. Military Science-Tactical Leadership I. 1 Workload Unit.
Focuses on leadership at the tactical level and includes instruction in fundamental military skills such as map reading, land navigation, squad and platoon operations, and resource planning techniques.

ROTC 21. Military Science-Team Leadership I. 2 Workload Units.
Explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of the Army leadership requirements model.

ROTC 22. Military Science-Team Leadership II. 2 Workload Units.
Explores team dynamics and two historical leadership theories that form the basis of the Army leadership requirements model.

ROTC 23. Military Science-Tactical Leadership II . 2 Workload Units.
Examines the challenges of leading tactical teams in the OE. Highlights dimensions of terrain analysis, patrolling, and operation orders.

ROTC 100L. Military Science-Advanced Leadership Laboratory. 1 Workload Unit.
Provides hands-on and practical exercises for the military science material covered in the corresponding military science courses as well as leader training through practical application of the Leadership Development Program.

Corequisite: ROTC 131 or ROTC 132 or ROTC 133 or ROTC 141 or ROTC 142 or ROTC 143 or ROTC 197.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

ROTC 131. Military Science-Leadership II. 3 Workload Units.
Challenges cadets to study, practice, and evaluate adaptive leadership skills as they are presented with challenging scenarios related to squad tactical operations. Cadets receive systematic and specified feedback on their leadership attributes and core leader competencies.

Corequisite: ROTC 100L.
Prerequisite: ROTC 11 and ROTC 12 and ROTC 13 and ROTC 21 and ROTC 22 and ROTC 23.

ROTC 132. Military Science-Team Leadership III. 3 Workload Units.
Provides cadets systematic and specific feedback on their leadership attributes and core leader competencies. Based on such feedback, as well as their own self-evaluations, cadets continue to develop their leadership and critical thinking abilities.

Corequisite: ROTC 100L.
Prerequisite: ROTC 11 and ROTC 12 and ROTC 13 and ROTC 21 and ROTC 22 and ROTC 23.

ROTC 133. Military Science-Tactical Leadership III. 3 Workload Units.
Uses increasingly intense situational leadership challenges to build cadet awareness and skills in leading small units. Skills in decision-making, persuading, and motivating team members when "under fire" are explored, evaluated, and developed.

Corequisite: ROTC 100L.
Prerequisite: ROTC 11 and ROTC 12 and ROTC 13 and ROTC 21 and ROTC 22 and ROTC 23.

ROTC 141. Military Science-Leadership III . 3 Workload Units.
Transitions the focus of student learning from being trained, mentored, and evaluated as a cadet to learning how to train, mentor, and evaluate cadets. Cadets begin to learn the duties and responsibilities of an Army staff officer.

Corequisite: ROTC 100L.
Prerequisite: ROTC 131 and ROTC 132 and ROTC 133.

ROTC 142. Military Science-Leadership IV. 3 Workload Units.
Requires students to continue to train, mentor, and evaluate underclass cadets. Cadets learn to safely conduct training by understanding and employing the Composite Risk Management Process and the Comprehensive Soldier Fitness (CSF) program.

Corequisite: ROTC 100L.
Prerequisite: ROTC 131 and ROTC 132 and ROTC 133 and ROTC 141.

ROTC 143. Military Science-Officership. 3 Workload Units.
Explores the dynamics of leading in the complex situations of current military operations in the OE. Cadets examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism.

Corequisite: ROTC 100L.
Prerequisite: ROTC 131 and ROTC 132 and ROTC 133 and ROTC 141 and ROTC 142.

ROTC 151. United States Military History-1607 to 1865. 3 Workload Units.
Examines the creation of the American military establishment and traces its evolution in the context of the changing nature of warfare, the progression of military professionalism, and social, political, economic, and technological developments through the Civil War.

ROTC 152. United States Military History-1865 to 1945. 3 Workload Units.
Examines the evolution of the American military establishment and the progression of military professionalism in terms of social, political, economic, military, and technological developments from the end of the Civil War through World War II.

ROTC 153. United States Military History-1945 to 2001. 3 Workload Units.
Examines the evolution of the American military establishment and the progression of military professionalism in terms of social, political, economic, military, and technological developments from the Cold War to the War on Terrorism.

ROTC 197. Military Science Independent Studies. 2-4 Workload Units.
Provides intensive, individual study with scheduled meetings to be arranged between Cadre and student. Assigned reading and tangible evidence of mastery of subject matter required.

Repeatability: May be taken for credit for 12 units.

Life on Campus

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Student Life & Leadership

Student Life & Leadership offers diverse programs and services to students which complement and enrich the educational and out-of-class life of UCI students. This is achieved through a comprehensive range of cultural, social, and intellectual opportunities that promote student learning

and development. For additional information contact 949-824-5181; sll@uci.edu (deanstu@uci.edu); or visit the Student Life & Leadership (http://www.studentlife.uci.edu) website.

Central Offices

The central office of Student Life & Leadership houses a number of services. More than 600 campus organizations with a combined membership exceeding 16,000 students serve a wide range of interests including academic, environmental, faculty/staff, international, multicultural, political, recreational, religious, service, social and sports. For additional information, visit the Campus Organizations (http://www.campusorgs.uci.edu) website.

The **Fraternity/Sorority (Greek) community** at UC Irvine is a diverse population comprised of over 46 fraternities and sororities that strive to uphold the oaths, values, and principles they were founded upon. Over 2,200 undergraduate students, 10.5 percent of the undergraduate enrollment, make up the Greek population on campus and are active members in the UC Irvine and Greek communities. Three governing councils, Interfraternity Council (IFC), Panhellenic Association (PHA), and Multicultural Greek Council (MGC), represent the fraternities and sororities to the UCI campus and surrounding community. Fraternity and sorority members strive for high academic achievement and are honored by one of three Greek honor societies, Gamma Sigma Alpha, Rho Lambda, and Order of Omega. Throughout the year fraternity and sorority members raise money for philanthropic organizations and volunteer their time for service organizations. For over 30 years, the largest philanthropic event is **Greek Songfest**. It is a yearlong fundraising effort that culminates into fraternities and sororities paired together to perform 12-minute renditions of a Broadway musical, complete with sets, costumes, complex choreography, and lighting design. Recent benefactors of Greek Songfest have been the OC Food Bank, UCI Medical Center, and The Africa Project. Greek life is a great way to be involved and engaged on campus, and membership in the fraternity or sorority lasts a lifetime. For additional information, visit the Greek Life (http://www.greeklife.uci.edu) website.

To assist students in becoming more effective leaders, Student Life & Leadership offers a variety of **leadership programs** and opportunities. The **All-University Leadership Conference** is the cornerstone of UCI's leadership offerings. This annual weekend program involves more than 220 emerging and established student leaders representing the full diversity of campus interest groups. The **Student Regent Recruitment Luncheon** is held during the winter quarter, prior to the application deadline. The current Student Regent informs interested candidates of the issues of the day and is available for questions and answers. The application for the Student Regent position is available at UC Board of Regents (http://regents.universityofcalifornia.edu) website. Information about leadership development programs is available from the Office of the Dean and at the Leadership Programs (http://www.studentlife.uci.edu/leadership/.html) website.

The **Administrative Intern Program** provides participating students with administrative and leadership experience designed to develop personal and professional skills as well as to increase their knowledge of complex organizational structures. Approximately 25 students annually are assigned to campus administrative departments where they develop programs and projects. Academic credit is earned through participation in a weekly seminar entitled Administrative Internship (MGMT 198A-MGMT 198B-MGMT 198C); 4 units per quarter for a maximum of 12 units). For additional information contact 949-824-5182 or visit the Administrative Intern Program (http://search.dos.uci.edu/leadership/admin_intern) website.

The **Passport to Leadership Program** serves the entire student body with one of the most comprehensive leadership experiences on campus. The Passport program is geared toward giving students the one-stop shop for leadership education and experience. The Passport program includes leadership certificates which are awarded by the Student Life & Leadership to participants who attend seven workshops. For additional information visit the Passport to Leadership Program (http://search.dos.uci.edu/leadership/passport) and Leadership Train (http://www.studentlife.uci.edu/train) websites.

The **University Affairs for Credit Course** (UNI AFF 1A-UNI AFF 1B-UNI AFF 1C) offers students an opportunity to work on campus projects with a University department to enrich their academic growth and development as well as the academic growth and development of UCI. Each student spends a minimum of 30 hours per quarter working on a proposed project under the supervision of a designated faculty or staff member. Students are required to write a three to five page paper at the end of the course addressing the following: (1) description of the experience or project; (2) the impact of the experience or project upon the campus; and (3) the effectiveness (personally and externally) of the experience or project. Students may enroll in University Affairs for Credit for a maximum of three times (or 3.9 units), and the course is graded Pass/Not Pass only.

New Student Programs provides assistance and information to students who are in the process of transitioning to UCI from high school or transferring from another college, and coordinates a variety of orientation programs. The *New Student Handbook,* a handy resource guide to UCI, is available at the New Students (http://www.newstudents.uci.edu) website. New Student Programs is located in Student Life & Leadership Office, 949-824-5182.

The Office of the Dean of Students (http://www.dos.uci.edu) also is responsible for the campuswide administration of **student conduct** for both graduate and undergraduate students. Information is provided in the *University of California Policies Applying to Campus Activities, Organizations, and Students,* which is available from the Office of Student Conduct (http://dos.uci.edu/conduct); 949-824-5590; conduct@uci.edu.

A variety of other programs including the Welcome Week Anteater Involvement Fair and the Student Organization Recognition Night are coordinated through the office. For additional information contact 949-824-5181 or visit the Student Life & Leadership (http://www.studentlife.uci.edu) website.

Resource Centers

Student Life & Leadership provides support for a number of campus resource centers.

The **Cross-Cultural Center (CCC),** established at UCI in 1974, was the first multicultural center instituted at any of the UC campuses. The CCC offers a friendly atmosphere and supportive environment for UCI's diverse student body. It provides meeting space and serves as a "home" for over 40 registered student organizations. Center facilities include two conference rooms and an executive boardroom for group meetings, lounges for socializing,

a study room, and a computer lab. The annual Martin Luther King Jr. Symposium, the Cross-Cultural Festival and Conference (formerly the Rainbow Festival and Conference) and Deconstruction Week – all three-day programs that recognize and reinforce UCI's commitment to ethnic diversity and social justice – are major programs administered by the CCC. The CCC also supports a variety of annual special events such as African Consciousness Quarter, Asian/Pacific American Heritage Month, Mez de la Raza, Native American Heritage Month, and Pilipino American History Month. In addition, CCC sponsors Alternative Break programs designed to engage students in service-related opportunities, as well as Volunteer Fairs that enable students to find unique opportunities in the community for service and volunteer projects. Involvement opportunities include the Reaffirming Ethnic Awareness and Community Harmony (R.E.A.C.H.) Program, the Intern Program, the Volunteer Program, Umbrella Council, and various multicultural leadership classes. For additional information contact 949-824-7215 or visit the Cross-Cultural Center (http://www.ccc.uci.edu) website.

The **International Center** contributes to the development of campus diversity and internationalization by providing services and programs to the UCI international population and the campus community. Core functions of the International Center include the following: provide expert immigration services, including visa documentation, interpreting immigration regulations and related advising, and SEVIS and immigration compliance; advising services to academic departments on issues related to the enrollment and visa selection for the employment of international students and scholars; serve as advocates for international students and scholars and as their liaison with institutional, local, state, and federal agencies; and provide pre-arrival advising, orientation, and adjustment assistance for international students and scholars and their families.

International Center programs include welcome and orientation sessions to provide an overview of immigration requirements and UCI resources to international students, scholars, and spouses. In addition, numerous programs, workshops, and information sessions are held throughout the year to assist international students and scholars and bring together internationals with domestic students.

International students and scholars at UCI on F-1 and J-1 visas and UCI-sponsored employment visas are required to report to the International Center upon arrival at UCI. All international students and scholars must be aware of their responsibility of maintaining their non-immigrant visa status as valid. Immigration regulations require that students and scholars maintain updated records at the International Center. These include submitting copies of visa documents to the International Center; maintaining valid I-20 or DS-2019, passport, and I-94 at all times while in the U.S; reporting changes in name, address, and major to the International Center; and reporting early completion of the program or when the student is planning to withdraw or otherwise no longer will be enrolled at UCI.

For additional information contact the International Center, G302 Student Center, 949-824-7249 or visit the International Center (http://www.ic.uci.edu) website.

The **Lesbian Gay Bisexual Transgender Resource Center (LGBTRC)** promotes an open, safe and inclusive campus environment for UCI's diverse lesbian, gay, bisexual, transgender, queer, questioning, intersex and ally communities. LGBTRC provides programs, resources, and support services to raise awareness about lesbian, gay, bisexual, transgender lives and topics; to eliminate heterosexism, homophobia, and gender identity oppression; and to support the academic mission of the university. LGBTRC sponsors campuswide events, student activities, student volunteer and leadership opportunities, ally development programs, workshops and seminars for campus courses and organizations, and consultation regarding matters of policy related to sexual orientation and gender identity.

The LGBTRC is open Monday through Friday, 9 a.m. to 5 p.m., and is located in G301 UCI Student Center; 949-824-3277; e-mail: lgbtrc@uci.edu; or visit the Lesbian Gay Bisexual Transgender Resource Center (http://www.lgbtrc.uci.edu) website.

The **Veteran Services Center** provides support services to veteran students, reservists, active duty service members, and eligible dependents of veterans. Assistance includes benefit certification, work-study, orientation, transition assistance, and outreach programs. Specialized services for veterans, reservists (including National Guard), and active duty service members include priority registration and guaranteed/priority housing. Students seeking these benefits must provide appropriate documentation, such as a DD214, contract, or military orders.

The Veteran Services Center is open Monday through Friday, 9 a.m. to 5 p.m., and is located in G304 UCI Student Center; 949-824-3500; e-mail: veteran@uci.edu; or visit the Veteran Services Center (http://www.veteran.uci.edu) website.

Readmission due to military orders. If a student is called on military orders, the readmission fee will be waived. When readmitting, students should meet with their academic counselor to initiate the process and submit proof of their orders.

- **Procedures and Policies Pertaining to Students Receiving the California Veteran College Fee Waiver for Dependent of Veterans.** Dependents of veterans eligible for the California Veteran Fee Waiver may submit their eligibility letter from a County Veteran Service Office to the UCI Veteran Services Center. Once the letter is submitted, the student's tuition (including professional school fees) and the student services fee will be waived; all remaining UCI fees are the responsibility of the student. Eligibility must be re-established for each subsequent academic year. The student must meet California residency requirements of UCI in order to receive these benefits.
- **Procedures and Policies Pertaining to Students Receiving Federal Education Benefits from the Department of Veterans Affairs.** Students eligible for Federal Education Benefits from the Department of Veteran Affairs are required to register with the Veteran Services Center which includes providing their Certificate of Eligibility in order to initiate the process to receive those benefits through UCI. All veterans, reservists, active duty service members, and dependents of veterans who receive these education benefits must be aware of their responsibility to register with this Center and submit a Veteran Intake Form and Quarterly Certification Form. Additionally, these students must communicate any changes of unit, enrollment status, or the receipt of non-punitive grades to the Veteran Services Center in order to be in compliance with VA regulations.
- **Veterans Affairs Academic Standing Requirement.** All students receiving U.S. Department of Veterans Affairs educational benefits must be in good academic standing. An undergraduate student with a cumulative GPA below 2.0 or a graduate student with a cumulative GPA below 3.0 for two

consecutive academic quarters will have their VA benefits terminated. Benefits will be reinstated if and when the undergraduate student's cumulative GPA is 2.0 or above or the graduate student's cumulative GPA is 3.0 or above. (*This policy is separate and distinct from the UCI Normal Progress Requirement and the UCI Academic Standing Requirement. The Veterans Affairs Academic Standing Requirement has to do with the receipt of VA benefits.)*

- **Readmission for Disqualified Graduate Students.** Graduate students who are academically disqualified may be readmitted to the University with a recommendation from their academic unit and the Dean of the Graduate Division. See "Academic Disqualification" in the Graduate Division section of this *Catalogue* for more information.
- **Procedures and Policies Specific to Students Receiving the Post 9/11 GI Bill.** Students must submit the Quarterly Certification Form prior to the first of the month that tuition and fees are due. Failure to do so may not allow enough time for UCI to place a Financial Aid award for the student's percent (%) entitlement of benefits while waiting for the VA payment. This is currently a courtesy award and is subject to change at any time.If at any time the VA fails to pay any portion of the estimated amount placed into the student's account, the student will be held liable for the unpaid portion.

Campus Assault Resources & Education (CARE)

Campus Assault Resources & Education (CARE) provides direct services and campus education for issues related to sexual assault, intimate partner violence, relationship health, stalking, and personal safety. The office provides consultation, individual and group counseling, and advocacy through legal and medical processes. CARE staff also provide awareness and prevention education through workshops and trainings, peer education programs, campuswide events, and passive educational campaigns. Annual events include Take Back the Night, Denim Day California, couples retreats, Yoga for Healing and the Clothesline Project.

CARE is located at G320 Student Center. All services are confidential and free of charge. For more information call 949-824-7273 or visit the Campus Assault Resource and Education (http://www.care.uci.edu) website.

Campus Recreation

UCI's Department of Campus Recreation (http://www.campusrec.uci.edu) provides programs and facilities for students, faculty and staff to maintain a healthy lifestyle. Campus Recreation is comprised of seven department areas including Facilities, Fitness & Wellness, Intramural Sports, Club Sports, Recreation Activity Classes, Team Challenge, and Outdoor Adventure & Boating.

The Anteater Recreation Center (ARC) is a 115,000 square foot sports and fitness facility featuring 20,000 square feet of strength and cardio space with 282 cardiovascular and weight machines, and more than 30 tons of free weights. In addition, there is a three-court gym, a rounded corner multi-use gym, an elevated running track, three racquetball courts, a rock climbing wall, lap and leisure pool, exercise testing, five multipurpose rooms, and a demonstration kitchen and classroom. The ARC Sports Field Complex includes 21 acres of lighted fields that accommodate softball, soccer and flag football. There are six lighted tennis courts, two outdoor lighted basketball courts, and a roller rink that are available for Campus Recreation programs and drop-in use.

Fitness and Wellness encompasses programs for participants to begin or improve their personal fitness levels including group exercise classes such as yoga and aerobics as well as comprehensive health services such as personal training, fitness testing and massage therapy. Campus Recreation staff are available to provide assistance with gym equipment and fitness goals in the strength and cardio rooms.

Intramural Sports are structured leagues which are designed for the "everyday athlete." All activities feature skill and competitiveness. Sports leagues include basketball, bowling, dodgeball, flag football, floor hockey, indoor and outdoor soccer, softball, volleyball and many more. Special events and tournaments range from badminton, racquetball and swimming to table tennis, tennis, track and wrestling.

UCI Club Sports comprise a wide variety of student-managed competitive sports. Clubs travel to compete against other universities across the local area, and some travel nationally. Current UCI Clubs Sports teams include Archery, Badminton, Biking, Crew, Equestrian, Fencing, Lacrosse, Brazilian Jiu Jitsu, Japanese Karate, Kendo, Taekwondo, Wushu, Roller Hockey, Rugby, Running, Sailing, Soccer, Table Tennis, Tennis, Triathlon, Ultimate Frisbee, Volleyball, Water Polo, Wrestling and Rock Climbing.

Recreation Activity Classes consist of non-credit activity classes for students and the UCI community. Classes range from sports clinics to the more unique styles of martial arts like Jiu Jitsu and Muay Thai. An array of dance classes such as hip hop, salsa and ballroom are also available. Cooking classes held at the ARC Kitchen classroom are also part part of the Recreation Activity Classes department area. Students can also earn their CPR or SCUBA certification through recreation instruction.

Team Challenge is a team building and leadership program. Program participants can experience the Odyssey, a high-ropes challenge course located at the ARC fields. Customized and facilitated team programs are available on a reservation basis. Team Up! programs, led by trained facilitators, teach communication, trust and teamwork while providing students with the chance to test their limits and have fun as a unit.

Outdoor Adventure & Boating includes a mixture of outdoor activities and watersports like sailing, kayaking, paddleboarding, rock climbing and outdoor adventure trips. The sailing program includes both classes and club activities. Classes range from beginner to advanced and are offered quarterly. The sailing club gives members individual access to UCI's fleet. The rock climbing programs take place on the 35 foot indoor rock climbing

wall at the ARC and include classes and climbing memberships. Kayaking and Stand Up Paddleboard lessons and trips take place at UCI's Crew Base in the Newport Back Bay. Annual outdoor adventure trips include a summer Yosemite backpacking trip and the Spring Break Service trip.

The Anteater Recreation Center is located at 680 California Ave. For more information visit the Campus Recreation (http://www.campusrec.uci.edu) website or call the Campus Recreation Services desk at 949-824-3738.

UCI Career Center

The UCI Career Center assists undergraduate and graduate students with career exploration, internships, job search strategies, and the process of applying for graduate or professional school. Through individual counseling appointments and daily drop-in hours, the Career Center staff helps students to identify skills and interests and learn how to apply them to future careers.

The Career Center provides opportunities for students to connect with employers, alumni, and professionals through workshops, career programs, and career and graduate fairs. UCI students can utilize ZotLink (http://www.career.uci.edu/zotlink.aspx) (the Career Center's job listing service) to find internships, part-time or full-time jobs, and campus jobs. The On-Campus Interview (OCI) program provides an opportunity for students to interview for internship and full-time positions in the Career Center interview rooms. Students can access all job listings and OCI listings at the Career Center (http://www.career.uci.edu) website.

Students are encouraged to get career-related work experience to gain new skills, an edge in the job search and, in many cases, income. The Career Center sponsors the non-academic UCDC and Sacramento Internship Programs where students can apply to be part of a summer internship experience in Washington, D.C. or Sacramento.

The Career Center is located on the Ring Mall across from the Student Center and is open Monday through Friday from 8 a.m. to 5 p.m. Typically, drop-in hours are 11 a.m. to 4 p.m., but hours may vary due to campus holidays and Career Center events. For additional information contact 949-824-6881; or visit the Career Center (http://www.career.uci.edu) website.

Child Care Services

Child Care Services includes six centers offering programs for children from three months to 12 years of age. The programs are open to children of UCI students, faculty and staff, with priority enrollment and tuition subsidy available to qualifying students at three of the centers. For information contact 949-824-2100; or visit the Child Care Services (http://www.childcare.uci.edu) website.

Counseling Center

The Counseling Center is the primary counseling and mental health agency for UC Irvine undergraduate and graduate students. Staff assist students with academic success by developing dimensions of well-being particularly in the arena of mental health. The Counseling Center provides short-term time-limited individual, couples, group and family counseling, and assists students with urgent care and some psychological testing. Psychiatric evaluation and intervention are available on a limited basis for students concurrently seen in therapy. A wide range of student workshops related to interpersonal and developmental issues such as "Living Together," "Communication Skills," "Test Anxiety, Study Skills & Stress Management" and "Life Transitions" are offered annually. In addition, the Counseling Center provides support to the university community through crisis intervention, training in mental health issues, and outreach and consultation services with a special commitment to suicide prevention and stigma reduction. The Counseling Center's services are free of charge to currently enrolled students. Students with chronic and severe mental health issues needing long-term and extensive services may be referred to other appropriate community providers. The Counseling Center is located on the second floor of Student Services I; 949-824-6457; or visit the Counseling Center (http://www.counseling.uci.edu) website.

Disability Services Center

The Disability Services Center (DSC) provides and coordinates accommodations and services that enable UCI students with disabilities to maximize their educational potential. Students with varying disabilities, including those with mobility, visual, hearing, learning disabilities, and chronic health problems, may be eligible for reasonable disability-related accommodations through this resource center. Staff assists students from the point of their admission to UCI through graduation. Specialized services may include testing accommodations, priority registration, document conversion, adaptive equipment, assistive technology, notes, interpreters, captioners, liaisons with faculty and campus departments, and information regarding disability advocacy in the university setting. The DSC provides adaptive computer technology and training. There is no cost to the student for the support services or accommodations provided by the Disability Services Center. Students are responsible for fully acquainting themselves with the detailed procedures for use of accommodations. These procedures are available on the Disability Services Center (http://www.disability.uci.edu) website.

Students with disabilities may qualify for reasonable accommodations based on disability-related needs. Students must provide appropriate documentation about their disabilities to the DSC. Documentation provided to the DSC is confidential. It is the responsibility of the applicant or student to provide this documentation and, if necessary, to cover the cost for such documentation. This includes the cost for professional assessments for such disabilities as learning disabilities, attention deficit disorder, and psychiatric disabilities. Contact the Disability Services Center or visit the website for more information about disability documentation requirements. In some cases there is need for recent or detailed documentation about the disability

and/or periodic documentation updates. UCI reserves the right to determine the most effective and timely accommodations after consultation with the student about the disability and previous use of accommodations. The provision or use of a disability accommodation does not guarantee or ensure a certain level of achievement for the student. Students with disabilities must meet the same academic standards as all other students. Some academic accommodations may require approval of the chair or dean of the student's academic unit.

Students with disabilities who need accommodations (in particular, reading assistance, textbook conversion including e-text and Braille, American Sign Language interpreting services, real-time captioning services, and adaptive computing technology in campus laboratories) that must be planned or arranged in advance of the start of classes should contact the Disability Services Center as quickly as possible after admission to UCI. Failure to do so may delay or in some cases preclude the Center's ability to provide certain accommodations. This advance notice also allows the DSC to document needs, discuss service procedures and student responsibilities, and determine the appropriate accommodations.

Additional information is available from the Disability Services Center: 949-824-7494 (voice), 949-824-6272 (TTY); e-mail: dsc@uci.edu; or visit the Disability Services Center (http://www.disability.uci.edu) website.

Health Education Center

The UCI Health Education Center (HEC) strives to set the standard in collegiate health education by focusing on the unique and relevant health needs and concerns of UCI students. HEC staff educate students to make informed decisions that support their individual health, as well as a healthy campus environment, in order to uphold the academic mission of the university.

HEC staff promote healthy choices and behaviors by identifying the specific health needs of the campus; utilizing evidence-based education strategies; disseminating current and accurate health information; facilitating student development and leadership; and offering innovative campus programming. The HEC employs student staff and has trained peer educators, students involved in HEC's four student organizations, and other students participating in field study/practicum hours.

HEC staff and students present workshops, conduct trainings and classes, and consult with students on their health needs and concerns. Services also include anonymous HIV testing, a lactation station for nursing mothers, a gender-neutral restroom and a wellness lounge. For additional information visit the Health Education Center (http://www.HealthEducation.uci.edu) website.

The Hill

The Hill, bringing you "books…everything UCI and more," is UCI's campus store, owned and operated by the University of California. It has been serving students and the wider UCI community since 1981. Located in the UCI Student Center, The Hill stocks all required and recommended textbooks including new, used, rental, and digital options, supplies and examination materials. The Hill also houses UCI authors and general books of interest. To supplement the educational experience of the UCI community, The Hill hosts an ongoing Author Series. This series attracts authors of local and national stature and supports the academic mission of the University by offering a venue for undergraduate and graduate students and faculty to read and discuss their works.

UCI Anteater apparel and gifts are featured in extensive varieties to boost school spirit and pride. The TechHub, The Hill's computer department, carries an extensive line of computers, software and accessories. AntTech, The Hill's technical services center, offers Apple Certified Mac Technicians who service Macs and PCs for customers' hardware and software support needs.

The Hill is open Monday through Thursday from 9 a.m. to 10 p.m., Friday from 9 a.m. to 9 p.m., and Saturday from noon to 5 p.m. For additional information contact 949-UCI-Hill (824-4455); e-mail: thehill@uci.edu (books@uci.edu); or visit The Hill (http://book.uci.edu) website.

UCI Hospitality & Dining

From a quick bite to eat to an elegantly served catered meal, UCI Hospitality & Dining Services is here to serve the campus community's dining needs, offering a variety of locations to fit one's palette.

Locations are conveniently situated throughout the campus to serve your dining needs. At the Student Center dining options include Subway, Wendy's, Panda Express, Jamba Juice, Bene Great Pasta, Topio's Pizza, Organic Greens to Go, and Wahoo's Fish Tacos. Starbucks and Zot-N-Go convenience store are located just outside the Student Center, and the C3 Express convenience store is located by Social Sciences Lecture Hall. BC's Cavern Food Court and Subway are located at Biological Sciences, adjacent to Aldrich Park. Cyber A Café can be found in the Claire Trevor School of the Arts neighborhood, and Café Med and Med Ed Café are located by the School of Medicine. Java City is located at Engineering Quad, and Espress Yourself coffee cart is located in the Berkeley Place courtyard. Check out our new Alumni Café at the Newkirk Alumni Center and our 20/20 Café located in the Gavin Herbert Eye Institute.

Residential Dining commons include Pippin, Mesa and Brandywine. All three locations have theme nights, award-winning chefs, made-to-order meals, and vegetarian and vegan options. Mesa and Brandywine offer a late night menu Monday through Thursday until 11 p.m. In addition, Pippin and Mesa Commons feature Provisions-On-Demand mini markets inside to accommodate students' last minute needs or cravings.

UCI Catering provides a comprehensive list of menu items to choose from or the option to design your own menu; both can be designed to fit your budget or needs. To view the menus, visit the UCI Catering (http://ucicatering.catertrax.com) website or call 949-824-1423.

UCI Hospitality & Dining Services is located in G318 Student Center; 949-824-4182; or visit the UCI Hospitality & Dining Services (http://www.food.uci.edu) website.

Student Housing

On-Campus Housing

Housing Administrative Services coordinates application procedures and contracts for on-campus housing. Approximately 45 percent of UCI's student body is housed on campus. For more information, including housing rates for the 2014-15 academic year, visit the Student Housing (http://www.housing.uci.edu) website.

Undergraduate Housing

Residence Halls. Approximately 3,700 undergraduates live in UCI's two residence hall communities – **Mesa Court** and **Middle Earth** – which are within walking distance from the center of campus. Each community houses single undergraduates who are primarily freshmen between 17 and 20 years of age. The communities are composed of clusters of small, mostly coed buildings housing 48-75 residents in suite-style layouts. Student rooms feature cable television and Internet connections. Each hall has group study rooms, a living room for meetings or informal gatherings, a small kitchen, and card-operated laundry facilities. Both communities offer recreation rooms with video games, TV and game tables; volleyball and basketball courts; and staffed computer labs.

Mesa Court and Middle Earth have complete food service and dining commons. Students who live in the residence halls participate in a prepaid meal plan. Meals are served three times daily on weekdays (with limited late night hours) and twice daily (brunch and dinner) on weekends. Menus offer a wide selection of foods, served cafeteria style, at self-serve cereal, deli, and salad bars, and at cook-to-order serving stations featuring cuisines from all over the world. For more information about meal plan options, visit the UCI Dining (http://www.ucidining.com) website. The halls close during the winter recess, and although they remain open during the Thanksgiving holiday and the spring recess, no meals are served.

Both Mesa Court and Middle Earth maintain a comprehensive residence life program, designed to help freshmen transition to college. Each hall has a live-in Resident Advisor who provides resources and support to freshmen residents. In each community, special interest halls or hall clusters provide educational programs and informal opportunities to get together with other students who hold similar interests. Community-wide social programs are also offered.

Rates for the 2013-14 academic year (late September through mid-June) were $14,156-$14,531 for a single room; $12,371-$12,746 for a double room; and $10,772-$11,147 for a triple room. (Rates include room and board and vary by the meal plan selected.) Charges are paid in quarterly payments. Rates for 2014-15 will reflect an increase.

Campus Village is an apartment community located in the campus core, next to the Ayala Science Library. Campus Village serves both undergraduate and graduate students, in separate sections of the community. Undergraduate residents must be single, under the age of 25, and graduate student residents (including medical and law students, and excluding medical residents and interns) must also be single (and without children). Each two-bedroom apartment is shared by either four undergraduate students or two graduate students. Most units are furnished; all include a bathroom, carpeting, draperies, a stove and a refrigerator. All apartments provide cable television and Internet connections. The Campus Village Community Center offers a variety of facilities and programs including a fitness center, recreation rooms, study rooms, and a computer lab with Internet access. Rates for the 2013-14 year-round undergraduate contract (June – June), including utilities, were $7,350 per student for a furnished apartment, and $6,564 per student for an unfurnished apartment.

No meal plan is included in the housing contract, however students may purchase a voluntary meal plan through the UCI Dining (http://www.ucidining.com) website. These rates also include utilities and reservation fees.

Arroyo Vista is a community of 42 sponsored academic theme, fraternity and sorority chapter houses for single undergraduates under the age of 25. Each house contains 8, 12 or 16 furnished, double-occupancy rooms (bed, desk and wardrobe closet for each resident). Residents share bathroom facilities on each floor, a spacious living room with fireplace, a study room, a fully equipped kitchen with dishwasher and microwaves, and laundry facilities. Some houses also offer a two-person suite with a private bathroom. All bedrooms in Arroyo Vista feature cable television and Internet connections. No meal plan is included in the housing contract. Students make their own meal arrangements, choosing to cook for themselves or to purchase a voluntary meal plan through the UCI Dining (http://www.ucidining.com) website.

More than two-thirds of the houses are designated Academic Theme Houses, some of which are sponsored by academic programs. Theme houses offer educational programs that advance both a student's academic interests and overall University experience. The remaining houses are available to fraternity and sorority chapter organizations; consult individual Greek chapters for information. The rate for the 2013-14 academic year was $5,813 for a double-occupancy room and $7,262 for the two-person suite. Rates for 2014-15 will reflect an increase.

Graduate/Family Housing

Two on-campus apartment communities serve full-time graduate and medical students, and students with families (married, in a domestic partnership, and/or with custody of minor children). Both of those communities also serve undergraduates with families or who are single and 25 years of age or older. Single graduate students without children may also live in Campus Village apartments. Rental rates in all three communities tend to be lower than for comparable units in the local rental market.

Verano Place offers 852 one-, two-, and three-bedroom apartments. All have carpeting, draperies, a stove and a refrigerator, and provide cable television and Internet connections. They are attractive and considerably lower in rent than comparable units in the local communities. Monthly rents for 2013-14 ranged from $358-$725 for single students sharing an apartment, and from $918-$1,450 for families. Rates for 2014-15 will reflect an increase.

Palo Verde offers 652 apartments for full-time graduate students (single students, students who are married or in a domestic partnership, and those with families). All apartments have carpeting, draperies, a stove and a refrigerator, and provide cable television and Internet connections. Monthly rents for 2013-14 ranged from $560-$1,031 for single students sharing an apartment, and from $782-$1,887 for families. Rates for 2014-15 will reflect an increase.

Campus Village is a mixed community serving both graduate and undergraduate students who are single (and without children). Refer to the Campus Village section above for more details. The 2013-14 monthly rental rate for graduate students living in Campus Village was $710. Rates for 2014-15 will reflect an increase.

To Apply

Housing information and application instructions are available at the Student Housing (http://www.housing.uci.edu) website. Undergraduates apply for housing online via the UCI Admissions (http://www.admissions.uci.edu) website after receiving admissions notification and submitting their *Statement of Intent to Register* (SIR). Graduate applicants can also find housing information and a link to the online application on the UCI Student Housing website. A $20 nonrefundable processing fee must accompany the housing application when it is submitted.

Two years of on-campus housing are guaranteed to all freshmen, and one year of on-campus housing is guaranteed to transfer undergraduate students who are single, under the age of 25, enrolling for fall quarter, and who meet the housing application and contract deadlines. To qualify for this guarantee, students must apply for housing and submit their *Statement of Intent to Register* (SIR) by the stated deadlines: May 1, 2014 for freshmen, and June 1, 2014 for transfer students. Applications received after these dates will be handled in the order received, as space becomes available.

The University of California, Irvine guarantees an offer of on-campus housing to newly admitted fall 2014 Ph.D., M.F.A. and J.D. students. Housing offers will be for one of six graduate housing communities and must be accepted prior to the first day of classes. Guaranteed housing extends until a student's normative time to degree for their academic program. Newly admitted students must submit their *Statement of Intent to Register* (SIR) 24 hours before they apply for housing online (beginning March 1, 2014). Guaranteed students must apply by 4:30 p.m., May 1, 2014, and will be notified of their housing community assignment by mid-May. Non-guaranteed students can apply at any time to get on the housing wait-list.

Students who are eligible service members, reservists and veterans are guaranteed an offer of on-campus housing. Visit the UCI Veteran Services Center (http://www.veteran.uci.edu) website for information or call 949-824-3500.

Alternative Housing on the UCI Campus

Vista del Campo, Vista del Campo Norte, Camino del Sol and Puerta del Sol Apartments – four on-campus privately owned complexes managed by American Campus Communities – offer furnished apartments with individual leases for UCI students who are single or married/domestic partners without children. Vista del Campo, Vista del Campo Norte, and Puerta del Sol house both undergraduate and graduate students. Camino del Sol is an undergraduate community. Community information can be found at the Vista Del Campo (http://www.vistadelcampo.com) website or call for information: Vista del Campo, 949-854-0900; Vista del Campo Norte, 949-856-4600; Camino del Sol, 949-737-7000; or Puerta del Sol, 949-737-7017.

Housing Administrative Services

Services are available to assist students during the application and contracting process, as well as those looking for off-campus housing. The Anteater Housing Network, an online housing and roommate finder, provides easy access to listings of local rental properties, as well as message boards to find roommates, sublets, buy/sell furniture, and more. Students must log in with their UCI NetID and password to view listings. The *Living Around UCI Guide* contains a wealth of information for first-time renters and those new to the area, including a local directory for shopping, banking, utility companies and other services. For more information, contact a Housing Advisor at 949-824-6811, send e-mail to housing@uci.edu, or visit the Off Campus Housing (http://www.housing.uci.edu/och) website.

UCI Student Center & Event Services

The UCI Student Center serves as a hub for campus life and for community engagement. With over 340,000 square feet of space, the Student Center is home to two food courts, a pub, a games room, a computer lab, a convenience store, study space, The Global Viewpoint Lounge, The Hill (UCI's bookstore), a blood donor center, banking institutions, and a Conference Center with a wide variety of flexible venue spaces. In addition, the Student

Center houses campus offices and services including Associated Students, Student Life & Leadership, Housing, the Lesbian Gay Bisexual Transgender Resource Center, the International Center, and the Veteran Services Center.

The Event Services department, which consists of a team of Certified Meeting Professionals and an experienced operations crew, coordinates approximately 70,000 events each year that are attended by members of the campus and surrounding community. An ACCED-I certified One-Stop-Shop, Event Services assists internal and external clients in coordinating all event production services while having one contract, one contact, and one bill.

For more information visit the Student Center & Event Services (http://www.studentcenter.uci.edu) website.

Student Government

Associated Students

All UCI undergraduate students are members of the Associated Students, UC Irvine (ASUCI). ASUCI is the student representative body that advocates to and is liaison between the UCI administration, faculty, and staff.

ASUCI is comprised of three branches of government: the Executive Branch (five elected members and over 60 appointed officer positions), Legislative Council (21 elected members), and the Judicial Board (seven appointed members). Guided by their constitution and by-laws, these student representatives manage the $18 per student quarterly fee that supports student life activities, advocacy programs, academic programs, publications/communication, and professional support staff as well as essential campus services. For more information contact the Student Government & Student Media offices at 949-824-2400; asuci@uci.edu; or visit the Associated Students, UC Irvine (ASUCI) (http://www.asuci.uci.edu) website.

ASUCI Student Life Activities include annual events such as Shocktoberfest, Homecoming, Wayzgoose, Soulstice, and Reggaefest. On-going events include such programs as “Noon Tunes,” major concerts, comedy nights, “Rally Alley” spirit events before athletic games,spirit days, and weekly movie screenings. This organization also sponsors student educational programs such as the Visions Leadership class (1.3 units), Speakers & Debate series, UTeach, and the Anteater Mentorship Program.

ASUCI Advocacy programs include Elections (campus and local), Undergraduate Senate, External Affairs and the Lobby core seminar course (1.3 units), where students travel to Sacramento to represent student issues. The ASUCI Legislative Council nominates undergraduate students for positions on UCI administrative, Academic Senate, and ad hoc committees and ensures graduate students have a voice in policy and decision-making on the UCI campus.

ASUCI Services include the following:

Club and Organization Accounting: The ASUCI Business Office provides banking and accounting services to registered campus organizations.

Anteater Express: The Anteater Express shuttle program provides alternative transportation service to all students, staff, and affiliated members of the UCI community, with fixed shuttle routes to 60 designated stops on and off campus. The Express Shuttle carried more than two million passengers last year and facilitates campuswide efforts to reduce traffic and improve air quality while helping the UCI community access the services available on campus. For detailed information regarding services, routes, and schedules, visit the Anteater Express (http://www.shuttle.uci.edu) website.

Vendor Fair: The Vendor Fair program is a student-run and managed program where students select local vendors and invite them to the UCI campus for one week approximately five times each year.

The Green Initiative Fund (T.G.I.F.): ASUCI manages The Green Initiative Fund (T.G.I.F.), which is a funding board that allocates money toward sustainable projects and educational programs on campus. Students voted to enact a $3.50 per quarter T.G.I.F. fee to support this program in spring 2009.

The Student Programming Funding Board (S.P.F.B): The goal of this Board is to provide funding to campuswide programs coordinated by registered undergraduate organizations that enhance the quality of life, encourage school spirit, and promote social, cultural, and educational development.

Discount Ticket Program: ASUCI offers discount tickets to local attractions which include AMC theaters, Edwards/Regal cinema, Disneyland, Universal Studios, Magic Mountain, Sea World, Knott’s Berry Farm and more. The program is located in the Student Government & Student Media offices near the Zot Zone and is open Monday through Friday from 8 a.m. to 5 p.m.; telephone 949-824-7555. Tickets can also be purchased online 24-7 at the ASUCI Discount Tickets (https://www.asuci.uci.edu/tickets) website, including Disneyland, Legoland and Universal Studios.

Associated Graduate Students

All graduate and professional school students are members of the Associated Graduate Students (AGS). AGS works to improve the graduate student quality of life and functions as a liaison between graduate students and the UCI administration, faculty, and staff by addressing concerns and working to resolve grievances.

AGS also provides graduate students with numerous social and cultural events of benefit to the graduate community. In addition to hosting quarterly social events designed to create a sense of community, the organization allocates funds toward graduate student development and special projects.

The AGS Council nominates graduate students for positions on UCI administrative, Academic Senate, and ad hoc committees and ensures graduate students have a voice in policy and decision-making on the UCI campus. AGS also works on systemwide issues affecting graduate and professional students by membership in the UC Student Association (UCSA).

For more information, visit the Associated Graduate Students (http://www.ags.uci.edu) website.

Associated Medical Students

The Associated Medical Students (AMS) Council, along with the AGS Council, represents the medical student body in all matters relating to the UCI campus, the UC Office of the President, and the community. Medical students are members of AGS and have access to those services. In addition, AMS utilizes a portion of the quarterly AGS fee to provide funding for medical student activities that benefit the School of Medicine community.

The Paul Merage School of Business Student Association

The School's Council, along with the AGS Council, represents the graduate Business student body in all matters relating to the UCI campus, the UC Office of the President, and the community. Graduate Business students are members of AGS and have access to those services. In addition, the School's Council uses a portion of the quarterly AGS fee to provide funding for student activities that benefit The Paul Merage School of Business community.

The Student Bar Association

All UCI Law students are members of the Student Bar Association (http://www.law.uci.edu/campus-life/student-organizations/orgs/sba.html) at the University of California, Irvine School of Law. The Student Bar Association serves as a primary conduit for students to deliver concerns and contribute ideas to the administration. The Student Bar Association distributes funds to student groups to help members pursue their passions within the study of law. As the students, faculty, and administration work to build the law school of the twenty-first century, the Student Bar Association works to ensure that all students have the support and resources they need to excel.

Student Health Center

All students registered in a degree program are eligible to access services at the Student Health Center (SHC), located at the corner of East Peltason and Pereira Drive. The SHC is accredited by the Accreditation Association for Ambulatory Health Care (AAAHC).

Facilities and services at the Student Health Center include outpatient clinics staffed by certified, licensed medical, nursing and dental professionals; a clinical laboratory; radiology; pharmacy; and insurance office. The SHC is open from 8 a.m. to 5 p.m., Monday through Friday.

General medical services offered at the SHC include primary care, women's health and men's health, and can be accessed by appointment. Urgent matters and walk-ins are triaged immediately and care is provided as appropriate. Specialty services, available by appointment, include psychiatry, dermatology, gynecology, orthopedics, sports medicine, ear/nose/throat, and minor surgery. The Nurse Clinic provides immunizations, health screening, and basic health education. The Dental Clinic offers basic dental examination, routine dental cleaning, restorative procedures (fillings and crowns), and selected specialty services.

Full health care services are available beginning on the first day of Welcome Week in the fall and continuing through the last day of finals week in June. Basic services continue in the summer as well. At the Student Health Center, service fees are generally lower than those of comparable services in the community. Students not enrolled in the University of California Student Health Insurance Plan (UC SHIP) will pay fees for services and may submit a claim to their insurance plans for reimbursement.

All undergraduate, graduate, law, and medical students are required to carry adequate health insurance. Those students who have private insurance which is equal or superior to the benefits provided through the University may be eligible to have the enrollment in UC SHIP waived. Additional information is available in the Expenses, Tuition, and Fees section of this *Catalogue* and on the Student Health Center (http://www.shs.uci.edu) website. Admission health requirement packets are mailed to new and readmitted students as their names become available to the Student Health Center. All new students are required to file proof of tuberculosis screening, if requested, and proof of required immunizations with the SHC.

Although not required, all students are encouraged to have an updated physical examination to screen for health problems. The examination may be performed by the student's own physician or performed at the Student Health Center for a fee. Students enrolled in UC SHIP are covered 100% for this service when performed at the SHC or PPO provider. Students transferring from another UC campus where their medical records are on file should have the records transferred to the UCI Student Health Center.

For the most up-to-date information visit the Student Health Center (http://www.shs.uci.edu) website.

Student-Produced Media

UCI students publish four Student Media products on campus, including the weekly campus newspaper entitled the *New University* (http://www.newuniversity.org), which is distributed every Tuesday in over 80 locations on campus; operate a radio station, KUCI (http://www.kuci.org) (88.9

FM); produce *Anthology* (http://www.yearbook.uci.edu), the award-winning UCI yearbook; and produce several Alternative Media newsletters and magazines.

Intercollegiate Athletics

UCI's Intercollegiate Athletics Program features 18 sports, with nine men's teams and nine women's teams. Men's sports include baseball, basketball, cross country, golf, soccer, tennis, outdoor track and field, volleyball, and water polo. UCI's men's teams compete in the National Collegiate Athletic Association (NCAA) Division I, and the University is a member of the Big West Conference. UCI also competes in the Mountain Pacific Sports Federation (MPSF) in men's volleyball and water polo. The UCI women's teams also are members of NCAA Division I and the Big West Conference, competing in basketball, cross country, golf, soccer, tennis, outdoor track and field, volleyball, and water polo. Women's indoor track and field competes in the MPSF.

UCI, since opening in 1965, has captured 28 national team championships in nine different sports, including the last two in men's volleyball, with 64 individuals winning national titles and 490 earning All-American honors. UCI has won 77 conference championships since 1977. Each spring, the University presents the Big West Scholar-Athlete Award to those student-athletes who maintained a 3.0 GPA over the previous three quarters. In the last 31 years, 3,737 UCI student-athletes have earned the award, including 121 in 2012-13.

In six of the past seven years, UCI has finished in the nation's top five of the Division I-AAA All-Sports Trophy competition (recognizing NCAA postseason athletic achievement among the nation's 98 Division I non-football schools). UCI finished first in 2007 and has been ranked second three of the past five years.

The mission of UCI Intercollegiate Athletics is to facilitate and enrich the education and personal growth of its students through their participation in competitive NCAA Division I athletics. Intercollegiate Athletics is committed to the welfare of student-athletes and staff, and advocates an environment that promotes excellence in athletic and academic performance, sportsmanship, diversity, and gender equity. Intercollegiate Athletics also supports the University of California's mission of public service and serves to generate a unifying spirit among students, faculty, staff, and alumni that transcends communities, cultures, and generations.

The Intercollegiate Athletic offices are located in the Intercollegiate Athletics Building (IAB); UC Irvine Sports (http://www.ucirvinesports.com) website; telephone (949) 824-6931.

Athletic Facilities

On-campus facilities include the Bren Events Center, which seats 5,000 for intercollegiate basketball and volleyball. The Crawford Hall complex also includes the Santora Elite Training Center, Al Irwin Academic Center, and sports medicine. Crawford Court gymnasium has 760 chair-back seats for volleyball. Outdoor facilities include Anteater Stadium, a 2,500-seat facility for soccer and track; the 500-seat Anteater Tennis Stadium; Cicerone Field at Anteater Ballpark, home to the baseball program; and a five-acre multipurpose field complex.

UCI's Anteater Aquatics Complex houses the intercollegiate water polo teams. This 64-meter aquatics facility is designed with a movable bulkhead and is large enough to accommodate multiple activities simultaneously.

Office of Research

John C. Hemminger, **Vice Chancellor for Research**

The mission of the Office of Research (OR) is to support, facilitate, and promote world-class research at the University of California, Irvine. As its primary activity, OR works with other campus units to foster an environment for research and artistic activity that facilitates the discovery and dissemination of knowledge in many forms to all levels of society.

OR provides central campus administrative support for UCI's research programs. It includes Research Administration, the Office of Technology Alliances (OTA), University Laboratory Animal Resources (ULAR), Research Development, Administrative Operations and Information Technology, and the Office of the Vice Chancellor. Each of these units contributes to the overall objective of facilitating campus research activities. For more information about its mission, visit the Office of Research (http://research.uci.edu) website.

Below is a comprehensive list of research units that report (directly or indirectly) to the Vice Chancellor for Research.

Special Research Programs

Special Research Programs (SRPs) exist at UC Irvine to provide a structure for collaborative research activities that do not fit the definition and purpose of an Organized Research Unit, a Campus Center, or a School Center.

Beckman Laser Institute

The Beckman Laser Institute (BLI) was established in 1982 by Dr. Arnold O. Beckman and Dr. Michael W. Berns as an interdisciplinary center for the development and application of optical technologies in biology and medicine. Since the opening in 1986, Beckman Laser Institute has grown to include 18 faculty and their 130 affiliated students, postdoctoral fellows, technical staff, and administrative support. BLI is one of five national Beckman Institutes supported by the Arnold and Mabel Beckman Foundation. BLI is dedicated to cutting-edge interdisciplinary research and the interface of physical science, engineering, and biology. Because BLI also houses a medical clinic, it is unique in its capacity for conducting translational research that moves basic technologies rapidly from "benchtop to bedside." For more information visit the Beckman Laser Institute (http://www.bli.uci.edu) website.

California Institute for Telecommunications and Information Technology (Calit2)

Calit2 is a two-campus multidisciplinary research institute established by the State of California in 2000. One of four University of California Institutes for Science and Innovation, Calit2 is a partnership between academia and the business community. The Institute's unique research approach integrates academic intellectual capital across a wide range of disciplines with industry expertise. In collaboration with its sister division at UC San Diego, Calit2@UCI seeks innovative IT approaches that will benefit society and ignite economic development in the state and throughout the country.

More than 150 UCI faculty, 250 students, and 100 industry partners are actively engaged in Calit2 research areas that include the environment, transportation, emergency management, health care, education, and entertainment.

Calit2 also strives to prepare students for successful careers after graduation; the Institute's programs include SURF-IT, a summer undergraduate opportunity that immerses students in hands-on research, as well as a graduate fellows program that helps fund a select group of students doing multidisciplinary, IT-focused graduate work. For more information visit the Calit2 (http://www.calit2.net) website.

Institute for Clinical and Translational Science

The Institute for Clinical and Translational Science (ICTS) in the Office of Research is a uniquely transformative, novel, and integrative academic home for clinical and translational science with the resources to train and advance a cadre of well-trained multi- and interdisciplinary investigators and research teams. The Institute facilitates access to innovative research tools and information technologies to promote the application of new knowledge and techniques to patient care. ICTS assists basic, translational, and clinical investigators, community clinicians, clinical practices, networks, professional societies, and industry to develop new professional interactions, programs, and research projects. ICTS fosters a new discipline of clinical and translational science that is much broader and deeper than their separate components. The faculty members associated with ICTS are instrumental in supporting students in related advanced degree programs via their grants and other sources of financial support. ICTS consists of several units: Pilot and Collaborative Translational and Clinical Studies; Translational Technologies and Resources; Development of Novel Clinical and Translational Methodologies; Biomedical Informatics (including the Center for Medical Informatics); Design, Biostatistics, and Clinical Research Ethics; Regulatory Knowledge and Support; Participant and Clinical Interactions Resources; Community Engagement; and Research Education, Training, and Career Development. More information is available at the ICTS (http://www.icts.uci.edu) website.

The Intel Science and Technology Center (ISTC) for Social Computing

Launched in June 2012, the Intel Center for Social Computing was established to conduct foundational research into the relationship between information technology and society. Centered at UCI, it brings together an interdisciplinary group of researchers from leading universities across the United States, including experts in social media, digital culture, user interfaces, cultural computing, and participatory design. Learn more at the ISTC (http://socialcomputing.uci.edu) website.

Sue and Bill Gross Stem Cell Research Center

The vision of UCI's Sue and Bill Gross Stem Cell Research Center (SCRC) is to progress the understanding and therapeutic potential of stem cell science toward the improvement and relief of human disease. Development of SCRC is built upon the campus's long-standing strengths in neuroscience, developmental biology, and pharmacology, and benefits from faculty collaborations with other UCI Organized Research Units and Centers. Sue and Bill Gross Hall: A CIRM Institute was dedicated in May 2010 and is one of twelve buildings in the state funded by taxpayer support through the California Institute for Regenerative Medicine. "Gross Hall" is home to UCI's world-class faculty, clinicians, and training fellows in stem cell research, and will include a "federal-free" core lab facility outfitted with state-of-the-art equipment critical to human embryonic stem cell research. For more information visit the SCRC (http://stemcell.uci.edu) website.

Thesaurus Linguae Graecae ®

The Thesaurus Linguae Graecae (TLG)® is a research project that was established at UCI in 1972, thanks to a gift by UCI alumna Marianne McDonald. Its goals are to create a comprehensive digital library of Greek literature from antiquity to the present era; to conduct literary research using collected texts; and to apply technological innovation in these endeavors. The TLG® corpus currently contains more than 105 million words of Greek text from Homer (8 c. B.C) to the fall of Byzantium in A.D. 1453 and beyond.

TLG® research activities combine the traditional concerns and methodologies of philological and literary study with the most advanced features of computer technology. Included among current research foci are the identification of ancient Greek literary and documentary materials from various literary-historical periods; the conversion of these materials into digital form using modern methods of text encoding; the enhancement of automated text-correction routines; and the formulation of criteria for the lexical analysis and categorization of the texts in the corpus. The full corpus is available to more than 2,000 subscribing institutions and thousands of individuals in 58 countries worldwide.

TLG®'s library holdings enhance those of the UCI Langson Library, and TLG® conferences and scholarly visits afford faculty and students contact with eminent scholars in related fields. The Thesaurus Linguae Graecae® has made UCI a major source of Classics research activity. For more information visit the TLG (http://www.tlg.uci.edu) website.

University of California Humanities Research Institute

The University of California Humanities Research Institute (UCHRI) is a multicampus research program of the University of California, serving all ten campuses in the UC system. Founded in 1987 and headquartered at the UC Irvine campus, the Institute promotes collaborative work representing different fields and institutions both within and beyond the University of California. UCHRI addresses topics in traditional humanities disciplines, as well as in new areas intersecting with social and natural sciences, technology, art, medicine, and the professions. Stressing interdisciplinary collaborative research, UCHRI bridges gaps between disciplines across the humanities and human sciences and seeks to overcome the intellectual and institutional barriers that can separate the humanities from other fields.

The Institute is also an integral part of the newly funded system-wide UC Humanities Networking Initiative. In this role, UCHRI provides support for the Society of Fellows in the Humanities and the Consortium of Humanities Centers. UCHRI is a founding member of HASTAC, the Humanities, Arts, Science and Technology Advanced Collaboratory, a consortium of humanists, artists, social scientists, scientists, and engineers committed to new forms of collaboration across communities and disciplines fostered by creative uses of technology.

UCHRI also administers the UC Consortium in California Studies; the Andrew Vincent White and Florence Wales White Graduate Student Scholarship supporting dissertation research in the humanities or theoretical social sciences and medicine; the UC-University Utrecht faculty collaborative research grants; and the annual summer Seminar in Experimental Critical Theory.

UCHRI, in partnership with Duke University, administers the Digital Media and Learning Competition, a $2-million annual program funded by the MacArthur Foundation to award emerging leaders who use digital technologies to envision the future of learning.

For additional information, contact the University of California Humanities Research Institute, 4000 Humanities Gateway, Irvine, CA 92697-3350; (949) 824-8180; uchri@uci.edu; or visit the UCHRI (http://www.uchri.org) website.

Organized Research Units

Organized Research Units (ORUs) normally consist of an interdisciplinary group of faculty, students, and other researchers engaged in a continuing program of multidisciplinary or interdisciplinary research, supported by both University and extramural funding. The work of some ORUs is directed toward the solution of complex contemporary problems, while others conduct basic research essential to the understanding of natural or social phenomena or of humanistic ideas and expressions. The following ORUs have been established on the Irvine campus.

AirUCI

AirUCI is a research team based at UCI focused on probing a new type of chemistry that occurs in the atmosphere at the interface between air and water. Funded by the National Science Foundation (Divisions of Chemistry and Atmospheric Sciences), AirUCI began in August 2002 as a Collaborative Research in Chemistry (CRC) group and was accepted as an ORU in July 2008.

Chemical reactions that play key roles in the formation of smog, acid rain, and in global climate change are known to occur between gases, as well as inside liquid droplets that are present in the atmosphere in the form of airborne particles, fogs, and clouds. Only recently has it been apparent that chemical reactions also occur right at the interface between air and these atmospheric droplets. Both the speed with which these interface reactions occur and the manner in which they take place may be quite different from reactions in either the gas or liquid. AirUCI's scientific team combines theory, experiments, and computer modeling of air quality to provide new insights into how this chemistry at interfaces impacts the atmosphere. More information is available at the AirUCI (http://airuci.uci.edu) website.

Cancer Research Institute

The UCI Cancer Research Institute (CRI) is an Organized Research Unit dedicated to basic cancer research. The CRI has 55 faculty affiliates from departments in the Schools of Biological Sciences, Engineering, Medicine, and Physical Sciences. The CRI supports faculty research, organizes cancer-related training, and functions as the basic sciences arm of the UCI Chao Family Comprehensive Cancer Center. The CRI offices are located in Sprague Hall on the UCI main campus; Sprague Hall is a facility dedicated to research in cancer and genetics. Additional information is available at the CRI (http://www.cri.bio.uci.edu) website.

Center for Complex Biological Systems

The UCI Center for Complex Biological Systems (CCBS) promotes research and education in the area of systems biology broadly defined, which includes aspects of synthetic biology, genomics and functional genomics, computational biology, mathematical biology, biophysics, bioengineering and molecular biology. The goal is to develop a more comprehensive and accurate understanding of complex biological systems and their behaviors. The basic approach is to facilitate the formation of multidisciplinary research teams to address the most critical questions.

Major support for CCBS is provided by a grant (P50-GM076516) from the National Institute of General Medical Sciences (NIGMS), as part of the National Centers for Systems Biology (http://systemscenters.org) program. Additional funding for CCBS educational activities is provided by the National Institute of Biomedical Imaging and Bioengineering and the Eunice Kennedy Shriver National Institute of Child Health and Human Development. Additional information is available on the CCBS (http://ccbs.uci.edu) website.

Center for Embedded Computer Systems

The Center for Embedded Computer Systems, established as an informal center in 1998, was recognized as an ORU in 2001. The Center provides the organizational and administrative structure for researchers at UCI, UCR, and UCSD to conduct leading-edge interdisciplinary research in embedded systems, develop innovative design methodologies, and promote technology and knowledge transfer for the benefit of the individual and society. The research program focuses on three application domains: (1) Communications, including infotainment, information appliances, multimedia, personal imaging, and wireless; (2) Automotive, including collision avoidance, control/sensors, entertainment, and emergency services; and (3) Medical, including diagnosis, drug delivery, imaging, implanted devices, and monitoring. Additional information is available on the CECS (http://www.cecs.uci.edu) website.

Center for Research on Immigration, Population, and Public Policy

The purpose of the UCI Center for Research on Immigration, Population, and Public Policy is to foster and conduct basic and policy-relevant research on international migration and other population processes, with a main focus on U.S. immigration. In order to encourage multi-investigator, multi-disciplinary, and interdisciplinary research projects, the Center organizes informal discussions of ideas for future research projects, "brainstorming" sessions about research funding opportunities, "brown-bag" presentations of research findings, and workshops and conferences. Much of the Center's research focuses on the multi-generational incorporation experiences of immigrant groups in the United States, especially those occurring in diverse contexts such as Southern California. More information is available at the UCI Center for Research on Immigration, Population, and Public Policy (http://www.cri.uci.edu) website.

Center for the Study of Democracy

The Center for the Study of Democracy (CSD) fosters academic research and education to provide a better understanding of the democratic process, and the steps that may strengthen democracy at home and abroad. The faculty and students of the Center study both democratizing nations and the expansion of the democratic process in the United States and other Western democracies. The Center hosts research conferences, sponsors faculty research, publishes a research paper series, and facilitates research and teaching on democratic themes.

In 1995 the National Science Foundation selected UCI to establish a Graduate Research Traineeship on Democratization and Democratic Politics. University, foundation, and philanthropic support has continued this graduate education through the Democracy Fellows program. The formal course work and faculty mentorship of the training program draw upon faculty of the Center and build upon its present research and educational activities. In addition, graduate fellows in the training program participate in the research activities of the Center. For more information visit the CSD (http://www.democ.uci.edu) website.

Center for Virus Research

The Center for Virus Research (CVR) seeks to foster interdisciplinary scholarship, training, and research among virologists and other faculty. Research on viruses provides a biological and technological foundation from which much has been discovered concerning the basic molecular processes of organisms. Viruses supply some of the most useful experimental models for disease, cancer, immunity, and genetic systems of gene control. In addition, viral-based technology is being vigorously pursued and developed in the context of gene therapy and is teaching us much about the control of cellular processes. With the growing worldwide threat of emerging viral diseases, interest in virus research at all levels has intensified and has taken on a new

global perspective. Previously separate disciplines such as molecular biology, pathogenesis, evolutionary biology, neurology, and radiological sciences can now be readily linked by virus research.

The CVR is also committed to advanced post-graduate training. In addition to shared facilities and the seminar and symposia series, the CVR oversees two training grants. Since graduate training in virology encompasses six departments in three schools, the CVR has also become the focus and administrative point for the organization of graduate virology courses and the virology track of the interdisciplinary graduate program in Cellular and Molecular Biosciences (CMB). For more information visit the Center for Virus Research (http://cvr.bio.uci.edu) website.

Genetic Epidemiology Research Institute

The Genetic Epidemiology Research Institute (GERI) was established in 2004 and brings together scientists from epidemiology, developmental and cell biology, molecular biology and biochemistry, evolutionary biology, genetics, immunology, statistics, bioinformatics, and environmental and behavioral sciences to answer complex questions that can best be explored though an interdisciplinary approach. GERI (1) combines epidemiologic approaches with basic science methods to test hypotheses related to genetic bases of the etiology and progression of disease; (2) facilitates research to apply newly discovered molecular biological processes and genetic characteristics in health and disease in well-characterized human populations; (3) provides epidemiological information that will influence the understanding of the basic processes leading to disease, such as environmental and lifestyle factors, and to test their effect as modifiers of genetic predisposition, thus providing the foundation for disease prevention; and (4) uses advances in information sciences and communication technology to allow for efficient data mining and pattern recognition for genetic epidemiological data. For more information visit the GERI (http://www.geri.uci.edu) website.

Health Policy Research Institute

The Health Policy Research Institute (HPRI) is an interdisciplinary faculty research organization dedicated to improving the quality of care and reducing the disparities in health care. Through research, its faculty and associates translate scientific findings into practice by uniting clinical sciences with the social and behavioral science fields of economics, psychology, anthropology, sociology, and business. This unique platform provides the basis for HPRI's research results to directly effect health policy and the health of the local community and the public.

HPRI is committed to building the center into a nationally recognized focal point for health care research. HPRI has four principal functions: (1) to produce high-level health policy research in the areas of quality of chronic disease care (i.e., diabetes, cancer, nursing home care) and reduce health disparities and improve quality of care for ethnic minorities; (2) to disseminate research findings to UCI's faculty and students through seminar series, meetings, and publications; (3) to serve as the research center for UCI graduate and undergraduate students who have health interests; and (4) to support improvements in patient health and safety and organizational improvements in the UCI health care system.

HPRI's achievement of these goals begins with its faculty—an interdisciplinary group of national leaders representing health services research, health economics, clinical epidemiology, psychometrics, and behavioral sciences in medicine. The current research led by HPRI's members and its campuswide collaborators enhance UCI as one of the best research universities in the country. For more information visit the HPRI (http://www.healthpolicy.uci.edu) website.

Institute for Genomics and Bioinformatics

The Institute for Genomics and Bioinformatics (IGB) provides an organizational structure for interdisciplinary research and training in genomics, proteomics, bioinformatics, chemoinformatics, and computational biology—emerging scientific disciplines that are revolutionizing biology, medicine, and society. IGB computational and life scientists are working together to pioneer fundamental processes for reverse engineering gene and protein networks to understand complex biological systems. Through these interdisciplinary collaborations, IGB scientists are creating new theoretical, algorithmic, and software advances in storing, retrieving, networking, processing, modeling, analyzing, navigating, and visualizing biological information. In turn, their computational and computer science accomplishments are providing methods, predictions, and new hypotheses that are driving biological research in previously unanticipated ways. This scientific cross-fertilization is enriching both fields and will continue to do so in the coming decades. More complete descriptions of the Institute's research and training programs are available at the IGB (http://www.igb.uci.edu/.html) website.

Institute for Immunology

The UCI Institute for Immunology currently comprises 33 faculty members from the Francisco J. Ayala School of Biological Sciences and the School of Medicine, whose research and instructional efforts are in immunology. It integrates the immunological research and educational activities of multiple departments, including Molecular Biology and Biochemistry, Microbiology and Molecular Genetics, Physiology and Biophysics, Pathology, Medicine, and Neurology. The activities of the Institute extend to synergize with allied areas of research including biomedical engineering, public health, and physical rehabilitation. The major mandate of the Institute for Immunology is to consolidate and further the research and training/instructional efforts in immunology at UCI, thereby promoting the rapid development of world-class research and outstanding graduate and medical training programs in immunology. For more information visit the UCI Institute for Immunology (http://www.immunology.uci.edu) website.

Institute for Mathematical Behavioral Sciences

The Institute for Mathematical Behavioral Sciences fosters research in the application of mathematical models and methods to describe and to better understand human behavior, both individual and social. Mimicking the successful interaction between mathematics and the physical sciences, a goal of the Institute is to generate successful interactions between mathematics and the behavioral and social sciences. The Institute sponsors specialized seminars and colloquia, a visiting scholars program, workshops, and focused research groups of faculty, students, and visitors, and it maintains a Technical Report Series. Participants include faculty from the Departments of Anthropology, Cognitive Sciences, Economics, Logic and Philosophy

of Science, Political Science, and Sociology in the School of Social Sciences; the Department of Mathematics in the School of Physical Sciences; the Department of Electrical Engineering and Computer Science in The Henry Samueli School of Engineering; the Donald Bren School of Information and Computer Sciences; and The Paul Merage School of Business. Additional information is available at the Institute for Mathematical Behavioral Sciences (http://www.imbs.uci.edu) website.

Institute for Memory Impairments and Neurological Disorders (UCI MIND)

The Institute is an Organized Research Unit dedicated to investigating the causes of Alzheimer's disease and related dementias and to improving the quality of life and promoting successful aging. The vision for The Institute for Memory Impairments and Neurological Disorders is to develop approaches for lessening the impact of memory-related disorders. Tackling these complex issues requires a multidisciplinary approach, which is reflected in the diversity of the Institute's faculty, who have primary appointments in the Schools of Biological Sciences, Information and Computer Sciences, Engineering, Medicine, and Social Sciences, and the Program in Nursing Science.

The Institute is one of 29 Alzheimer's Disease Research Centers (ADRC) supported by the National Institute for Aging, a branch of the National Institutes of Health, and is one of 10 Alzheimer's Disease clinical centers (ADC) funded by the California Department of Public Health. The mission of the ADC is to diagnose the needs of Orange County. For more information visit the UCI MIND (http://www.mind.uci.edu) website.

Institute for Software Research

The mission of the Institute for Software Research (ISR) is to advance software and information technology through research partnerships. ISR is dedicated to fostering innovative basic and applied research in software and information technologies. To achieve this goal, ISR works with established companies, start-ups, government agencies, and standards bodies to develop and transition technologies to widespread and practical application. The Institute also focuses on educating the next generation of software researchers and practitioners in advanced software technologies. It supports the public service mission of the University of California in developing the economic basis of the State of California.

Technical emphases of the Institute include software architecture, decentralized development and applications, event-based systems, open-source software development, game culture and technology, software processes, computer-supported cooperative work, human-computer interaction, user interface software, information visualization, privacy and security, ubiquitous computing, software understanding, requirements engineering, analysis and testing, extensible systems, configuration management, configurable distributed systems, Internet protocols and standards, and software engineering education.

Faculty members are drawn from throughout the University of California. Graduate research assistants, professional research staff, and visiting researchers complete the Institute's research body.

ISR supports research projects, sponsors professional meetings, and develops technology. To further its research agenda, the Institute sponsors a distinguished speaker series, technical roundtables, workshops, symposia, and special events. Effective partnerships with industry are essential for ISR to achieve its goals of technology development and transition. Corporate and institutional sponsorships support ISR's research, activities, and professional meetings. Additional information is available at the ISR (http://www.isr.uci.edu) website.

Institute for Virtual Environments and Computer Games

The Institute for Virtual Environments and Computer Games (IVECG) seeks to advance UC Irvine's strengths as a national leader in research and education activities that are revolutionizing how we teach and learn, conduct business and commerce, provide health care, and interact and behave in society.

The power of virtual environments and computer games cannot be understated in its ability to inspire, attract and empower. Virtual environments and computer games comprise the primary manifestation of digital technology in the lives of millions of people: This is how many learn, communicate, understand, relax and even give meaning to their lives. Learn more about the cutting-edge research at the IVECG (http://ivecg.uci.edu) website.

Institute of Transportation Studies

The Institute of Transportation Studies (ITS), a University of California Organized Research Unit with branches at Irvine, Davis, and Berkeley, was established to foster research, education, and training in the field of transportation.

ITS research at the University of California, Irvine (UCI) involves faculty and students from The Henry Samueli School of Engineering, the School of Social Sciences, the School of Social Ecology, The Paul Merage School of Business, and the Bren School of Information and Computer Sciences. The Institute also hosts visiting scholars from the U.S. and abroad to facilitate cooperative research and information exchange, and sponsors conferences and colloquia to disseminate research results. ITS has a long and rich history of providing both direct and indirect support to the UCI transportation graduate programs. It provides office and research space to virtually all of the students enrolled in UCI's four graduate transportation programs—the interdisciplinary Program in Transportation Science; the graduate concentration in Transportation Economics; the Transportation Planning option in the Department of Planning, Policy, and Design; and the Transportation Systems Engineering graduate focus in the Department of Civil and Environmental Engineering. ITS provides extensive computing resources to all of these students, together with state-of-the-art simulation and laboratory facilities. ITS subscribes to the major transportation research journals and offers a variety of computer-based information retrieval services. More information can be found at the ITS (http://www.its.uci.edu) website.

Reeve-Irvine Research Center

The Reeve-Irvine Research Center (RIRC) is devoted to studying cellular and molecular mechanisms that underlie the response of the nervous system to injury, exploring innate and therapeutic regenerative capabilities, and developing treatments for spinal cord injury. RIRC has four principal investigators whose laboratories are located in the Center and whose research focuses on the use of rodent models (rats and mice) and related cell culture systems to study how the spinal cord responds to injury. A major focus is on enhancing the regeneration of damaged nerve fibers (axon regeneration) and on the use of stem cells for cellular replacement therapy. There are also 23 associate investigators whose laboratories are located elsewhere in the University who study the response to injury, neural repair, regeneration, and stem cell biology. Some of the associate investigators also carry out human-subjects research focusing on advanced functional imaging techniques, novel rehabilitative strategies including the use of robotics, advanced prosthetics, and associated devices that are capable of recording signals from the nervous system.

There are a number of potential targets for therapy for spinal cord injury, and RIRC scientists address many of these. Importantly, some of the most promising strategies, and the ones that are closest to clinical application, involve interventions during the acute post-injury period (days to weeks after the injury). However promising these strategies are, the Center is committed to the long-term goal of developing treatments to promote nerve regeneration and repair for individuals with chronic injuries, and this is reflected in the research programs of each investigator. More information is available at the RIRC (http://catalogue.uci.edu/officeofresearch/%20http://www.reeve.uci.edu) website.

Campus Centers

A Campus Center provides a group of researchers with use of the “Center” title and a structure for its collaborative activities. The rationale for establishing a Campus Center may include attracting greater recognition and extramural support for a research program at UCI and/or providing an infrastructure that promotes synergistic interactions between a group of researchers within a school or across schools. Directors of campus centers typically report to the Dean of their respective schools. More information about the following centers may be found at the Campus Centers (http://www.research.uci.edu/centers-institutes/CC-centers-and-institutes.html) website.

Center for Asian Studies (http://www.asian-studies.uci.edu)
Center for Demographic and Social Analysis (http://www.socsci.uci.edu/cdasa)
Center for Ethnography (http://www.socsci.uci.edu/~ethnog)
Center for Global Peace and Conflict Studies (http://www.cgpacs.uci.edu)
Center for Learning in the Arts, Sciences and Sustainability (http://www.clta.uci.edu)
Center for Organizational Research (http://cor.web.uci.edu)
Center for Unconventional Security Affairs (http://www.cusa.uci.edu)
Center in Law, Society and Culture (http://clsc.soceco.uci.edu)
Dr. Samuel M. Jordan Center for Persian Studies and Culture (http://www.humanities.uci.edu/persianstudies)
Epilepsy Research Center (http://www.epilepsyresearch.uci.edu)
Newkirk Center for Science and Society (http://www.newkirkcenter.uci.edu)
UCI Interdisciplinary Center for the Scientific Study of Ethics and Morality (http://www.ethicscenter.uci.edu)
Urban Water Research Center (http://www.urbanwater.uci.edu)

Other Research Centers and Institutes at UCI

“Other” research units do not fit the definition of an Organized Research Unit (ORU), Special Research Program (SRP), or Campus Center, but are similarly interdisciplinary. These units may have been designated as Centers by a sponsoring agency such as the National Science Foundation (NSF) or the National Institutes of Health (NIH), or they may be part of an intercampus-consortium, such as Centers funded by the UC Multicampus Research Programs and Initiatives (MRPI) competition. More information about the following centers may be found at the Centers & Institutes (http://www.research.uci.edu/centers-institutes) website.

California Center for Antiviral Drug Discovery (http://faculty.sites.uci.edu/ccadd)
California Institute for Hazards Research (http://www.calit2.uci.edu/about-calit2/itemdetail.aspx?cguid=6eefb3f6-765a-4584-9df4-1acdd77c09d2)
Chao Family Comprehensive Cancer Center (http://www.cancer.uci.edu)
Chemistry at the Space-Time Limit (CaSTL) (http://www.chem.uci.edu/CCI)
Digital Media and Learning Research Hub (http://www.dmlcentral.net)
Emerging Infectious Diseases (http://www.pswrce.uci.edu)
Institute for Complex Adaptive Matter (ICAM) (http://www.i2cam.org)
National Fuel Cell Research Center (http://www.nfcrc.uci.edu)
Network for Experimental Research on Evolution (NERE) (http://nere.bio.uci.edu)
Research Imaging Center (RIC) (http://www.research.uci.edu/centers/imaging_center.htm)
Southern California Center for Galaxy Evolution (http://www.cge.uci.edu)
Susan Samueli Center for Integrative Medicine (http://www.sscim.uci.edu)
Sustainable Transport: Technology, Mobility, Infrastructure (http://www.research.uci.edu/centers-institutes/All-centers-and-institutes.html)
Sustainable Transportation Consortium (http://www.research.uci.edu/centers-institutes/All-centers-and-institutes.html)
UC Center for Hydrologic Modeling (http://www.ucchm.org)
UC-Cuba Academic Initiative (http://www.socsci.uci.edu/uc-cuba)

UC Humanities Network: A New Humanities Initiative (http://uchumanitiesnetwork.org)

Division of Undergraduate Education

Sharon V. Salinger, **Dean of Undergraduate Education**
611 Aldrich Hall
(949) 824-3291
http://www.due.uci.edu

The core mission of the Division of Undergraduate Education is to support and enrich the academic experiences of undergraduate students so that they succeed and thrive. The Division provides campus leadership, programs, and services that enhance the quality of undergraduate education at UCI. An advocate and steward for educational excellence, the Division works with all academic units, programs, and members of the UCI community to foster a climate of learning, discovery, and engagement for every undergraduate student. Through its diverse and innovative programs and services, the Division provides support for student academic achievement, for a rich and coherent curriculum, and for outstanding teaching through the integration of teaching and research activities and the facilitation of effective pedagogy.

The Division is responsible for the administration of the Academic Honesty Policy (p. 1916) (approved by the UCI Academic Senate) as it relates to undergraduates.

The Division also supports excellence in undergraduate education through assessment of student learning outcomes and a comprehensive program of research and evaluation conducted by its Assessment, Research and Evaluation Group. This group coordinates the campus approach to educational assessment and provides data and information on undergraduate students, programs, and policies for use in decision-making by the Dean of the Division and other campus leaders. It also provides consultation and technical advice for faculty and staff on assessment of student learning, program evaluation, survey research, statistical analyses of student data, and development of new undergraduate majors and minors with a view to enhance undergraduate education at UCI. For further information visit the Assessment, Research and Evaluation (http://www.assessment.uci.edu) website.

The Division of Undergraduate Education is responsible for the following student programs and services:

- Academic Testing Center (p. 138)
- Antrepreneur Center - Blackstone Launchpad (p. 139)
- Campuswide Honors Program (p. 139)
- Capital Internship Programs (p. 140)
  - UCDC Academic Internship Program (p. 140)
  - UC Sacramento Scholar Intern Program (p. 140)
- Center for Excellence in Writing and Communication (p. 140)
- Civic and Community Engagement Minor (p. 140)
- First-Year Integrated Program (p. 141)
- Freshman and Transfer Seminar Programs (p. 141)
- International Peer Group (p. 141)
- Learning and Academic Resource Center (p. 142)
- Peer Academic Advising Program (p. 142)
- Scholarship Opportunities Program (p. 142)
- Student Support Services (p. 142)
- Study Abroad Center (p. 143)
  - Education Abroad Program
  - International Opportunity Program
- Teaching, Learning and Technology Center (p. 143)
- Transfer Student Center (p. 143)
- Undecided/Undeclared Advising Program (p. 144)
- Undergraduate Research Opportunities Program (p. 144)
- UTeach (p. 144)

These programs and services are described in detail below.

Academic Testing Center

3040 Anteater Instructional Research Building
(949) 824-6207
http://www.testingcenter.uci.edu

Placement Testing

UCI's Academic Testing Center (ATC) administers placement tests to new and continuing students to ensure correct placement in selected introductory courses and to help students assess their readiness for University-level work. These tests are selected or developed by UCI faculty who also determine the grading criteria for each test. Results from placement tests are used by students and their academic counselors to create a plan of study which is best suited to the students' learning needs and career goals and to determine enrollment in introductory courses. Additional information, such as entrance examination scores, Advanced Placement (AP) scores, and high school work, also may be used to determine course placement.

Placement tests are given in the areas of Physics, Calculus, Arabic, Chinese, French, German, Hebrew, Japanese, Korean, Persian, Russian, Spanish, Vietnamese, and Academic English/English as a Second Language. Detailed information about who needs to take which test is available on the Academic Testing Center (http://www.testingcenter.uci.edu/require.html) website.

All newly admitted freshmen will be directed to information about summer orientation, placement testing, and registering for courses in late spring. Participation in summer orientation and advising is required of new freshmen. Freshmen will register for their fall quarter courses at orientation. Students are strongly advised, therefore, to take any required placement tests *before* their orientation program.

The Academic Testing Center also administers other language tests for exemptions from general education categories VI and VIII. More information is available at the Language Testing Program (http://www.testingcenter.uci.edu/languagetesting.html) website.

For further information on placement testing and summer testing dates, visit the Academic Testing Center (http://www.testingcenter.uci.edu) website or call the center's office.

UC Analytical Writing Placement Examination

The Academic Testing Center is responsible for the campus-based administration of the UC Analytical Writing Placement Examination.

Results from the UC Analytical Writing Placement Examination are used to place students in UCI writing courses. There is a nonrefundable administrative fee associated with the examination. The fee payment process and waiver information are explained in materials students receive in April from the University of California Office of the President. Students who receive admission application fee waivers will automatically have this examination fee waived. Refer to the section on Requirements for a Bachelor's Degree for complete information on the UC Analytical Writing Placement Examination (p. 71) and the UC Entry Level Writing requirement (p. 71). Important information about the examination is also available here (http://www.testingcenter.uci.edu/analyticalWrting.html).

Antrepreneur Center - Blackstone Launchpad

G202A Student Center
Irvine, CA 92697
949-824-6407
http://antrepreneur.uci.edu
antrepreneur@uci.edu

Antrepreneur Center - Blackstone Launchpad is an experiential educational program open to any undergraduate, from any major, who has an idea about a possible entrepreneurial venture. The program seeks to convey to students that being an entrepreneur is a viable career and provides free, confidential coaching customized to students' needs, whether they are pursuing for-profit or non-profit ventures. The program is student-focused and student-paced, and committed to teaching students to ask the right questions rather than giving them the answers.

For more information visit the Antrepreneur Center - Blackstone Launchpad (http://antrepreneur.uci.edu) website.

Campuswide Honors Program

1200 Student Services II
(949) 824-5461
http://www.honors.uci.edu
honors@uci.edu

Founded in 1988, the Campuswide Honors Program (CHP) is available to selected high-achieving students in all academic majors and years of study. It maintains an active roster of approximately 700 students. Many CHP students continue their studies after graduation from UCI at the most prestigious graduate and professional schools in the country.

The CHP provides talented and successful UCI students with a special honors curriculum consisting of core courses designed especially for CHP students, close interaction with peers, mentorship by UCI's top faculty, and the opportunity to participate in undergraduate research. Enhanced academic advising provides students with assistance in planning a path to success, including course selection and preparation for graduate and professional schools, prestigious scholarships, and study abroad. Completion of the Campuswide Honors Program is noted on the student's transcript and baccalaureate diploma.

Admission. Admission to the program as an incoming UCI freshman is by invitation; all eligible candidates are reviewed and selected by faculty representatives from each academic unit. Transfer students may also apply prior to matriculation, and special admissions programs are offered through

the Office of Admissions and Relations with Schools to students who have completed approved community college honors programs. Current UCI students are eligible to apply for admission to the CHP after completion of at least one quarter at UCI in 12 or more graded units with a minimum grade point average of 3.5 or better. Applications are accepted until the end of the first quarter of the student's junior year. The CHP seeks to admit students who have a demonstrated passion for learning, a willingness to explore and be challenged, and an interest in pursuing academic excellence in a range of disciplines outside of their major area.

For details about curriculum, extracurricular activities, on-campus housing and other benefits of CHP, see the "Honors Opportunities" section of this *Catalogue* or the CHP (http://www.honors.uci.edu) website.

Capital Internship Programs

1100 Student Services II
(949) 824-5400
http// (http://www.dccenter.uci.edu)www.dccenter.uci.edu/ (Washington DC Program)
http://uccs.ucdavis.edu/ (Sacramento Program)
dccenter@uci.edu (both programs)

UCDC Academic Internship Program

The UCDC Academic Internship Program supervises and supports students who pursue internships, elective courses, research, and creative activities in the nation's capital. This UC systemwide program, situated in the exciting environment of Washington DC, is open to students in all majors. Students may enroll for fall, winter, or spring quarter. While living in Washington DC, students are enrolled at UCI and earn 12–16 units of credit. Financial aid eligibility is maintained and is adjusted to cover the total cost of the program. Students live in the UC Washington Center building together with students from all of the participating UC campuses, which provides a social and intellectual community throughout the quarter. Internship opportunities are available in almost any setting including Capitol Hill, the White House, government agencies, nonprofit organizations, think tanks, art museums, educational institutions, media outlets, and scientific organizations, just to name a few. Interested students with strong academic records are encouraged to apply.

UC Center Sacramento Scholar Intern Program

The UC Center Sacramento (UCCS) Scholar Intern Program supervises and supports students who pursue internships, elective courses, research, and creative activities in the state capital. This UC systemwide program is open to students in all majors, and is currently available for the fall, winter, spring, or summer terms. While living in Sacramento, students are enrolled at UC and earn 12–16 units of credit. Financial aid eligibility is maintained. Internship opportunities are available for students in many different settings including the offices of Assembly Members, Senators, and the Governor, as well as with State agencies, nonprofit organizations, and lobbying organizations. Interested students with strong academic records are encouraged to apply.

Center for Excellence in Writing and Communication

193 Ayala Science Library
(949) 824-8949
http://writingcenter.uci.edu
writing-center@uci.edu

The UCI Center for Excellence in Writing and Communication offers free writing support to all enrolled UCI undergraduate students; we strive to make better writers, not just better writing. Our services include individual writing consultations (http://www.writingcenter.uci.edu/appointments), online tutorials (http://www.writingcenter.uci.edu/online-help), peer tutoring (http://www.writingcenter.uci.edu/peer-tutors), workshops (http://www.writingcenter.uci.edu/workshops) about writing for different occasions and needs, and assistance with developing research skills.

The Writing Center, in conjunction with the Campus Writing Coordinator and the Division of Undergraduate Education, also conducts research (http://writing.uci.edu/research) about best practices (http://writing.uci.edu/assessment) in the teaching of writing, and is the central campus hub for developing a culture of writing and communication at UCI.

Civic and Community Engagement Minor

672 Aldrich Hall
949-824-1227
http://www.due.uci.edu/engagement_minor/
CCEMinor@uci.edu

The Minor in Civic and Community Engagement is an interdisciplinary program that provides students with the knowledge, skills, attitudes, and values to engage as citizens and active community members in the twenty-first century. It provides a theoretical and empirical framework to increase students' understanding of public problems (environmental, social, and other) from multiple disciplinary perspectives. Students learn about strategies to address public problems, including through public policy; through the involvement of community-based and nonprofit organizations; and through the cultivation of leadership. The minor helps students build on their major programs of study to make connections between public problems and issues of equity and social justice. It is open to students of all majors and is distinguished both by what students learn, and by *how* they learn it: through a combination of coursework, research and service.

Additional information is available at the Interdisciplinary (p. 1090) section of the *Catalogue*.

First-Year Integrated Program

611C Aldrich Hall
(949) 824-1955
http://www.due.uci.edu/fip/
FIP@uci.edu

University Studies 13–17 are three-quarter multidisciplinary sequences for freshmen or lower-division students only. These integrated courses are designed to introduce students to the ways different disciplines approach similar problems and to provide a freshman learning community experience. Successful completion of all three quarters will satisfy several courses toward partial fulfillment of different general education (GE) requirement categories. These courses (with the exception of UNI STU 13A, UNI STU 13B, UNI STU 13C) are designed to have a capstone research writing component in the third quarter that will satisfy the second quarter of the lower-division writing requirement—one of the four courses toward partial fulfillment of GE categories. To satisfy the second quarter of the lower-division writing requirement with a FIP sequence, students must concurrently enroll in WRITING 39B either the fall or winter quarter and pass it with a grade of C or better, and also complete the FIP sequence with a grade of C (or Pass) or better in the third quarter of the sequence.

UNI STU 13A- 13B- 13C	Introduction to Global Sustainability I and Introduction to Global Sustainability II and Introduction to Global Sustainability III
(GE: Two courses toward Category II and one course toward Category III)	
UNI STU 15A- 15B- 15C	Consciousness I and Consciousness II and Consciousness III
(GE: One course toward Category I-equivalent of WRITING 39C, one course toward Category III, and two courses toward Category IV.)	
UNI STU 16A- 16B- 16C	How Race Is Made I and How Race Is Made II and How Race Is Made III
(GE: One course toward category I–equivalent of WRITING 39C, one course toward category III, one course toward category IV, one course toward category VII, and one additional course toward either category III or IV.)	
UNI STU 17A- 17B- 17C	Water I and Water II and Water III
(GE: One course toward category I–equivalent of WRITING 39C, one course toward category II, one course toward category III, and one course toward category IV.)	

Freshman and Transfer Seminar Programs

611C Aldrich Hall
(949) 824-1955
http://www.freshmanseminar.uci.edu/ (Freshmen); http://www.due.uci.edu/tsp/ (Transfers)
seminars@uci.edu

Small seminars are offered to new Freshmen and Transfer students to introduce them to the academic culture of UC Irvine. Faculty from a broad range of disciplines teach about topics of current interest in sections of up to 15 students. These seminars are a great way for new students to learn about a variety of academic fields, meet a faculty member who can serve as a mentor, get to know other new students with similar interests and take a small class as one of their first courses on campus.

Freshman Seminars (University Studies 3 classes) are offered all three quarters, with priority given to new students who can enroll in a maximum of three sections during their time at UCI. Transfer Seminars (University Studies 4) are offered only in the fall, with priority to new transfers and a maximum of two sections for credit. Details of each quarter's offerings are available on the program websites and in the Schedule of Classes.

International Peer Group

674 Aldrich Hall
(949) 824-6776
http://www.due.uci.edu/IPG/
ahmedz@uci.edu

The International Peer Group's (IPG) mission is to assist UCI's international freshmen in making a smooth transition into university life. IPG provides both academic and social support in order to engage international students in UCI's vibrant campus life and help them create solid relationships in their

new environment. It is based on strong mentor/mentee relationships that encourage cultural exploration as well as academic and personal success. In addition to individual mentoring, IPG offers small group meetings and larger group events during Welcome Week and throughout the year. Students with questions or who do not yet have a mentor should contact the office.

Learning and Academic Resource Center

284 Rowland Hall
(949) 824-6451
http://www.larc.uci.edu
larc@uci.edu

The Learning and Academic Resource Center (LARC) provides academic support programs for undergraduate students. These include course-specific tutorials, as well as Academic Learning Skills workshops on specific study skills (e.g. time management, academic reading, preparing for exams, etc.) that can be applied to all courses. Tutorials are regularly-scheduled, informal review sessions in which 12-15 students enrolled in the same lecture compare notes, discuss readings, develop organizational tools, and predict test items in two, 50-minute LARC Sessions per week. The primary goal of the LARC program is to facilitate student collaboration among peers to increase understanding and retention of course-specific material for academic success. By working together, students learn how to integrate course content and learning skills to become independent, successful learners.

Peer Academic Advising Program

256 Aldrich Hall
(949) 824-2367
http://www.due.uci.edu/paap/

The Peer Academic Advising Program provides valuable services for all UCI undergraduate students. It is the source of student-to-student academic counseling based not only on academic, but also personal experiences of UCI students. Peer academic advisors (PAAs) are juniors and seniors who rigorously train in academic counseling before beginning work as PAAs. They are found in the offices of various academic units all over campus. PAA training prepares them to manage issues related to academic counseling and enables them to obtain a wide knowledge of campus resources available to students, such as the Career Center, Office of Disability Services, Financial Aid, Housing, and the Learning and the Academic Resource Center (LARC). The information PAAs provide students also comes from their personal experience as successful UCI undergraduates.

During the academic year, PAAs maintain regular office hours in their respective academic units. They assist students in selecting courses to best fit their college and career paths, planning quarterly programs of study, learning about the various majors and minors, obtaining information about UCI's resources and opportunities, and simply adjusting to life as UCI undergraduates.

Scholarship Opportunities Program

193 Ayala Science Library
(949) 824-0189
http://www.scholars.uci.edu
sklrship@uci.edu (sklrshp@uci.edu)

UCI encourages high-achieving undergraduates to compete successfully for the most prestigious scholarships, grants, and graduate fellowships available, and to begin learning about the process as early as possible. The Scholarship Opportunities Program (SOP) organizes and disseminates information about 13 prestigious awards that are national and international in scope and that include opportunities for funded research and study at both the undergraduate and graduate levels. The SOP also facilitates UCI’s processes for evaluating applications and endorsing candidates for awards requiring University nomination. Additionally, staff provide individual and group counseling, present workshops, assist students with curriculum vitae (CVs), and edit Statements of Purpose and research/project proposals.

Student Support Services

2100 Student Services II
(949) 824-6234
http://www.due.uci.edu/sss
osss@uci.edu

Student Support Services (SSS) is an academic support program dedicated to helping first-generation college, Pell eligible/low-income, and/or students from disadvantaged backgrounds/circumstances succeed and thrive at UCI. The goal of SSS is to help students successfully transition to UC Irvine and enhance their academic experience. SSS offers drop-in counseling and advising provided by professional staff, faculty, and student peers; organizes weekly workshops on academic and social opportunities at UCI; and coordinates summer academic programs for incoming students. SSS supports the academic progress of its students and provides resources to help students achieve their academic goals. In an effort to best assist students, professional staff maintain liaison relationships with academic departments and provide referrals to other campus support services as needed. In addition to weekly workshops, SSS provides graduate school preparatory resources for those students interested in graduate study.

SSS administers and oversees the Summer Bridge Program at UCI for eligible students who are committed to starting their academic careers in the summer in order to achieve their full academic potential. Summer Bridge is designed to provide opportunities for students to earn academic credit, make a successful academic and social transition to the University, build relationships with peers, and engage with UCI faculty and staff.

Students are encouraged to make appointments with Student Support Services by phone or e-mail. Additional information is available on the SSS (http://www.due.uci.edu/sss) website.

Study Abroad Center

1100 Student Services II
(949) 824-6343
http://www.studyabroad.uci.edu
studyabroad@uci.edu

The Study Abroad Center is a comprehensive resource and counseling center that helps students take advantage of the many worldwide opportunities that exist for study, work, internship, volunteering, research, and non-credentialed teaching that relates to their degree programs at UCI.

Studying abroad is an important resource for achieving the skills, knowledge, and understanding that will make today's undergraduates effective citizens and leaders in local, national, and global affairs once they depart the University. In today's political and business environment, college graduates must be informed decision-makers with a capacity to reflect on their own values while understanding the complex identities, histories, and cultures of others. Studying abroad provides students with the language skills and cultural competence necessary to meet the current demands of business, government, and educational institutions.

Professional staff and peer advisors, who have returned from experiences abroad, are available to guide students in making appropriate choices of international programs for their educational goals. Advising is available when UCI is in session. Participants are provided with pre-departure and reentry orientations.

Students are advised to plan early in their academic career in order to best match studying abroad with their major to graduate on time. Programs are available for students in every major. The wide variety of programs includes those offering general curriculum, intensive language study, and programs focusing on a specific academic subject area. Preliminary guidance is available at the Study Abroad Academic Planning website (http://www.studyabroad.uci.edu/academics/academicplanning.html). (http://www.studyabroad.uci.edu/academics/academicplanning.html) Participation in study abroad satisfies category VIII, international/global issues, of the UCI general education requirement. Students are encouraged to study abroad as a sophomore or junior, allowing the opportunity to incorporate their international learning into their final year at UCI.

The cost of studying abroad is often comparable to the cost of studying at UCI, while some options cost more and some cost less. Financial aid (http://www.studyabroad.uci.edu/prospective/finaid.shtml) remains available while students study abroad and scholarships (http://www.studyabroad.uci.edu/scholarships.html) are also available.

Students may participate in the University of California Education Abroad Program (UCEAP) offering more than 300 programs in 40 countries for UC students; UC summer programs offered by other UC campuses; and hundreds of programs through UCI's International Opportunities Program (IOP), which is the link between UCI students and any international educational experience that occurs outside the boundaries of the U.S. and is not a part of UCEAP nor a UC campus summer program.

Teaching, Learning and Technology Center

3000 Anteater Instructional Research Building
(949) 824-6060
http://www.tltc.uci.edu

The Teaching, Learning & Technology Center (TLTC) provides instructional support to the UCI teaching community through a variety of services and programs. This support includes teaching development, skills training, and instructional technology assistance.

Other programs and services include the Pedagogical Fellows Program, a multi-day TA Professional Development Program during Welcome Week. TAs who serve as facilitators for this program enroll in University Studies 390A-B-C, Advanced Pedagogy and Academic Job Preparation, a three-quarter-long course. Graduate Teaching Assistants who are not Pedagogical Fellows may petition to take UNI STU 390A. Enrollment for non-Pedagogical Fellows, however, is subject to the instructor's approval.

The TLTC provides a broad range of other teaching services and resources. Consult the TLTC (http://www.tltc.uci.edu) website for a complete description of these services and resources.

Transfer Student Center

2200 Student Services II
(949) 824-1142
http://www.transfercenter.uci.edu
transfer@uci.edu

The Transfer Student Center (TSC) works with new and returning transfer students to facilitate their transition and overall success at UCI by directing them to appropriate campus programs and services, organizing weekly workshops, providing formal and informal mentoring, and offering a space for study. The Transfer Student Center strives to foster a sense of community among the transfer student population at UCI and advocates for transfer students in order to enhance their academic and social experience. The Transfer Student Center works closely with both Tau Sigma National Honor Society for transfer students and the Transfer Student Organization (TSO), providing guidance in these organizations' work to advocate and support transfer students at UCI.

Students are encouraged to visit TSC and meet with the staff. TSC staff can be reached in person, by telephone or via e-mail. Additional information is available on the TSC (http://www.transfercenter.uci.edu) website.

Undergraduate Research Opportunities Program

2300 Student Services II
(949) 824-4189
http://www.urop.uci.edu
urop@uci.edu

The Undergraduate Research Opportunities Program (UROP), encourages and facilitates research and creative activities by undergraduates. Research opportunities are available not only from every discipline, interdisciplinary programs, and schools, but also from many outside agencies, including national laboratories, industrial partners, and other universities. UROP offers assistance to students and faculty through all phases of the research activity: proposal writing, developing research plans, resource support, conducting the research and analyzing data, and presenting results of the research at the annual spring UCI Undergraduate Research Symposium. Calls for proposals are issued in the fall and spring quarters. Projects supported by UROP may be done at any time during the academic year and/or summer, and the research performed must meet established academic standards and emphasize interaction between the student and the faculty supervisor. In addition, all students participating in faculty-guided research activities are welcome to submit their research papers for faculty review and possible publication in the annual *UCI Undergraduate Research Journal.*

UROP also sponsors the following programs:

- Biophotonic Summer Undergraduate Research Program (B-SURP)
- Edwards Life Sciences Summer Undergraduate Research Program (E-SURP)
- Integrated Micro/Nano Summer Undergraduate Research Experience (IM-SURE)
- Inter-Disciplinary Summer Undergraduate Research Experience (ID-SURE)
- Multidisciplinary Design Program (MDP)
- Summer Undergraduate Research Fellowship in Information Technology (SURF-IT)
- Summer Undergraduate Research Program (SURP)

Complete information on current UROP programs can be found on the UROP (http://www.urop.uci.edu) website. For additional questions, contact UROP in person, telephone or by e-mail.

Undecided/Undeclared Advising Program

256 Aldrich Hall
(949) 824-6987
http://www.due.uci.edu/uu

Students who enter the University as freshmen or sophomores may be uncertain about which major they should choose and may not feel ready to declare their major or even to identify their interests with a particular school. Such students participate in the Undecided/Undeclared Advising Program, which is administered by the Division of Undergraduate Education. The goal of the Undecided/Undeclared Advising Program is to help students make the best informed and most rational choice of a major that is possible. All students at UCI are required to choose their major by the time they reach junior status.

To make a good decision about which major to declare, students should know the range of programs UCI offers and have some experience with them, have a good knowledge of their own abilities and interests, have clear educational goals, and have a sense of their vocational goals and of the academic programs at UCI that will provide appropriate preparation. Students in the Undecided/Undeclared Advising Program meet with faculty and receive quarterly individualized staff counseling that helps them explore the variety of course offerings on campus, become more aware of their own interests and abilities, formulate sound educational goals, and learn how to prepare for graduate education and/or possible careers.

To assist students in choosing a major, the program offers a course designed to expose Undecided/Undeclared students to a variety of opportunities and resources available to them and to introduce students to the schools and majors offered. In addition, students learn about research and career opportunities within different disciplines.

UTeach

611C Aldrich Hall
(949) 824-1955

http://sites.uci.edu/uteach/
uci.uteach@gmail.com

UTeach is a program that enables upper-division UCI undergraduates to propose, develop and teach their own seminar classes. Applications to the program are reviewed at the end of Spring Quarter every year by the UTeach Student-Faculty Advisory Board. In the fall, successful candidates enroll in an independent study (UNI STU 197A) with a faculty mentor to develop a syllabus and detailed course plan for their course. In the winter, student instructors take a seminar on pedagogy (UNI STU 197B) that involves practice teaching. Finally, student instructors teach their seminars in the spring quarter, during which they attend weekly meetings to discuss class dynamics and teaching techniques (UNI STU 197C).

Students wishing to enroll in UTeach courses (University Studies 7 sections) may do so in Spring Quarter; they may take a maximum of 2 sections for P/NP credit during their entire time at UC Irvine.

The program was started by students with the assistance of the Division of Undergraduate Education and the Associated Students UCI in 2007. Since fall 2013, the UTeach program has been housed under the Division of Undergraduate Education.

Faculty

Zahra G. Ahmed, Ph.D. University of California, Irvine, *Senior Lecturer of Undergraduate Education*

Brittany M. Betancourt, B.A. University of California, Irvine, *Senior Lecturer of Undergraduate Education*

De Gallow, Ph.D. University of Southern California, *Senior Lecturer of Undergraduate Education*

Paula Garb, Ph.D. Russian Academy of Sciences, *Lecturer of Social Sciences; International Studies; Undergraduate Education*

Natalie B. Schonfeld, Ph.D. Claremont Graduate University, *Senior Lecturer of Undergraduate Education*

Tracie A. Welser, M.A. University of South Florida, *Senior Lecturer of Undergraduate Education*

Reserve Officers' Training Corps Courses

ROTC 10L. Military Science-Basic Leadership Laboratory. 1 Workload Unit.
Provides hands-on and practical military science material covered in the corresponding military science courses.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

ROTC 11. Military Science-Personal Development. 1 Workload Unit.
Focuses on life skills such as physical fitness, nutrition, and time management while providing an introduction to military knowledge, customs, and skills.

ROTC 12. Military Science-Leadership I. 1 Workload Unit.
Focuses on the fundamentals of leadership, Army leadership values, ethics, and counseling techniques.

ROTC 13. Military Science-Tactical Leadership I. 1 Workload Unit.
Focuses on leadership at the tactical level and includes instruction in fundamental military skills such as map reading, land navigation, squad and platoon operations, and resource planning techniques.

ROTC 21. Military Science-Team Leadership I. 2 Workload Units.
Explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of the Army leadership requirements model.

ROTC 22. Military Science-Team Leadership II. 2 Workload Units.
Explores team dynamics and two historical leadership theories that form the basis of the Army leadership requirements model.

ROTC 23. Military Science-Tactical Leadership II . 2 Workload Units.
Examines the challenges of leading tactical teams in the OE. Highlights dimensions of terrain analysis, patrolling, and operation orders.

ROTC 100L. Military Science-Advanced Leadership Laboratory. 1 Workload Unit.
Provides hands-on and practical exercises for the military science material covered in the corresponding military science courses as well as leader training through practical application of the Leadership Development Program.

Corequisite: ROTC 131 or ROTC 132 or ROTC 133 or ROTC 141 or ROTC 142 or ROTC 143 or ROTC 197.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

ROTC 131. Military Science-Leadership II. 3 Workload Units.
Challenges cadets to study, practice, and evaluate adaptive leadership skills as they are presented with challenging scenarios related to squad tactical operations. Cadets receive systematic and specified feedback on their leadership attributes and core leader competencies.

Corequisite: ROTC 100L.
Prerequisite: ROTC 11 and ROTC 12 and ROTC 13 and ROTC 21 and ROTC 22 and ROTC 23.

ROTC 132. Military Science-Team Leadership III. 3 Workload Units.
Provides cadets systematic and specific feedback on their leadership attributes and core leader competencies. Based on such feedback, as well as their own self-evaluations, cadets continue to develop their leadership and critical thinking abilities.

Corequisite: ROTC 100L.
Prerequisite: ROTC 11 and ROTC 12 and ROTC 13 and ROTC 21 and ROTC 22 and ROTC 23.

ROTC 133. Military Science-Tactical Leadership III. 3 Workload Units.
Uses increasingly intense situational leadership challenges to build cadet awareness and skills in leading small units. Skills in decision-making, persuading, and motivating team members when "under fire" are explored, evaluated, and developed.

Corequisite: ROTC 100L.
Prerequisite: ROTC 11 and ROTC 12 and ROTC 13 and ROTC 21 and ROTC 22 and ROTC 23.

ROTC 141. Military Science-Leadership III . 3 Workload Units.
Transitions the focus of student learning from being trained, mentored, and evaluated as a cadet to learning how to train, mentor, and evaluate cadets. Cadets begin to learn the duties and responsibilities of an Army staff officer.

Corequisite: ROTC 100L.
Prerequisite: ROTC 131 and ROTC 132 and ROTC 133.

ROTC 142. Military Science-Leadership IV. 3 Workload Units.
Requires students to continue to train, mentor, and evaluate underclass cadets. Cadets learn to safely conduct training by understanding and employing the Composite Risk Management Process and the Comprehensive Soldier Fitness (CSF) program.

Corequisite: ROTC 100L.
Prerequisite: ROTC 131 and ROTC 132 and ROTC 133 and ROTC 141.

ROTC 143. Military Science-Officership. 3 Workload Units.
Explores the dynamics of leading in the complex situations of current military operations in the OE. Cadets examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism.

Corequisite: ROTC 100L.
Prerequisite: ROTC 131 and ROTC 132 and ROTC 133 and ROTC 141 and ROTC 142.

ROTC 151. United States Military History-1607 to 1865. 3 Workload Units.
Examines the creation of the American military establishment and traces its evolution in the context of the changing nature of warfare, the progression of military professionalism, and social, political, economic, and technological developments through the Civil War.

ROTC 152. United States Military History-1865 to 1945. 3 Workload Units.
Examines the evolution of the American military establishment and the progression of military professionalism in terms of social, political, economic, military, and technological developments from the end of the Civil War through World War II.

ROTC 153. United States Military History-1945 to 2001. 3 Workload Units.
Examines the evolution of the American military establishment and the progression of military professionalism in terms of social, political, economic, military, and technological developments from the Cold War to the War on Terrorism.

ROTC 197. Military Science Independent Studies. 2-4 Workload Units.
Provides intensive, individual study with scheduled meetings to be arranged between Cadre and student. Assigned reading and tangible evidence of mastery of subject matter required.

Repeatability: May be taken for credit for 12 units.

UC Washington DC Courses

UCDC 170. Washington DC Internship. 4-8 Units.
Supervised internship (20-40 hours per week) in Washington DC government, nonprofit, or private institution consistent with student's interest.

Corequisite: UCDC 180.
Prerequisite: Selected for Washington DC Center Program.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

UCDC 180. Washington Themed Seminar. 4 Units.
UCDC Core course (multiple topics offered each quarter). Enhances students' experiential learning and imparts knowledge and skills to help them transition into public service/private sector positions. One Core course per quarter mandatory for all participants in Washington DC Center Program.

Corequisite: UCDC 170 or SOCECOL 195 or PUBHLTH 195W.
Prerequisite: Selected for Washington DC Center Program.

Repeatability: May be taken for credit 3 times as topics vary.

UCDC 190. Washington DC Elective. 4 Units.
Studies in selected areas related to the UC Washington, DC Center Program (UCDC). ,All courses taught in Washington, DC. Topics addressed vary each quarter.

Prerequisite: Selected for Washington DC Center Program.

Repeatability: May be taken for credit 3 times as topics vary.

University Affairs Courses

UNI AFF 1A. Student Participation. 1.3 Unit.
Campus projects with a University department to enrich academic growth and development as well as academic growth and development of UCI. Includes 30 hours per quarter working on proposed project under faculty/staff supervision. Paper required.

Prerequisite: Project must be approved by a Student Affairs Department head and the instructor.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

UNI AFF 1B. Student Participation. 1.3 Unit.
Campus projects with a University department to enrich academic growth and development as well as academic growth and development of UCI. Includes 30 hours per quarter working on proposed project under faculty/staff supervision. Paper required.

Prerequisite: UNI AFF 1A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

UNI AFF 1C. Student Participation. 1.3 Unit.
Campus projects with a University department to enrich academic growth and development as well as academic growth and development of UCI. Includes 30 hours per quarter working on proposed project under faculty/staff supervision. Paper required.

Prerequisite: UNI AFF 1B.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

University Studies Courses

UNI STU 1. Freshman Experience. 2 Units.
An introduction to the freshman experience provides an overview of the University's aims and resources and exploration of developmental theories and skills necessary for academic success. Attention is also paid to questions of personal development and major choice. Materials fee.

Grading Option: Pass/no pass only.

UNI STU 2. UCI-Majors. 2 Workload Units.
A systematic exploration of UCI's undergraduate majors.

Grading Option: Pass/no pass only.

Restriction: Freshmen Only. Recommended: Undecided/Undeclared freshmen students.

UNI STU 3. Mini-Seminars . 1 Unit.
Designed primarily for freshmen as introduction to scholarly inquiry. Each section is taught by a faculty member from one of the academic disciplines and presents interesting and challenging topics representing the instructor's interest. Students participate in discussions, presentations, and projects.

Repeatability: May be taken for credit 3 times.

UNI STU 4. Transfer Student Seminars. 1 Unit.
Designed primarily for transfer students during their first year at UCI. Each section is taught by a faculty member from one of the academic disciplines as introduction to scholarly inquiry in their discipline. Students participate in discussions, presentations, and projects.

Repeatability: May be taken for credit 2 times.

Restriction: New students only. Upper-division only until first week of classes.

UNI STU 6. University Studies International Village Seminar. 1 Unit.
Seminars held in International Village that are specifically designed to either (a) introduce visiting international students to the U.S. and/or local area and institutions or (b) engage both international and U.S. students in discussion of topics of international interest.

Grading Option: Pass/no pass only.

Repeatability: Unlimited as topics vary.

UNI STU 7. UTeach: Student-Taught Seminar. 1 Unit.
Student-taught seminar courses on selected topics. Topics vary each year according to the interest of the students teaching the classes.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

UNI STU 10. Introduction to Civic and Community Engagement. 4 Units.
Provides a foundation for understanding the role of public scholarship, civic engagement, and social action, and the relationship between service learning and engaged citizenship. Introduces key theoretical and research methodologies on the traditions and innovations of civic and community engagement.

UNI STU 13A. Introduction to Global Sustainability I. 4 Units.
Introduces Earth as a system and living planet. Examines physical and biological resources as well as energy, water, climate, and ecosystems. Introduces and applies analytic lens of environmental, social, and economic sustainability to examine human impacts and resource use.

Restriction: Lower-division students only.

(II)

UNI STU 13B. Introduction to Global Sustainability II. 4 Units.
Introduces Earth as a system and living planet. Examines physical and biological resources as well as energy, water, climate, and ecosystems. Introduces and applies analytic lens of environmental, social, and economic sustainability to examine human impacts and resource use.

Prerequisite: UNI STU 13A.

(II)

UNI STU 13C. Introduction to Global Sustainability III. 4 Units.
Introduces Earth as a system and living planet. Examines physical and biological resources as well as energy, water, climate, and ecosystems. Introduces and applies analytic lens of environmental, social, and economic sustainability to examine human impacts and resource use.

Prerequisite: UNI STU 13B.

(III)

UNI STU 15A. Consciousness I. 5 Units.
Introduces students to the theory of consciousness in the disciplines of cognitive science, philosophy, literature, psychoanalysis, and fine arts as represented in the genres of poetry, fiction, and film.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Restriction: Freshmen only

UNI STU 15B. Consciousness II. 5 Units.
Introduces students to the theory of consciousness in the disciplines of cognitive science, philosophy, literature, psychoanalysis, and fine arts as represented in the genres of poetry, fiction, and film.

Prerequisite: UNI STU 15A. Prerequisite or corequisite: WRITING 39B. WRITING 39B with a grade of C or better.

Restriction: Freshmen only.

(IV)

UNI STU 15C. Consciousness III. 5 Units.
Introduces students to the theory of consciousness in the disciplines of cognitive science, philosophy, literature, psychoanalysis, and fine arts as represented in the genres of poetry, fiction, and film.

Prerequisite: UNI STU 15B and WRITING 39B. Writing 39B with a grade of C or better.

Restriction: Freshmen only.

(Ia, III, IV)

UNI STU 16A. How Race Is Made I. 5 Units.
Introduces students to an examination of how race is "made" in America and the consequences of this construction through a variety of lenses: historical, legal, anthropological, sociological, and pop culture.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Restriction: Freshmen only.

UNI STU 16B. How Race Is Made II. 5 Units.
Introduces students to an examination of how race is "made" in America and the consequences of this construction through a variety of lenses: historical, legal, anthropological, sociological, and pop culture.

Prerequisite: UNI STU 16A. Prerequisite or corequisite: WRITING 39B. WRITING 39B with a grade of C or better.

Restriction: Freshmen only.

(IV)

UNI STU 16C. How Race Is Made III. 5 Units.
Introduces students to an examination of how race is "made" in America and the consequences of this construction through a variety of lenses: historical, legal, anthropological, sociological, and pop culture.

Prerequisite: UNI STU 16B and WRITING 39B. WRITING 39B with a grade of C or better.

Restriction: Freshmen only.

(Ia, III, IV, VII)

UNI STU 17A. Water I. 5 Units.
Introduces students to water as a global and contested resource across space, time, and peoples from a scientific, historical and policy perspective. Wherever possible, examples are drawn from the local environment.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Restriction: Freshmen only.

UNI STU 17B. Water II. 5 Units.
Introduces students to water as a global and contested resource across space, time, and peoples from a scientific, historical and policy perspective. Wherever possible, examples are drawn from the local environment.

Prerequisite: UNI STU 17A. Prerequisite or corequisite: WRITING 39B or HUMAN 1B. WRITING 39B with a grade of C or better. HUMAN 1B with a grade of C or better.

Restriction: Freshmen only.

UNI STU 17C. Water III. 5 Units.
Introduces students to water as a global and contested resource across space, time, and peoples from a scientific, historical and policy perspective. Wherever possible, examples are drawn from the local environment.

Prerequisite: UNI STU 17B and (WRITING 39B or HUMAN 1B). WRITING 39B with a grade of C or better. HUMAN 1B with a grade of C or better.

(Ia, II, III, IV)

UNI STU 41. Global Village Seminar. 1 Workload Unit.
Issue-oriented course to engage students in examining perspectives and narratives surrounding current global issues.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

UNI STU 42. Sankofa Project. 2 Workload Units.
The purpose of this course is to strengthen intercultural understanding and cooperation among UCI students.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

UNI STU 45. Graduate School Opportunities and Preparation. 1 Unit.
Explores the opportunities associated with graduate school by considering a wide range of disciplines and career paths. Reviews professional and academic paths in graduate school and the ways to prepare for a chosen path.

UNI STU 83. Pathways to University Success. 2 Workload Units.
Helps first-year students transition to UC Irvine and promotes a successful University experience. Students learn about academic resources and programs that support acclimation to the campus and enhance academic development through lectures, discussions, and a range of co-curricular activities.

Overlaps with UNI STU 84.

UNI STU 84. Bridges to University Success. 4 Workload Units.
Helps first-year students transition to UC Irvine and promotes a successful University experience. Students learn about academic resources/programs that support acclimation to the campus and enhance academic development through lectures, writing laboratories, discussions, and a range of co-curricular activities.

Overlaps with UNI STU 83.

UNI STU 93. Strategies for Success. 2 Workload Units.
Designed to develop good study skills in technical fields and the participation of students as active learners in their education. Topics include time management, analytical thinking, text analysis, academic survival strategies, and goal setting.

Grading Option: Pass/no pass only.

UNI STU 100. Doing Research in the Community. 4 Units.
Critically reimagines the research endeavor and its participants/outcomes. Grapples with methods, values, and relationships involved in research. Explores alternative conceptions of research; focus is community-based. Students work in teams on real-world community research projects with faculty mentors and community partners.

Prerequisite: UNI STU 10.

UNI STU 108. Introduction to Research. 4 Workload Units.
Introduces new transfer students to research culture of the University. Students learn about the importance of research and creative activities as they are framed in a broad range of disciplines and are introduced to general research methods and approaches.

Grading Option: Pass/no pass only.

Restriction: Transfer Summer Bridge Program students only.

UNI STU 170. Advanced Internship in Undergraduate Education. 1-2 Workload Units.
Advanced interns have a year's internship experience and return to contribute to Undergraduate Education programs in a leadership position. Students work three-five hours per week in a DUE office to coordinate or lead less-experienced interns and/or events.

Prerequisite: UNI AFF 1A and UNI AFF 1B and UNI AFF 1C.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 6 units.

UNI STU 175. Methods and Application in Small Group Instruction. 2 Workload Units.
Explores various theories and methods of learning and development and their practical application in small group settings. Peer tutors receive instruction in the design, implementation, and evaluation of an effective learning environment for undergraduate students.

Grading Option: Pass/no pass only.

Restriction: Learning and Academic Resource Center employed tutors only.

UNI STU H176A. Campuswide Honors Thesis Seminar. 2 Units.
Supports the honors thesis research activities of Campuswide Honors Program students. Students set research goals, discuss, and develop their research interests.

Corequisite: Students must sign up separately for 8 units of independent study with faculty mentors.

Grading Option: Pass/no pass only.

Restriction: Students in the Campuswide Honors Program not enrolled in a School/Departmental honors program.

UNI STU H176C. Campuswide Honors Thesis Seminar. 2 Units.
Supports the honors thesis research activities of Campuswide Honors Program students. Students work with each other to improve both written and spoken presentations of their results.

Corequisite: Students must sign up separately for 8 units of independent study with faculty mentors.
Prerequisite: UNI STU H176A.

Grading Option: Pass/no pass only.

Restriction: Students in the Campuswide Honors Program not enrolled in a School/Departmental honors program.

UNI STU 181. Internship in Civic and Community Engagement. 2-4 Workload Units.
Provides an opportunity to extend learning into a community-based setting addressing important social, environmental, and public issues. The internship project has a creative and scholarly component where students initiate their own action or inquiry experience.

Prerequisite: UNI STU 10.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

UNI STU 190. Teaching Seminar: Theory and Practice. 2 Units.
For students selected to be discussion leaders for University Studies 2. Models of teaching, developmental theory applied to college freshmen, curriculum development. Practice of teaching techniques and group management skills.

Repeatability: May be taken for credit 2 times.

UNI STU 192. Group Project for Discussion Leaders. 4 Units.
For discussion leaders for University Studies 2. Weekly discussion group training for leading effective groups in addition to evaluations of weekly discussion sections and completion of a special project on issues of freshman development. Materials fee.

Repeatability: May be taken for credit 4 times.

Restriction: Discussion leaders only.

UNI STU 196. Directed Studies in Undergraduate Education. 1-4 Units.
Students do directed study (research, readings, etc.) on a topic related to Undergraduate Education under the supervision of one of the faculty who serve as Deans or Faculty Directors in the Division of Undergraduate Education.

Repeatability: May be taken for credit for 12 units.

UNI STU 197A. UTeach Special Study. 2 Units.
Students accepted to teach a UTeach course in spring quarter enroll in Special or Independent Study with their faculty mentor during the preceding fall quarter to develop their detailed course syllabus.

Repeatability: Unlimited as topics vary.

Restriction: UTeach Program students only.

UNI STU 197B. UTeach: Teaching Theory and Practice. 2 Units.
Students accepted to teach a UTeach course in spring quarter enroll during the winter to develop their teaching skills in preparation for teaching the following quarter.

Prerequisite: UNI STU 197A.

Grading Option: Pass/no pass only.

Restriction: UTeach Program students only.

UNI STU 197C. UTeach: Teaching Practicum. 2 Units.
Students selected to teach in the UTeach Program teach their courses and meet weekly in a seminar to continue to develop and enhance their teaching skills.

Prerequisite: UNI STU 197B.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Restriction: UTeach Program students only.

UNI STU 197D. Study Abroad Experiential Learning. 1 Unit.
Study abroad on an approved program. Complete critical reflection (written paper, blog, etc.) submitted no later than the end of the quarter following the completion of the study abroad program. Enroll while studying abroad or the quarter immediately following return.

Grading Option: Pass/no pass only.

UNI STU 296. Graduate Legal Studies . 0.3 Units.
Monthly faculty/student colloquium to present and discuss socio-legal related research/issues. Course convened by Law School faculty with other faculty participation. Required for PLGS students enrolled in Law portion of degree.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students and Law students only.

UNI STU 297. California Community College Internship. 2-8 Units.
The California Community College Internship offers graduate students the opportunity to learn about faculty life, governance, and teaching at local community colleges. Structures fieldwork for students to participate in and reflect on the educational mission of community colleges.

Prerequisite: Teaching experience.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit for 10 units.

Restriction: MFA or Doctoral students who have advanced to candidacy.

UNI STU 390A. Advanced Pedagogy and Academic Job Preparation. 2-4 Units.
Introduction to principles of good course design and instructional development. Students design and implement an integrated curriculum in the context of the fall TA Professional Development Program.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Pedagogical Fellow with the TLTC.

UNI STU 390B. Advanced Pedagogy and Academic Job Preparation. 2-4 Units.
Introduction to the Scholarship of Teaching and Learning literature within the students' respective disciplines. Students select or create several teaching methods stated or implied by the literature and translate these findings into workships for other TAs.

Prerequisite: UNI STU 390A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Pedagogical Fellow with the TLTC.

UNI STU 390C. Advanced Pedagogy and Academic Job Preparation. 2-4 Units.
Prepares students for their future roles as faculty members and the academic job search. Covers job search skills; creation of CV, cover letters, statement of teaching philosophy; job interview and negotiation skills; types of higher educational institutions and professorial responsibilities.

Prerequisite: UNI STU 390B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Pedagogical Fellow with the TLTC.

Graduate Division

Frances M. Leslie, **Dean of the Graduate Division**

Overview

With the exception of programs conducted by the School of Medicine for the training of physicians, and the J.D. program in the School of Law, the Dean of the Graduate Division administers graduate education in accordance with academic policies established by the University of California, the Irvine Division of the Academic Senate, and the UCI Graduate Council, a standing committee of the Irvine Division of the Academic Senate. Graduate education includes those students engaged in the pursuit of a master's degree, a doctoral degree, or a teaching credential, as well as individuals engaged in postdoctoral training at UCI. There is no separate graduate faculty at UCI; all graduate work is supervised by academic units and faculty members who have concurrent responsibility for undergraduate education.

Information about graduate education at UCI is published here in the *UCI General Catalogue,* on the Graduate Division Web site, and in individual graduate program publications. The staff of the Graduate Division and departmental academic advisors are prepared to answer questions about admission, academic policies and procedures, graduate programs and degrees, financial assistance, student services, and other matters of concern to applicants or graduate students. The Graduate Division is located in 120 Aldrich Hall; (949) 824-4611; or visit the Graduate Division (http://www.grad.uci.edu) website.

The University of California believes that a diverse student and faculty population is integral to the advancement of academic excellence and is critical to promoting the lively intellectual exchange and the variety of ideas and perspectives that are essential to advanced scholarly research and debate. The University is committed to expand student outreach, recruitment, and retention efforts. Through the Graduate Division's diversity programs, steps are taken to increase the participation of diverse groups of U.S. citizens and permanent residents who have been educationally or socioeconomically disadvantaged.

It is the goal of UCI's Graduate Division to award fellowships to many admitted students based upon merit or financial need. In addition, diversity fellowships for new and continuing Ph.D. and M.F.A. students are based on demonstrated scholastic achievement, full-time status, U.S. citizenship or permanent residency, and socioeconomic and educational limitations. Each academic department identifies those students whose scholarship, background, and life experiences can best enhance the level of diversity within a department or discipline.

Admission to Graduate Standing

Applicants for admission to graduate study at UCI must apply for acceptance into a specific graduate program to work toward a specific advanced degree. A general requirement for admission is that the applicant hold the degree of Bachelor of Arts, Letters, Philosophy, or Science (or an acceptable equivalent) from an accredited academic institution with degree standards equivalent to those of the University of California. A minimum undergraduate grade point average of at least B (3.0 on a 4.0 scale) is required.

Each applicant's file is comprehensively evaluated by the faculty admissions committee of the applicant's specific graduate program on the basis of such factors as academic subject preparation, scholarship, letters of recommendation, test scores, and examples of previous work. One critical evaluative question is whether the applicant's academic objectives can reasonably be satisfied by a particular graduate program on this campus. Please note that the University of California does not have the capacity to accommodate/admit all applicants who meet the minimum admission requirements.

Application Procedures

How to Apply

Prospective students should apply online using the *Application for Graduate Study* available at Graduate Division (http://www.grad.uci.edu) website. Detailed instructions are included in the electronic application. For additional information, send e-mail to grad@uci.edu or call (949) 824-4611.

The mandatory application fee is $80 ($100 for international students) and is not refundable under any circumstances. (Please note, however, that the application fee for M.B.A. programs offered by The Paul Merage School of Business is $150.) Payment instructions are provided in the electronic application as well as on the Graduate Division Web site. Diversity program and/or financial-need-based application fee waivers may be available for a few domestic (U.S. Citizen or U.S. Permanent Resident) applicants.

When to Apply

For all graduate programs, applications should be completed and submitted by the respective program's stated deadline. Some programs have deadlines as early as December 1; others have deadlines of January 15, and still others may accept applications until March or thereafter. Some academic units may accept applications for winter or spring quarter admission for which deadlines are generally October 15 and January 15, respectively. In order to process applications in time for the applicant to receive full consideration, letters of recommendation, official transcripts, and official test scores must be received before the published deadlines. Some schools and departments have earlier or later deadlines for filing the application. Applicants should consult their prospective department or school for more detailed information. Contact information for the schools and

departments may be obtained by visiting their individual websites or via the list of department and school contacts on the Graduate Division (http://www.grad.uci.edu/academics/degree-programs) website.

Required Supporting Documents

Letters of Recommendation

Applicants should arrange to have three letters of recommendation forwarded directly to their prospective academic department or program. Recommendation forms are available for downloading at the Graduate Division (http://www.grad.uci.edu/forms) website. Only one set of three recommendation letters needs to be submitted in support of an application for admission and fellowship or assistantship consideration. It is important that letters of recommendation be completed primarily by professors or instructors in disciplines related to the proposed course of study who are in a position to analyze an applicant's abilities and academic promise.

Graduate Record Examination (GRE) Scores

All applicants are required to take the Graduate Record Examination (GRE) General Test, with the following exception: The Paul Merage School of Business requires that M.B.A. applicants take either the Graduate Management Admission Test (GMAT) or the GRE. Executive M.B.A. and Health Care Executive M.B.A. applicants are exempt from the test requirement. Several programs also require, or strongly recommend, that an applicant report the score of a GRE Subject Test. There is no minimum GRE score. Applicants should register for either the October or December test dates to ensure the timely receipt of their score results for admission consideration. The GRE is administered by the Educational Testing Service (http://www.ets.org). GRE scores that are more than five years old are not acceptable.

Domestic Academic Records

Domestic applicants should request that the official transcript be forwarded *directly* to their prospective academic department or program. One complete set of official records covering all postsecondary academic work attempted, regardless of length of attendance, is required. One official set of transcripts must also be submitted by applicants who attended or graduated from any University of California campus, including UC Irvine. Applicants with academic work in progress must expect to complete their undergraduate degree programs before the intended date of enrollment at UCI and must submit evidence of degree conferral before officially enrolling.

Foreign Academic Records

Official records from overseas institutions should be sent *directly* to the prospective academic department or program at UCI. Records of academic study from foreign institutions must be official, bearing the original signature of the registrar and the seal of the issuing institution. Applicants should not send the original of an academic record which cannot be replaced; they should obtain instead properly certified copies. Unless academic records and diplomas are issued in English by the institution, the official records in their original language must be submitted with an authorized, complete, and exact English translation. Foreign academic records must be in duplicate and include all subjects or courses taken on a yearly basis, together with the units of credit or time allotted to each subject each term or year and the marks or ratings in each subject or examination passed. In all cases the institutional grading scale or other standard of evaluation, including maximal passing and failing marks and definition of grades between them, should appear on official records or as an official attachment. Official evidence of degree conferral must also be supplied, together with evidence of rank in class if available.

Demonstration of English Language Proficiency for Admission

Applicants whose primary language is not English are required to demonstrate proficiency in English for admission consideration. A student may receive a waiver to the Test of English as a Foreign Language (TOEFL or TOEFL iBT) requirement for purposes of admission to a UCI graduate program if the student completed all of the requirements for their high school diploma, bachelor's degree, or an advanced degree in a country where the primary and/or dominant language is English, **and** where English was the language of instruction of the school where the requirements were completed. The TOEFL/TOEFL iBT requirement may be waived for **admissions purposes only**. In addition, this policy pertains to the minimum UCI campus admission policy for English Language proficiency. Individual departments may have stricter requirements than the minimum campus standard. Applicants should always consult the department in which they are interested for specific requirements.

Proficiency in English may be demonstrated by passing one of two standardized, internationally administered tests: TOEFL (the Test of English as a Foreign Language), or IELTS (International English Language Testing System). The applicant should take one of these tests at the earliest available date to ensure that the scores are reported in time to meet application deadlines. Applicants will not be admitted provisionally if they lack an acceptable proficiency score or have not yet taken an acceptable proficiency examination.

The TOEFL is administered by Educational Testing Service (http://www.ets.org) (ETS). The minimum score required for admissions consideration is 550 for the paper-based test; for the TOEFL iBT, the minimum required overall score for admissions consideration is 80. TOEFL and TOEFL iBT scores that are two years old or older are not acceptable. Results of institutional (non-ETS) administrations of the TOEFL or TOEFL iBT are not acceptable.

English language proficiency may also be demonstrated by passing the Academic Modules of the International English Language Testing System (http://www.ielts.org) (IELTS) examination. The minimum requirements for admissions consideration are an overall score of 7, with a score of no less than 6 on any individual module. IELTS test scores that are two years old or older are not acceptable.

Demonstration of Oral English Proficiency for International Teaching Assistant/Associate Employment

Many UCI degree programs require students to serve as a Teaching Assistant for training purposes and as a graduation requirement. UCI encourages (and some individual graduate programs require) prospective students to take and pass one of the accepted oral English proficiency examinations prior to application/admission. International and U.S. Permanent Resident graduate students who are not citizens of countries where English is either the primary or dominant language as approved by the UCI Graduate Council, who wish to be considered for appointment as a Teaching Assistant/Associate, must pass one of the following English proficiency examinations: Test of Spoken English (TSE), Test of English as a Foreign Language Internet-based Test (TOEFL iBT), International English Language Testing System (IELTS), or UCI campus Speaking Proficiency English Assessment Kit (SPEAK) test. TOEFL iBT is administered by the Educational Testing Service (ETS). IELTS, on the other hand, is administered through the partnership of the British Council, IDP: IELTS Australia and the University of Cambridge ESOL Examinations. Once a student is admitted to UCI, the SPEAK test, which is administered by the UCI Humanities Instructional Resource Center (HIRC), is an option to satisfy this requirement. Achieving a minimum score of 26 on the speaking portion of the TOEFL iBT, a score of 8 on the speaking module of the IELTS, or a score of 50 on the SPEAK test satisfies the oral proficiency requirement and *may* establish eligibility for a Teaching Assistant/Associate appointment. Graduate students are responsible for ensuring that the UCI Graduate Division is notified directly of their scores by the testing centers. There is no exception to this requirement.

A full discussion of English proficiency options and links to the agency sites offering these examinations are available at the Graduate Division's English Proficiency (http://www.grad.uci.edu/admissions/applying-to-uci/english-proficiency.html) website.

Students who are citizens of the United States (regardless of country of origin) and citizens of countries where English is either the primary or dominant language as approved by the UCI Graduate Council are exempt from the requirement of taking and passing the English language proficiency examinations. Non-U.S. citizens who are U.S. Permanent Residents or hold other non-citizen status and are residing in the United States, who have completed their undergraduate education in the United States, or have attended American schools abroad are *still* required to pass one of the English language proficiency examinations noted above in order to be eligible for an appointment as a Teaching Assistant/Associate. International and U.S. Permanent Resident graduate students whose native language is not English, who have completed *all years of their high school education* in the United States, are eligible to request an exemption by submitting a request and official high school transcripts to the Graduate Student Employment Analyst in the Graduate Division. No student is permitted to begin an appointment as a Teaching Assistant/Associate until the exemption has been approved in writing.

Special Note to Foreign Applicants

If admitted, foreign applicants will be required to certify that they possess sufficient funds to cover all tuition, fees, transportation, and living expenses for the first year of their studies at UCI. A Confidential International Applicant Questionnaire for the purpose of verifying the amount and source of funds available for graduate study will be forwarded to foreign applicants upon admission to graduate study. The required financial verification must be provided before a visa can be issued.

Admission and Registration

A formal notice of the admission decision is sent to each applicant as soon as possible after the application and complete records are received, and after the department has made a recommendation. The official notification will be mailed well in advance of the beginning of the quarter for which application has been made.

Admission to graduate standing does not constitute registration for classes. A student is not officially registered for classes until the entire registration procedure is completed each quarter, including payment of Tuition, Student Services Fee, and other University fees, and enrollment in courses. Information on registration dates and procedures will be mailed to newly admitted students prior to the registration cycle. Extensive information for newly admitted students is available at the New Graduate Students (http://www.grad.uci.edu/new-students) website.

If an applicant wishes to defer admission to a later academic quarter (up to a maximum of three quarters after the original quarter of admission), the Graduate Division must be notified of the request in writing. After formal admission has been offered, the request for deferral must also be approved by the academic program to which the applicant was admitted.

Campuswide New Graduate Student Orientation

Incoming graduate students are strongly encouraged to attend the Campuswide New Graduate Student Orientation, held during the third week of September each fall. The Campuswide New Graduate Student Orientation covers all aspects of navigating graduate education at UC Irvine, including graduate student services. It augments school/department-based orientations, and students should attend both. Information about the Campuswide New Graduate Student Orientation is e-mailed to incoming graduate students the summer prior to the event. Inquiries may be directed to gradorientation@uci.edu, and details are available at the New Graduate Student Orientations (http://www.grad.uci.edu/services/campuswide-orientation) website.

Academic Advising

In each academic unit with an advanced degree program, there is at least one formally appointed faculty graduate advisor or director of graduate studies. The graduate program advisor is a regular faculty member responsible for supervising graduate study in that unit, for monitoring the academic progress of graduate students, and for seeing that each graduate student is assigned a faculty advisor. The graduate student’s research advisor is

responsible for mentoring the student, which includes meeting with the student at least once during each quarter of enrollment and providing an annual assessment of each student's timely academic progress. The graduate program advisor plays a key role in the academic lives of graduate students, advising students and other faculty members about program requirements and the academic policies pertaining to graduate students, approving study lists, and evaluating academic petitions. In many academic units the graduate program advisor is instrumental in the nomination of students for fellowship support, the selection of students for assistantship and fellowship appointments, and in the supervision of graduate student teachers. In most schools there also is an associate dean for graduate studies who coordinates many of the functions which affect graduate students within that school. Both graduate advisors as well as deans are important links between the student and the Dean of the Graduate Division.

Most graduate students also will have an individual faculty advisor or advising committee after the first year of graduate study. When a student is advanced to candidacy for the Ph.D., the doctoral committee becomes the primary source of academic guidance; however, student academic petitions still must be approved by the faculty graduate program advisor.

Academic Policies

The academic policies described here apply to students enrolled in study leading to graduate degrees and California education credentials. Other regulations and procedures are covered in the Academic Regulations and Procedures (p. 109) sections, and in the description of each graduate program.

Academic Honesty

It is essential that all members of the academic community subscribe to the ideal of academic honesty and integrity and accept individual responsibility for their work. Students are urged to become familiar with the UCI Academic Senate Policies on Academic Honesty, available at the Academic Senate (http://www.senate.uci.edu/senateweb/default2.asp?active_page_id=754) website and in the *Catalogue's* Appendix. The policies apply equally to electronic media and print, and involve text, images, and ideas.

Scholastic Requirements

A graduate student is expected to make satisfactory progress toward an approved academic objective, as defined by the faculty of the program in accordance with policies of the Graduate Council, to maintain a satisfactory grade point average for all work undertaken while enrolled in graduate study, and to maintain academic progress within the required time to degree as established by the respective academic program. Satisfactory progress is determined on the basis of both the recent academic record and overall performance. A graduate student normally is expected to complete satisfactorily at least eight units of academic credit applicable to the graduate program in each regular academic session (unless on an approved leave of absence), and satisfy all requirements of the academic program according to an approved schedule. For a graduate student, only the grades A+, A, A-, B+, B, and S represent satisfactory scholarship and may be applied toward advanced degree requirements. However, a UCI course in which a grade of B- is earned may be accepted, via a formal petition process, in partial satisfaction of the degree requirements if the student has a grade point average of at least 3.0 in all courses applicable to the degree. Graduate students may not apply courses graded Pass/Not Pass toward any degree or satisfactory progress requirements. A grade point average below the B level (3.0 on a 4.0 scale) is not satisfactory, and a student whose grade point average is below that level is subject to academic disqualification.

A student's academic progress ordinarily is evaluated on the basis of the academic record, time-to-degree, and the professional judgment of the faculty. A few weeks after the end of a quarter, an updated copy of each enrolled student's permanent academic record is available from the Registrar. This record lists all UCI courses for which a graduate student was enrolled (including courses taken through the Intercampus Exchange Program), the grades assigned, and the cumulative grade point average. This record also includes formal candidacy for an advanced degree, degrees conferred, certain examinations passed, unit credit accepted from other institutions, and other important academic information.

A graduate student who has not demonstrated satisfactory academic progress is not eligible for any academic appointment such as Reader, Tutor, Graduate Student Researcher, Teaching Associate, or Teaching Assistant, and may not hold a fellowship or other award which is based upon academic merit.

Satisfaction of Degree Requirements

To graduate, students must satisfy the degree requirements outlined in the *Catalogue* that is in effect for the quarter in which they are registering for a graduate program. If the degree requirements are subsequently revised, the academic unit may, where appropriate, give students the option to meet the new requirements instead. If degree requirements are revised between the time a student is admitted and the time a student registers, the unit should notify the student of the modifications in writing. A student who withdraws from a program, or loses student status for other reasons for one or more quarters, will be bound by the degree requirements in effect at the time of readmission unless otherwise stipulated and agreed to in writing by the academic unit and approved by the Dean of the Graduate Division. A student who defers admission or who changes to another program will be held to the requirements in effect at the time of first registration.

Grading

With the consent of the academic units involved, and upon approval by the Graduate Council, individual study and research courses at the graduate level may be graded Satisfactory or Unsatisfactory (S/U). Also, with the approval of the Graduate Council certain graduate courses are graded S/U only. A grade of S is assumed equivalent to a grade of B (3.0) or better. No course credit is given to a student for a course in which a grade of U is received.

Graduate students may take one undergraduate course (up to four units) per quarter on a Pass/Not Pass basis. However, such courses are not considered part of the student's graduate program and are not applied toward the requirements for an advanced degree.

The grade Incomplete (I) is assigned when a student's work is of passing quality but is incomplete for good cause. The I grade may be replaced by a permanent grade, provided the student completes the course work in a way authorized by the instructor and within the time limits expressed. The student must complete the course work within the period set by the instructor, or within 12 months following the quarter in which the grade Incomplete was originally awarded, or prior to the end of the quarter immediately preceding award of the degree, whichever comes first. The instructor is not obligated to allow the maximum time period. When the course work is completed within the time allowed, the student must ask the instructor of the course to submit an Academic Record Change Request to the Dean of the School in which the course is taught. During the time allowed for replacing an I grade, the I grade will not be used in computation of a student's grade point average. However, if the incomplete course work is not completed in the manner authorized by the instructor and within the time limits stated above, the I grade shall automatically be replaced with the permanent grade of F, NP, or U, as appropriate in accordance to the grading option selected when the student enrolled in the course, and will be used in computation of the student's grade point average. Graduate students who have not been continuously enrolled should contact their graduate advisor for information about completion of incomplete grades.

IP (In Progress) is a transcript notation restricted to sequential courses extending over two or more quarters for which use of the IP notation has been approved. When the last quarter of the sequence is completed, the grade for the final quarter is assigned for all quarters of the sequence. No credit is given until the student has completed the entire sequence.

A student who received an NR (No Report) transcript notation must immediately contact the instructor and arrange for the removal or replacement of the NR. If no action is taken by the end of the first quarter following the quarter in which the NR was assigned, or by the end of the quarter immediately preceding award of the degree, whichever comes first, the NR becomes an F, U, or NP and will remain permanently on the student's record.

A graduate student may repeat once a course in which a grade below B (3.0) or a grade of U was received. Only the most recently earned grade is used in computing the student's grade point average for the first eight units of repeated work; thereafter both the earlier and the later grades are used. Additional information about grading may be found in the Academic Regulations (p. 109) section.

Language Policy for Examinations and Theses/Dissertations

English is the language of instruction and examination for graduate courses at UCI, unless the subject matter includes foreign language content. Similarly, examinations that satisfy specific degree requirements, such as preliminary, comprehensive, qualifying/candidacy examinations and thesis/dissertation defenses shall be conducted in English, except for the portions of the examination where the subject matter makes a different language specifically appropriate. (Examples include foreign language literature, linguistics, and others.)

Students must seek permission to write their thesis/dissertation in a language other than English. To do so, immediately after advancement to candidacy, the candidate must submit to the Dean of the Graduate Division a letter approved by the thesis/dissertation chair, committee, and department chair. All members of the candidate's thesis/dissertation committee must have a reading knowledge of the language presented in the thesis/dissertation. There must be legitimate reasons for substituting English with a foreign language such as subject matter, special primary audience, publication arrangements, academic position in a foreign country, historical or literary value, or principal language(s) used in the documents to be analyzed and interpreted. **Inability to write in English is not a valid reason.** If the thesis or dissertation is approved to be written in a foreign language, the candidate must submit two abstracts. One must be in English. The other must be written in the language of the thesis or dissertation. Moreover, the thesis/dissertation defense will be conducted in English, except as determined by subject matter. See the *UCI Thesis and Dissertation Manual* for information about the preparation of manuscripts.

Academic Disqualification

After consultation with the student's academic unit, the Dean of the Graduate Division may disqualify a student for academic reasons, including, but not limited to, having a grade point average in graduate and upper-division courses below 3.0 for two or more successive quarters; or failing to pass (or not taking) a required examination or course within the time specified for that graduate program; or not maintaining satisfactory academic progress toward completion of an approved program of study. Beginning with students entering in fall 2010, the Graduate Dean will not permit students to enroll past their programs' maximum time to degree (MTTD). Any exception request must be made in writing directly to the Graduate Dean and will be considered in cases involving extenuating circumstances beyond the student's control. The exception request must include a plan and timeline for completion of the degree, must be signed by the student's program advisor and Associate Dean, and must be submitted at least one quarter in advance of maximum time to degree. Note that leaves of absence of up to three quarters and time allotted for parental leave are not counted toward a student's normative or maximum time to degree.

Unsatisfactory academic progress may be determined on the basis of explicit requirements (as described above), but the professional judgment of the faculty upon review of all graduate work undertaken by the student is paramount. Ordinarily, a student whose work does not meet academic standards may be given written notice and a reasonable period of time in which to make up all deficiencies.

Prior to taking final action to disqualify, the Dean of the Graduate Division ordinarily will notify a student who is subject to academic disqualification and will provide reasonable opportunity for the student to correct erroneous or outdated academic records, to submit other information or comments in writing, or to request a second review of his or her academic performance.

Upon final written notice of academic disqualification by the Dean of the Graduate Division, disqualification will be noted on the formal academic record of that student.

Academic Residence

A graduate student is considered to be in residence during an academic quarter if at least four units of academic credit are earned in regular upper-division or graduate courses. Credit for one academic quarter of residence may also be earned by completing at least two units of credit in approved courses in each of two six-week summer sessions, or four units of credit in an eight- or ten-week summer session. In the case of Ph.D. students, these must be consecutive sessions.

Enrollment Policy

Full-time academic enrollment is expected of graduate students at the University of California. Study for the Ph.D. requires a full-time commitment from the doctoral student. Full-time study is defined as enrollment in at least 12 units of upper-division or graduate academic credit per quarter, including credit for supervised research or teaching. Graduate students may enroll in lower-division courses with the approval of their academic advisors, but such courses are not considered to be part of any graduate program.

Graduate students ordinarily may not receive credit for more than 12 units per quarter in graduate courses, or 16 units in upper-division courses, or a proportionate number in combination. Course loads in excess of 16 units must be approved in advance by the student's Graduate Advisor.

Although in most instances completion of an advanced degree at UCI requires full-time study, the University recognizes the legitimate need for part-time study opportunities and is committed to providing those opportunities wherever possible. Graduate degree programs may be opened to part-time students wherever good educational reasons exist for so doing. In general, part-time status is available in master's and credential programs where part-time study has been judged academically feasible by faculty and approved by the Graduate Council. However, on the recommendation of the academic unit, students admitted to a Ph.D. program *may* be approved by the Dean of the Graduate Division for part-time status on an *ad hoc* basis. Under this policy, part-time enrollment at the graduate level is defined as enrollment for eight units or less. Within the guidelines and limitations noted on the application form available on the Graduate Division Web site, graduate students may petition for part-time status for a maximum of three consecutive quarters and, if the petition is approved, shall pay the full Student Services Fee and student activities fees, one-half the Tuition, and if applicable, one-half the Nonresident Supplemental Tuition and one-half the Professional Degree Supplemental Tuition.

Continuous Registration

A graduate student is expected to register for each regular academic session (fall, winter, and spring quarters) until all requirements for an advanced degree or credential have been completed, including final examinations and the submission of an approved thesis or dissertation. Registration is not official or complete until all required tuition and fees have been paid and the student has enrolled in classes. Students are responsible for ensuring that their course enrollment is correct and that their fees and tuition have been paid by the applicable deadlines.

A student engaged in study or research outside the state of California for an entire quarter ordinarily will be required to register *in absentia*. Unless an official leave of absence has been granted, or a petition to pay the Filing Fee in lieu of registration has been approved by the Dean of the Graduate Division, a student who does not register by the final deadline for any regular quarter will lose graduate standing (i.e., the individual's status as a graduate student will lapse), and candidacy for any advanced degree will lapse. Prior to resuming graduate study in the University, a former student must successfully apply for readmission. If readmitted, the student must satisfy the academic requirements in effect at the time of readmission and may be required to satisfy certain requirements a second time, including those for formal advancement to candidacy. A readmitted student must register and then be advanced to candidacy at least one quarter before receiving an advanced degree. A degree cannot be conferred earlier than the second quarter following readmission. Students must be registered or on approved Filing Fee status for the academic term in which the degree is conferred.

A graduate student who decides to leave the University after enrolling and paying tuition and fees for a quarter must file an official Withdrawal form with the Dean of the Graduate Division. A graduate student in good academic standing who wishes to withdraw temporarily from graduate study and intends to return within one year may submit an application for a leave of absence. A graduate student who wishes to apply for a leave of absence after enrolling and paying tuition and fees for a quarter must file both a Withdrawal form and an application for a leave of absence. If the leave is approved, the student remains in good standing and need not apply for readmission in order to enroll at the expiration of the leave period. Students who file a withdrawal for any reason, including leave of absence, after enrolling and paying tuition and fees are subject to the Schedule of Refunds (http://www.reg.uci.edu/enrollment/withdrawals/#refunds) policy.

In Absentia

In absentia status is a form of registration available to academic and professional degree graduate students undertaking necessary course work or research related to their degree programs outside of California. The Fee Policy for Graduate Student *in Absentia* Registration promotes continuous enrollment of graduate and professional degree students by providing an appropriate enrollment incentive. Research leaves for work outside of the state of California have been eliminated. Students registered *in absentia* are assessed 15 percent of the Student Services Fee and Tuition, the full health insurance fees, and the Associated Graduate Students fee. If applicable, students are also assessed nonresident supplemental tuition and/or professional degree supplemental tuition. All students pursuing doctoral or master's degrees in academic disciplines as well as those pursuing professional master's or doctoral degrees are eligible for the fee reduction. Students must be enrolled full-time in regular University of California units to be eligible for the reduced *in absentia fee*. Students in self-supporting graduate programs, exchange programs, or programs paying only a program fee are not covered by this policy and are not eligible for *in absentia* registration.

The research or course work must be directly related to the student's degree program as evidenced by UC faculty approval; must be of a nature that makes it necessary to be completed outside of California for at least one full academic term; must involve only indirect supervision appropriate to evaluating the student's academic progress and performance by UC faculty during the *in absentia* period; must involve no significant studying or in-person collaboration with UC faculty during the *in absentia* period.

Students who will be engaged in necessary degree-related course work or research off campus but within the state of California may be eligible for a leave of absence.

Leave of Absence

A graduate student who withdraws from the University with the intention of returning within one year and wishes to avoid a lapse of student status should request a leave of absence. A leave of absence of up to one year's duration may be granted by the Dean of the Graduate Division upon the recommendation of the student's academic unit, subject to the following guidelines:

1. The student must have **completed** satisfactorily at least one quarter in residence and be in good academic standing. The leave must be consistent with the student's academic objectives.
2. Leave ordinarily is approved in cases of serious illness or other temporary disability, or temporary interruption of the student's academic program for other appropriate reasons.
3. A student on leave is not eligible for assistance from a University fellowship, research grant, or financial aid program, and may not hold an academic appointment or be employed by the University in any capacity. During a period of leave, a student may not take comprehensive or qualifying examinations or earn academic credit (except by a transfer of credit from another institution approved in advance by the Dean of the Graduate Division). University resources and facilities, including housing, are ordinarily unavailable to students on leave.
4. A student failing to register for the next regular academic session following the expiration of leave will lose graduate standing and will be subject to the following readmission policy.

Readmission

A student who previously withdrew from the University, or whose student status has lapsed, may request readmission to graduate study by submitting online a new *Application for Graduate Study* with the nonrefundable $80 fee ($100 for international students). The Dean of the Graduate Division may grant readmission when recommended by the academic unit. If readmitted, a student's previous academic work will be applied toward the requirements for an advanced degree only with the approval of the graduate advisor and the Dean of the Graduate Division. A readmitted student must satisfy the academic requirements in effect at the time of readmission and may be required to satisfy certain requirements a second time, including those for formal advancement to candidacy. A readmitted student must register and then be advanced or reinstated to candidacy at least one quarter before receiving an advanced degree, which will be conferred no earlier than the second quarter following readmission. In exceptional circumstances, a student who has not registered by the end of the third week of classes may file a Readmission Petition with the Graduate Division during that academic term upon approval of the student's department chair and the respective school's associate dean, and payment of a $80 readmission fee.

Intercampus Exchange Program

A graduate student in good standing who wishes to take advantage of educational opportunities available only at another campus of the University of California may do so through the Intercampus Exchange Program. Ordinarily, an exchange student will have demonstrated a high level of scholarship during at least one quarter of graduate study at the home campus and will have well-defined academic objectives. Approval of the faculty advisor, the host department(s), and the respective Deans of Graduate Studies is required. Direct arrangements between faculty members on the two campuses are encouraged so as to ensure that courses, seminars, or facilities will be available to meet the participating student's needs. Students may take courses on more than one campus of the University in the same academic session.

The exchange student enrolls and pays tuition and fees on the home campus and then enrolls at the host campus, following the procedures of that Registrar's Office. A report of academic work completed will be transferred to the student's academic record on the home campus after the term has ended. Although eligible for all normal student services, the exchange student is a visitor and is not formally admitted to graduate study at the host campus. Application forms for the Intercampus Exchange Program may be downloaded from the Graduate Division (http://www.grad.uci.edu/forms) website and should be filed with the Office at least four weeks before the beginning of the quarter in order to avoid penalties.

Transfers of Credit

At least one-half of the course requirement for a master's degree must be completed while in residence as a graduate student at UCI. Credit for up to one-fifth of the minimum number of units required for a master's degree may be allowed for graduate-level work completed at another institution or through University Extension prior to first graduate enrollment at UCI. Such courses do not count toward the required number of units in 200-series courses. Up to one-half the units required may be accepted from another graduate division of the University of California. After enrollment, the student must initiate a formal petition for such credit and submit an original transcript. The acceptance of unit credit earned in another program must be recommended by the academic unit to which the student has been admitted and be approved by the Dean of the Graduate Division. No units of transfer credit will be given for any course in which a grade below B (3.0) or equivalent was assigned. Under no circumstances will grade credit be transferred.

A student currently enrolled in a master's degree program or on a leave of absence may receive unit credit (not grade credit) for graduate-level work completed at another institution or through University Extension only with the prior approval of the departmental graduate advisor and the Dean of the Graduate Division. No transfer credit will be given for any course in which a grade below B or equivalent is received.

A student who begins graduate study at UCI in the fall quarter will receive appropriate credit for courses taken in preceding UCI summer sessions, provided that the formal date of admission precedes summer session enrollment. Continuing graduate students will receive credit for courses taken in intervening UCI summer sessions.

Graduate Degrees

Master's Degrees

The master's degree is conferred at the end of the academic quarter in which all requirements have been satisfied, subject to the final approval of the Graduate Council. The student must be advanced to candidacy for the degree prior to the beginning of the final quarter of enrollment. Therefore, an application for advancement to candidacy, initiated by the student and approved by the academic unit, should be submitted to the Dean of the Graduate Division at least 30 days before the opening of the quarter in which the degree is expected.

The Master of Arts (M.A.) or Master of Science (M.S.) degree normally is attained by one of two routes: Plan I, the thesis option; or Plan II, the comprehensive examination option. Both require a minimum of one year in residence, satisfactory completion of prescribed course work, and an appropriate demonstration of achievement. Plan I includes a minimum of seven courses (28 units), 20 units or more of which must be at the graduate level; a thesis; and a general examination. Plan II requires at least nine courses (36 units), including 24 units or more at the graduate level, and a comprehensive examination covering a broad range of subject matter in the discipline. Only approved 200-series courses completed while in residence at the University satisfy the minimum graduate course requirement. Some programs will have course requirements exceeding the minimums cited above and may have additional or alternative degree requirements. Please refer to the description of the specific program for more information.

Master of Fine Arts (M.F.A.) degrees are awarded by the Claire Trevor School of the Arts (M.F.A. in Dance, Drama, Fine Arts, Music, or Studio Art) and by the Program in Creative Writing (M.F.A. in English) upon successful completion of the equivalent of two years or more of full-time study with an emphasis upon creative expression and professional development. Special thesis or comprehensive examination requirements are established for these programs.

Master of Arts in Teaching (M.A.T.) degrees are awarded upon successful completion of programs designed for the professional development of elementary and secondary school teachers. A minimum of one year in residence is required, usually including summer session course work. A thesis project or other comparable evidence of professional attainment is part of each M.A.T. program.

Master of Business Administration (M.B.A.) degrees are awarded by The Paul Merage School of Business upon successful completion of the equivalent of two years of full-time study in the development of professional managerial skills.

Master of Advanced Study (M.A.S.) degrees are awarded by the School of Social Ecology in Criminology, Law and Society upon successful completion of 52 units of course work in the broad areas of criminal justice, including corrections, probation, criminal prosecution, defense, and civil law. The program is fully online with the exception of a required one-week in-residence course during the first fall quarter.

Master of Professional Accountancy (M.P.Ac.) degrees are awarded by The Paul Merage School of Business upon successful completion of 44 units of course work including core courses and electives.

Master of Public Health (M.P.H.) degrees are awarded by the Program in Public Health upon successful completion of 60 units of course work including core courses, electives, and courses in the student's emphasis.

Master of Public Policy (M.P.P.) degrees are awarded by the School of Social Ecology upon successful completion of 72 units of course work including core courses and electives. Students also participate in a policy-relevant internship in an appropriate government, business, or nonprofit setting.

Master of Science (M.S.) in Nursing Science degrees are awarded by the Program in Nursing Science upon successful completion of 68–71 units of course work, depending on the student's chosen area of specialization, as well as 720 hours of clinical practice in the student's area of emphasis to be eligible for certification.

Master of Urban and Regional Planning (M.U.R.P.) degrees are awarded by the School of Social Ecology upon successful completion of the equivalent of two years of full-time study in contemporary methods of planning and policy analysis.

Doctor of Philosophy Degree

The Doctor of Philosophy (Ph.D.) degree is awarded on the basis of evidence that the recipient possesses knowledge of a broad field of learning and expert mastery of a particular area of concentration within it. The research dissertation is expected to demonstrate critical judgment, intellectual synthesis, creativity, and skill in written communication.

Students are required to advance to candidacy for the doctorate, and to complete all requirements for the doctoral degree, within the normative time specified by the individual graduate program. Students who fail to complete the degree within the normative time limit for their program shall be deemed as not making satisfactory academic progress, and will not be qualified to continue to receive non-instructional University resources (e.g., financial aid,

teaching assistantships, student housing). Normative time-to-degree parameters for each doctoral program are indicated in the academic unit sections of this *Catalogue*. Students who fail to complete the degree within the maximum time-to-degree limit for their program shall not be permitted to enroll. For details see the section on Academic Disqualification.

The candidate for the Ph.D. is expected to be in full-time residence for at least six regular academic quarters. Four to six years of full-time academic work beyond the bachelor's degree typically is required to complete the degree. At the end of the first year or so of full-time study, many programs administer a preliminary examination on the student's mastery of fundamental knowledge in the discipline. Upon successfully demonstrating a high level of scholarship on this examination and after further study, the student will continue to a series of qualifying examinations which lead to formal advancement to candidacy for the Ph.D.

Graduate students ordinarily attain candidacy status for the Ph.D. degree when all preparatory work has been completed, when qualifying examinations have been passed, and when they are ready for the dissertation phase. Students are recommended for advancement to candidacy by unanimous vote of the candidacy committee nominated by the academic unit and appointed by the Dean of the Graduate Division on behalf of the Graduate Council. The Report of the Ph.D. Candidacy Committee (Form I) must be signed by the committee at the time the candidacy examination is concluded and submitted to the Dean of the Graduate Division. Following a unanimous favorable vote of the committee, the student will be advanced to candidacy upon payment of the $90 Candidacy Fee. Candidacy for the Ph.D. will lapse automatically if the student loses graduate standing by academic disqualification or failure to comply with the University policy on continuous registration. A readmitted student who was a candidate for the Ph.D. must again advance to candidacy and thereafter enroll as a candidate for at least one academic quarter before the Ph.D. may be conferred.

Following advancement to candidacy for the Ph.D., a doctoral committee nominated by the academic unit chair and appointed by the Dean of the Graduate Division on behalf of the Graduate Council, supervises the student's program, approves the dissertation, and conducts the final oral examination if required. The chair of the doctoral committee is the member of the faculty responsible for providing primary guidance of the student's dissertation. Ordinarily, the final examination will be given just prior to completion of the dissertation and while the student is in residence during a regular academic session. The final examination, or defense, is open to all members of the academic community. All student committees must conform to policy approved by the Graduate Council in effect at the time of examination. Ph.D. degrees are conferred, subject to the final approval of the Graduate Council, as of the last day of the regular academic quarter in which all requirements have been satisfied.

Theses and Dissertations

Candidates for the Ph.D., Ed.D., and certain master's degrees must conduct an extensive research project and submit a dissertation or thesis in order to fulfill degree requirements. Research expenses are not supported by the University, and the cost of preparing the dissertation or thesis ordinarily ranges from $200 to $1,000, but may be considerably more.

After approval by the doctoral or thesis committee appointed for each candidate by the Dean of the Graduate Division, on behalf of the Graduate Council, doctoral and master's students must file their dissertation or thesis with the UC Irvine Library Special Collections and Archives, via the electronic dissertation or thesis submission process (a paper process is also available). Generally, dissertations and theses are made available for public access unless an embargo has been requested for a specific period of time. The final copy must meet the University's requirements for style, format, and appearance before the degree can be conferred. See the *UCI Thesis and Dissertation Manual* for information about the preparation of manuscripts. All doctoral students are required to submit an Exit Survey and a Survey of Earned Doctorates prior to the awarding of their degree.

Dissertations and theses must be filed by the deadline published on the Graduate Division (http://www.grad.uci.edu/academics/filing%20deadlines) website in order for them to be reviewed and accepted in time for the degree to be conferred in that quarter.

Those students who complete requirements and submit theses/dissertations after the end of the tenth week of classes and prior to the start of the subsequent quarter will earn a degree for the following quarter, but *will not* be required to pay tuition and fees for that quarter. Please note that in order to avoid payment of tuition and fees, manuscripts, all forms, and degree paperwork must be submitted prior to the first day of the quarter in which the degree is to be earned. Students should note that this does not apply if the thesis/dissertation is submitted after the deadline for spring quarter degrees. Students who submit after the spring deadline are required to either enroll in Summer Session or pay the Filing Fee if they have not done so previously.

The Filing Fee

Under certain circumstances, a student who has advanced to candidacy for a graduate degree may be eligible to pay a Filing Fee equal to half of the Student Services Fee in lieu of registration for any academic term including summer, subject to the approval of the Dean of the Graduate Division. International students who wish to go on Filing Fee status must, in addition, secure approval to do so from UCI's International Center. In general, all requirements for a degree must have been satisfied prior to the start of the quarter, except for the submission of the final version of the dissertation or thesis, or the completion of a final oral or comprehensive examination. A student on Filing Fee status may not make use of any University resource, hold any academic appointment, or receive any student service for which official registration and payment of regular tuition and fees is a requirement. A Filing Fee will not be accepted immediately following readmission nor immediately following a leave of absence except under exceptional circumstances. The date for payment of the Filing Fee is the same as that for the payment of other student fees. If all degree requirements are not completed during the academic term in which the Filing Fee is paid, the student must subsequently register and pay all applicable tuition and fees. Students may only utilize the filing fee option for one academic quarter during their graduate studies. Additional quarters are not allowed regardless of whether the student changes academic programs.

Nonresident Supplemental Tuition

Nonresident doctoral students who have advanced to candidacy are eligible for a 100 percent reduction in the annual Nonresident Supplemental Tuition for a maximum of three consecutive calendar years including time on leave of absence. Reduced Nonresident Supplemental Tuition begins with the first academic term following advancement to candidacy. Any nonresident student who continues to be enrolled, or who re-enrolls following the three-year maximum allowance, will be charged the full Nonresident Supplemental Tuition rate that is in effect at that time of enrollment.

Conferral of Graduate Degrees

Prior to the beginning of the quarter in which an advanced degree is to be conferred, the student must have advanced to candidacy for that degree and should have received formal notice confirming candidacy from the Dean of the Graduate Division. The student should consult the departmental faculty graduate advisor to determine which degree requirements, if any, have not yet been satisfied.

Students are advised by mail when their diplomas are available, which is approximately six months after the quarter in which the degrees are awarded.

Graduate Hooding Ceremony. Students completing a Ph.D., Ed.D., or M.F.A. are eligible to walk in the Graduate Hooding Ceremony. Students are required to meet all filing deadlines (http://www.grad.uci.edu/academics/filing%20deadlines) and satisfy degree requirements (http://www.grad.uci.edu/academics/degree-completion) in order to participate in the ceremony. Registration for eligible students opens in February. Inquiries about the Graduate Hooding Ceremony may be directed to gradcomm@uci.edu, and details are available at the Graduate Hooding Ceremony (http://www.grad.uci.edu/cascade/academics/commencement) website.

Financial Assistance for Graduate Students

Several types of financial assistance are available to graduate students at UCI. These include fellowships, teaching and research assistantships, tuition fellowships for nonresident students, grants-in-aid, and student loans.

All domestic graduate students are encouraged to submit the *Free Application for Federal Student Aid* (FAFSA) each year to access state and federal grants and loans. It is available at the FASFA (http://www.fafsa.ed.gov) website or in the Office of Financial Aid and Scholarships after January 1, with a submission deadline of March 2 each year. The Financial Aid (p. 47) section in this *Catalogue* and the Office of Financial Aid and Scholarships (http://www.ofas.uci.edu/content) website contain information about assistance based upon financial need that is administered by the Office of Financial Aid and Scholarships.

Applicants interested in assistantships or fellowships should so indicate on their application when applying for admission. Many graduate programs have a deadline for completed graduate applications of January 15; however, many graduate programs have earlier, or later, deadlines. Students should contact the academic program to which they are applying for accurate deadlines, particularly to receive full consideration for fellowship and assistantship awards. Continuing students interested in an assistantship or fellowship should contact the graduate advisor for their academic program. The awarding of fellowships to incoming students for the following academic year begins in the winter quarter.

UCI subscribes to the agreement of the Council of Graduate Schools of the United States, under which successful applicants for awards of financial support are given until April 15 to accept or decline such awards. An award accepted from one of the member universities may be resigned at any time through April 15. However, an acceptance given or left in force after that date commits the student to not accepting another appointment without first obtaining formal release for that purpose from the awarding institution.

Regents', UCI Chancellor's Fellowships, and other merit-based fellowships are awarded by some schools to a number of promising students entering graduate study at UCI leading to the Doctor of Philosophy or Master of Fine Arts degree. Awards may include a stipend, all required tuition and student fees, and, if applicable, Nonresident Supplemental Tuition. Other fellowships are offered, including tuition awards for outstanding applicants who are not residents of California. In many cases, fellowship stipends may be supplemented by partial assistantship appointments. Fellowship awards are typically made by the student's academic unit.

Entering or continuing graduate students may be awarded research or teaching assistantships for all or part of the academic year. The types of assistantships, number available, and required duties vary according to the activities of the academic unit. A graduate assistant who is not a California resident also may receive a tuition fellowship. While enrolled as a graduate student at UCI, students are limited in their employment with the University to no more than 50 percent time during each academic quarter. Fellowship support as well as research or teaching assistantships all require students to maintain satisfactory academic progress as defined by UC and UCI policy as well as by their academic units.

Through the Graduate Division's diversity programs, a number of diversity fellowships are awarded to entering and continuing domestic graduate students who may have been disadvantaged in higher education. Departments nominate candidates on the basis of their merit and contribution to the diversity of the department or discipline, as well as demonstrated scholastic achievement, full-time status, and U.S. citizenship or permanent residency. Individuals from diverse cultural, geographic, and socioeconomic backgrounds are especially encouraged to apply to UCI's graduate programs. In conformance with State law, applicants may not be given preferential treatment on the basis of race, ethnicity, gender, religion, or national origin.

Claire Trevor School of the Arts

Stephen F. Barker, **Interim Dean**

Arts Student Affairs
101 Mesa Arts Building; 949-824-6646
http://www.arts.uci.edu/

The Claire Trevor School of the Arts is one of the nation's most acclaimed and innovative centers for the creation, performance, and study of the arts within the context of their history and theory. The School consists of four departments, including Art, Dance, Drama, and Music, offering undergraduate B.A., B.F.A., and B.M. degrees, and M.F.A. degrees in all four disciplines. The Drama Department offers a doctorate in Drama and Theatre, jointly with UC San Diego. The School also offers a minor in Digital Arts.

The School's departments are located near each other in the Arts Plaza, providing possibilities for daily interaction among students and faculty in all Arts disciplines. Facilities in the School include studios and technologically enhanced classrooms, four theatres, a theatre/concert hall, the University Art Gallery, the Donald R. and Joan F. Beall Center for Art and Technology, the Gassman Electronic Music Studio, the Motion Capture Studio, the Arts Media Center, the Arts Computing Laboratory, the Digital Arts Teaching and Research Laboratories, a television studio, professionally managed and staffed production shops, and publicity and box offices supporting the School's extensive production, performance, and exhibition schedule.

The Steven Ehrlich-designed Contemporary Arts Center, the latest major expansion of the School, provides 59,000 new square feet of technology-driven instructional and research spaces, as well as a new 4,000-square-foot gallery and a "black-box" performance space. Along with its new motion-capture studio, these facilities enhance the School's and UCI's place at the forefront of these fields.

Arts students regularly participate in dance and drama productions, choirs, instrumental ensembles, and art exhibitions. Students from other academic areas are also eligible to participate in many of these activities and are encouraged to do so. Some of the School's productions take place in the Irvine Barclay Theatre located on the UCI campus.

The artists, performers, and scholars of the Arts faculty are regularly augmented by distinguished artist/teachers featured in numerous School activities.

Students receive assistance with program planning and a variety of other services from the professional and student-support staff in the School's Office of Student Affairs; the staff also assist the faculty in providing academic counseling to Arts students.

Degrees

Art	B.A., M.F.A.
Dance	B.A., B.F.A., M.F.A.
Drama	B.A., M.F.A
Drama and Theatre	Ph.D.[1]
Music	B.A., B. Mus., M.F.A.
Music Theatre	B.F.A.

1 UCI and UCSD joint program.

Change of Major

Students wishing to change to an Arts major should contact the Arts Student Affairs Office for information about change-of-major requirements, procedures, and policies. Additionally, students should refer to the Change of Major Criteria (http://www.changeofmajor.uci.edu) website for more information.

Special Programs of Study

Minor in Religious Studies

The interdisciplinary minor in Religious Studies focuses on the comparative study of religions in various cultural settings around the world. The curriculum seeks to provide a wide-ranging academic understanding and knowledge of the religious experience in society through study in the Schools of Humanities, Social Science, Social Ecology, and the Arts. See the School of Humanities (p. 951) section for additional information.

Campuswide Honors Program

The Campuswide Honors Program is available to selected high-achieving students from all academic majors from their freshman through senior years. For more information contact the Campus-wide Honors Program, 1200 Student Services II; (949) 824-5461; honors@uci.edu; or visit the Campuswide Honors Program (http://www.honors.uci.edu) website.

UC Education Abroad Program

Upper-division and, in some cases, graduate students have the opportunity to experience a different culture while making progress toward degree objectives through the University's Education Abroad Program (UCEAP). UCEAP is an overseas study program which operates in cooperation with host universities and colleges throughout the world. For additional information visit the Study Abroad Center (http://www.studyabroad.uci.edu) website.

Honors

Students who have distinguished themselves academically will be considered for honors at graduation. General criteria are that students must have completed at least 72 units in residence at a University of California campus and must have a cumulative grade point average of 3.5 or better, including the grades from the final quarter. In keeping with the Academic Senate Resolution, no more than 12 percent of the graduating seniors may receive such academic honors. Other important factors are considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext). Individual departments may offer other special honors to students who have excelled in their major subject.

Creative Connections Opportunities

Arts Outreach at the Claire Trevor School of the Arts partners with local school districts, arts organizations, and community centers to share the School's talents and knowledge beyond the UCI campus. One such outreach program is Creative Connections, which provides exceptional opportunities for School of the Arts students to earn valuable practical experience in K–12 classrooms and in community settings. Projects range from integrating arts into core curriculum in K–6, to workshops in the arts for middle and high schools, to college application mentorship for high school juniors and seniors interested in arts majors. One to four units of independent study credit are available, and in some cases stipends may be available. All Claire Trevor School of the Arts students who hold a minimum 3.0 GPA may apply for these programs.

Scholarships

The Claire Trevor School of the Arts has some scholarship monies available to incoming and to continuing students on both the undergraduate and graduate levels.

Edna Helen Beach Scholarship: Provides $1,000 per year for two years for an incoming freshman student, and $1,000 for one year for an incoming transfer student. Recipient must be gifted and talented, and will be selected from eligible students with special emphasis on those from underprivileged backgrounds who would not otherwise be able to attend a major research institution.

Steven Criqui Memorial Scholarship: Up to $2,375 awarded to outstanding undergraduate students majoring in Art or Art History with financial need.

Kris and Linda Elftmann Scholarship: Up to $3,000 awarded to an outstanding student.

Leo Freedman Graduate Fellowship: For outstanding applicants from Orange County, California, preferably from Anaheim; two fellowships of approximately $7,000 each for the academic year.

Ann and Gordon Getty Foundation Music Scholarship: Up to $500 awarded to students majoring in Music.

William J. Gillespie Foundation Scholarships: Several scholarships in varying amounts, awarded to outstanding Dance majors.

Alice Lowell Memorial Scholarship: For students majoring in Music.

Steve Lyle Memorial Scholarship: $2,000 awarded to continuing students in Drama; selected by application and recommendation.

Margie McDade Memorial Scholarship: For students majoring in Music and studying piano.

Shiela K. and James J. Peterson Community Spirit Scholarships: $1,500–$3,000 awarded to students with financial need and who have contributed to community services.

Marjorie and Robert Rawlins Scholarship: For full-time students majoring in Music and studying piano, violin, viola, or cello.

Frederick Reines Music Scholarship: For students majoring in Music and studying voice.

Harry and Marjorie Ann Slim Memorial Scholarship: For students majoring in Music.

Winifred W. Smith Scholarship: For students majoring in Music and studying cello, violin, or piano (preferably cello).

Elizabeth and Thomas Tierney Scholarship: Up to $3,000 awarded annually to an outstanding student.

UCI Town and Gown Music Scholarships: For students majoring in Music.

Phyllis Kovach Vacca Memorial Scholarship: For students majoring in Music and studying cello, piano, or violin.

Bette and Steven Warner Scholarship: For outstanding students in the Music Department's voice program and the Drama Department.

H.B. and Isabelle Yolen Memorial Scholarship: Up to $2,000 awarded to students majoring in Art or Drama with financial need.

Undergraduate Programs

Refer to the Departments of Art, Dance, Drama, and Music for detailed information about the undergraduate programs.

Requirements for the Bachelor's Degree

All students must meet the University Requirements (p. 71).
School Requirements: None.
Departmental Requirements: Refer to individual departments.

Graduate Program

The primary endeavor of the Claire Trevor School of the Arts is the creative act. Research activities are pursued both as an end in themselves and as a source that can inform both performance and the studio experience. The intellectual activity of theoretical, literary, and historical courses complements the practical work in studio workshops and performance. The aim of the M.F.A. programs in Art, Dance, Drama, and Music is, thus, to produce artists literate in both traditional and digital media who are disciplined, responsive to intellectual stimuli, and capable of integrating existing knowledge into creative projects. The UCI-UCSD joint doctoral program in Drama and Theatre provides opportunity for significant crossover research and teaching between the two campuses in a wide range of areas in drama and the theatre. It is the strong belief of the UCI Claire Trevor School of the Arts that intellectual integrity and creative excellence cannot exist without each other.

Refer to the Departments of Art, Dance, Drama, and Music for detailed information about the graduate programs.

Admission to the Program

Applications are accepted for fall quarter admission only, and ordinarily must be completed by January 15 for the Ph.D. in Drama and Theatre, the M.F.A. in Art, the M.F.A. in Dance, and the M.F.A. in Music, and by March 1 for the M.F.A. in Art with a concentration in Critical and Curatorial Studies. The number of graduate students that can be admitted to the Claire Trevor School of the Arts is limited. Applicants are advised to arrange for auditions, interviews, and the submission of portfolios, compositions, and dossiers by the appropriate deadlines. Students applying for scholarships and fellowships should do so by January 15, and are also encouraged to apply for financial assistance through the Office of Financial Aid and Scholarships. The Claire Trevor School of the Arts has a modest number of teaching assistantships available in all areas, and all candidates are automatically reviewed for teaching assistantship positions; the School informs successful candidates by June 1 for the following academic year.

Upon admission to the program the student is assigned an advisor. Students should discuss with their advisor the scope of undergraduate preparation to determine any areas which may need strengthening if full benefit from graduate study is to be derived.

Courses

ARTS 1. ArtsCore. 4 Units.
An introduction to the arts in general, and to the arts at UCI. Concentration on (1) the interdisciplinary nature of the arts, and (2) the content of particular arts disciplines.

(IV)

ARTS 75. Digital Media: Exhibition. 4 Units.
A discussion and critique course in all media arts. Includes a review of key media arts concepts and the preparation of an end-of-quarter exhibition.

Prerequisite: (ARTS 11 and ARTS 12 and ARTS 50 and ARTS 60) and proposal submission.

ARTS 80. Art, Technology, and Science. 4 Units.
Explores development and impact of art and computer technology on society and culture from nineteenth century to present. Covers history of moving images, time-based and experimental media arts viewed in conjunction with progression of science and digital technologies.

(II or IV).

ARTS 100A. The Senior Thesis. 4 Units.
Planning, drafting, writing, and presentation of an academic thesis. Open to students who will interrelate two or more artistic disciplines, and to Campuswide Honors Program students who will focus their thesis on one or more major areas in the Arts.

Restriction: School of the Arts majors only.

ARTS 100B. The Senior Thesis. 4 Units.
Planning, drafting, writing, and presentation of an academic thesis. Open to students who will interrelate two or more artistic disciplines, and to Campuswide Honors Program students who will focus their thesis on one or more major areas in the Arts.

Prerequisite: ARTS 100A.

Restriction: School of the Arts majors only.

ARTS 100C. The Senior Thesis. 4 Units.
Planning, drafting, writing, and presentation of an academic thesis. Open to students who will interrelate two or more artistic disciplines, and to Campuswide Honors Program students who will focus their thesis on one or more major areas in the Arts.

Prerequisite: ARTS 100B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: School of the Arts majors only.

ARTS 173. Athletics Bands . 1-2 Units.
Bands support athletics events. Includes Pep Band: Rehearsal and performance of band standards; Marching Band: Exercises and performance involving marching fundamentals, formations, and half-time pageantry; and, Drumline: Study and rehearsal of rudiments, cadences, and arrangements.

Repeatability: Unlimited as topics vary.

ARTS 199. Independent Study. 1-4 Units.
Individual study or directed projects as arranged with faculty member.

Repeatability: May be repeated for credit unlimited times.

Department of Art

3229 Art, Culture and Technology Building; (949) 824-6648
http://www.arts.uci.edu/
David Trend, **Department Chair**

The Department of Art takes a wide-ranging, interdisciplinary view of contemporary art practice. The Department emphasizes a demanding, conceptual approach to work in process in addition to traditional notions of product. Students are encouraged to develop an individual, disciplined direction through an experimental approach to media, materials, and techniques. To further this end, the curriculum provides studio experiences in drawing, painting, sculpture, ceramics, photography, digital imaging, and video, in addition to emphasizing cultural studies in relation to contemporary practice. Visiting artists and theorists who teach on a quarterly basis, or who make shorter guest appearances, are an integral part of the program.

The University's Education Abroad Program offers students the opportunity to study abroad. Graduate-level study also is available.

Careers for the Art Major

Departmental faculty and the range of artists whose work is represented in the University Art Gallery exhibitions provide diverse career models. Some graduates go on to careers as exhibiting artists or teachers; others work in arts-related activities in museums, galleries, and artists' organizations. A bachelor's degree in Art is usually required as preparation for graduate-level study in Art.

Requirements for the B.A. Degree in Art

All students must meet the University Requirements (p. 71)**.**

School Requirements: None.

Departmental Requirements for the Major

ART 1A	Art in Context: History, Theory, and Practice
ART 1B	Art in Context: History, Theory, and Practice
ART 1C	Art in Context: History, Theory, and Practice (ART 1A, ART 1B, and ART 1C all taken the first year in residence.)
ART 9A	Visual Culture: Media, Art, and Technology
ART 11A	History of Contemporary Art
Select one of the following:	
ART HIS 40A	Ancient Egyptian, Greek, and Roman Art and Architecture
ART HIS 40B	Arts of Europe: Medieval and Renaissance
ART HIS 40C	Early Modern and Modern Art in Europe and America

ART HIS 42A	History of Asian Art: Arts of India
ART HIS 42B	History of Asian Art: Arts of China
ART HIS 42C	History of Asian Art: Arts of Japan
ART HIS 42D	History of Asian Art: Arts of Islam
Select four of the following:	
Lower-division ART 20–99	
Select six of the following:	
Upper-division ART 100–115 (no more than three in this category),	
Upper-division ART 130–195 (minimum of three in this category);	
Select two of the following:	
Issues courses from ART 116–129	

Sample Program for Freshmen

Freshman		
Fall	**Winter**	**Spring**
ART 1A	ART 1B	ART 1C
Art History	Lower-Div. Art	Lower-Div. Art
WRITING 39B	General Education	General Education
Lower-Div. Art	WRITING 39C	General Education

Honors in Art

The Honors in Art program gives qualifying students a more rigorous course of study in contemporary art practices, thus challenging superior students beyond the scholarly requirements demanded of the Art major. This program is designed to further develop students' critical, analytical, research, and technical skills. It is particularly suited to those wishing to go on to graduate school and/or exhibition careers.

Eligibility Requirements

1. One year in good standing as an Art major;
2. An overall GPA of 3.2 or higher with a GPA of at least 3.4 in ART courses.
3. Completion of:

ART 1A	Art in Context: History, Theory, and Practice
ART 1B	Art in Context: History, Theory, and Practice
ART 1C	Art in Context: History, Theory, and Practice
Four lower-division courses selected from ART 20–99	
One Art History course from either the ART HIS 40 or 42 series.	

Application Deadline

The annual application deadline is May 15. Late applications will not be accepted.

Application Requirements

All applications must include

1. A disc containing 10 jpegs of recent work (jpeg files only, scaled to 8" x 10" and no larger than 5MB each) and/or a DVD of 2–3 minute clips of video or temporal work (mov files only);
2. A printed sheet listing titles and descriptions of work submitted;
3. A brief statement (250 words maximum) of research and career goals; and
4. UCI transcript (downloadable from StudentAccess).

Applicants must test their discs prior to submission to ensure that they work properly; discs that are not viewable will be disqualified. The applicant's name, UCI student ID number, and e-mail address must be printed legibly on all submitted materials. Materials must be placed in a large envelope and submitted to the Department of Art Administrative Office (ACT 3229) by the deadline.

Admission to the honors program is competitive. Students may be admitted as early as the spring quarter of their sophomore year but no later than the spring quarter of their junior year. Application finalists will be asked to schedule a portfolio review with the Art Undergraduate Committee before the end of spring quarter instruction. All applicants will be notified of their status no later than the end of spring quarter finals week.

Students accepted into the Honors Program will be given access to studio space to use during the academic year. Honors students must abide by the Space Use and Safety Policy and sign the Agreement for Use of Studio Space before occupying the studio space. GPAs of Honors students will be reviewed each quarter to ensure programmatic requirements.

Beyond fulfilling regular courses for the Art major, honors students must take the following:

Select two additional courses from the following: ART 100–191, 199;	
Select one ART HIST course of the student’s choosing; and	
Complete ART 198.	

This latter course is to prepare students for a mandatory, group interdisciplinary honors gallery exhibition to take place during either the winter or spring quarter of the student's matriculating year, at which time students will defend their thesis work to faculty on the Undergraduate Committee.

NOTE: Students may be assessed a course materials fee for certain courses. Consult the online *Schedule of Classes* on the Registrar's (http://www.reg.uci.edu) website for the most up-to-date information about which courses require a materials fee and the amount of the fee.

Minor in Digital Arts

Jesse C. Jackson, **Director**

The minor in Digital Arts provides opportunities to explore creativity through digital media arts. This program is open to students from all areas of UCI who want to acquire a working knowledge of how digital media content is conceived, constructed, and performed. In the studio, students receive hands-on experience with current software tools, creating and sharing digital media art projects, developing an appreciation of digital media aesthetics and conceptual design, and learning the fundamentals of desktop video, audio, and Web authoring software applications. Lectures and discussions examine how today’s pervasive digital culture evolves through interdisciplinary collaborations among artists, engineers, scientists, and scholars. Course work considers relationships between digital media practices, touching on such areas as social networking, video/audio podcasting, interface design, digital music, telematic performance, intelligent agents, virtual realities, artificial life, and ubiquitous computing. The program investigates critical issues related to emerging technologies and the arts, and surveys recent works by leading digital media artists.

Prospective students should have basic proficiency with Web, e-mail, word processing, and presentation software. It is highly recommended that students have their own computer. Further information is available at the Digital Arts Minor (http://digital.arts.uci.edu) website.

Requirements for the Minor

The Minor in Digital Arts consists of a minimum of eight courses which fall into two categories: I. Required and II. Elective.

I. Required	
ARTS 1	ArtsCore
ART 12A	Art, Design, and Electronic Culture
ART 12B	Art, Science and Society: Steam to Steampunk
ART 50A	Matter and Media
ART 50B	Interaction and Experience
ART 50C	Digital Media: Interaction Design
II. Elective	
Select two of the following:	
ART 65A	Foundations in Media Design
ART 65B	Foundations in Internet Art and Design
ART 81A	Video Production
ART 81B	Video Stage Production
ART 100	Special Topics in Art
ART 106A	Programming for Artists
ART 106B	Game Studies
ART 106C	Design for Print
ART 130A	Projects in New Technologies
ART 143	Projects in Computer Painting
ARTS 75	Digital Media: Exhibition
DANCE 163	Dance and Video Technology

DANCE 164	Screendance
MUSIC 51	Music Technology and Computers
MUSIC 147	Studies in Music Technology
MUSIC 151	Computer Music Composition
MUSIC 152	Interactive Arts Programming

Each of these courses may be taken one time only for credit toward the minor (with the exception of topic-varies courses, e.g., ART 100 (http://catalogue.uci.edu/clairetrevorschoolofthearts)). No course in the requirements for the minor may be taken Pass/Not Pass.

Master of Fine Arts Program

Degree offered: M.F.A. in Art

A concentration in Critical and Curatorial Studies (p. 171) is available.

Graduate emphases in Feminist Studies and in Asian American Studies are also available. (Refer to the Department of Gender and Sexuality Studies (p. 891) section or the Department of Asian American Studies (p. 782) section of the *Catalogue* for information.)

General Information and General Degree Requirements

The program is designed to provide intensive professional training for independently motivated students wishing to pursue careers in the field of contemporary art. Rather than traditional ideas of subject and technique, experimental and interdisciplinary approaches to art making are emphasized. Students undergo a rigorous course of study combining seminar classes, intensive critique courses, and independent study. The seminars cover a range of critical issues dealing with the relationship of culture to contemporary art and are designed for students interested in theoretically positioning their art practices within an interdisciplinary framework. All incoming students must take the First-Year Graduate Seminar in preparation for further course work. As students progress in the program, they are required to take a series of additional seminars aimed at training them to develop research skills and a written component augmenting their culminating thesis exhibitions. Various approaches to developing text and word are considered, and students are encouraged to approach developing the thesis textual component following a path best suited to their postgraduate interests (e.g., critical writing, spoken word/performance, critical memoir, digital narrative structures).

The overall emphasis in the program, however, is on studio production. Throughout their three years, students must take a series of critique seminars. Work-in-progress, produced for the given quarter's critique class, is intensively discussed within a group context. Students must also, throughout their graduate careers, work each quarter on an independent basis with faculty of their choice and are encouraged to work with a range of faculty members. During the second year, students must select a thesis committee with whom they will work closely on the development of both thesis studio production and research interests. However, even after selecting their committee, students are still encouraged to work with a range of faculty on an independent basis in order to continue to respond to and reflect on a diversity of ideas and differing approaches to both studio production and art distribution systems. Throughout the first two years, students must also undergo a series of progress checks including open studio reviews and a second-year exhibition. Students are evaluated by faculty committees during their first and second years. Satisfactory opinion by these committees coupled with both satisfactory independent study evaluations and grades of at least a B or above will allow the student to progress to candidacy for the degree. During the third year, candidates must mount a thesis exhibition. In tandem with the final thesis exhibition, students are required to do a public presentation on their work as part of their final defense before their thesis committee.

During the first two years, students are required to take courses from a structured curriculum totaling 12 units each quarter. Beyond that, students can select additional course work from any sector of the Department or University including approved upper-division undergraduate courses. The third year is structured so that students can individualize their course of study through a wide selection of classes. For example, students wishing to focus primarily on studio production can do so through a combination of independent studies and critique classes, or students could design their third year to focus both on studio production and acquiring additional course work in a given research area or graduate emphasis.

The normative time to degree for students in the M.F.A. program is three years. Residence is required. The maximum time to degree is four years. Students who do not complete the degree in four years will be dropped from the program.

M.F.A. candidates are each provided with an individual studio space. Facilities include photography laboratories (analog and digital), video production studios, data laboratories, and sculpture laboratories for work in wood and metal. There are also facilities to support work in digital media, painting, performance, drawing, and ceramics. Students also have regular opportunities to exhibit in two galleries.

Various programs of visiting artists and lecturers are an integral part of the student experience. There is a public lecture series for which solicited graduate student input is considered an important component. Visiting artists, curators, critics, and gallerists are invited to give lectures and conduct studio visits with graduate students. Some Art faculty, in addition to their departmental appointment, are affiliated with other UCI and UC programs, e.g., Asian American Studies, African American Studies, Gender and Sexuality Studies, Engineering, Information and Computer Science, Critical Studies, Art History, the Calit2 Gaming Studies Initiative, and the UC Institute for Research in the Arts (UCIRA).

Admission

Applicants for admission to the M.F.A. program must meet the general requirements for admission to graduate study, hold a B.A. or B.F.A. in Art, have completed one year of twentieth-century art history (students who have not completed this will be required to do so as part of their graduate studies).

In addition, applicants to the MFA in Art must submit the following: (1) Artist Statement, (2) a portfolio of 20 images and/or other media samples to be uploaded at https://ctsa.slideroom.com, and (3) one copy of transcripts from the Undergraduate institution(s) attended. The TOEFL is required for foreign applicants. GRE scores are not required for any applicants. Application deadline is January 15.

Specific Degree Requirements

One hundred and eight units over a three-year course of study are required. Residency is required. Students must take a minimum of 12 units per quarter.

First Year:	
ART 210	First-Year Graduate Seminar
ART 215	Graduate Seminar Topics
or ART 251	Special Topics Seminar
ART 230	Graduate Group Critique (all three quarters)
ART 240	Interdisciplinary Projects (all three quarters)
ART 251	Special Topics Seminar
Second Year:	
ART 215	Graduate Seminar Topics
or ART 251	Special Topics Seminar
ART 230	Graduate Group Critique (two quarters)
ART 240	Interdisciplinary Projects (two quarters)
ART 251	Special Topics Seminar
ART 262	Graduate Thesis Independent Study
Third Year:	
ART 230	Graduate Group Critique
ART 261	Graduate Thesis Writing Seminar
ART 262	Graduate Thesis Independent Study (all three quarters)
ART 263	Graduate Thesis, Exhibition Critique
Two courses selected from the following:	
ART 215	Graduate Seminar Topics
ART 236	Graduate Topics in Studio Production
ART 250	Directed Reading and Research
ART 251	Special Topics Seminar
ART 255	Graduate Interdisciplinary and Collaborative Projects
ART 257	Curatorial Projects

Two courses selected from ART 215, ART 240, ART 251, ART 399, or outside 4-unit graduate courses (in any quarter).

Concentration in Critical and Curatorial Studies

The M.F.A. in Art with a concentration in Critical and Curatorial Studies trains the student to enter the interdisciplinary field of contemporary art. Upon graduating, the student will be well versed in debates that define art and visual culture from modernism to the present, capable of conceiving new models of contemporary exhibition and criticism, and expertly trained to execute professional, innovative projects in the field. The University Art Gallery plays a prominent role in the curriculum, serving as a “laboratory” for cultural research conducted by the Critical and Curatorial students. This concentration has a core faculty in the Departments of Art, Art History, Film and Media Studies, Comparative Literature, and the program in Visual Studies, who advise the student in the research and production of their final M.F.A. exhibition and accompanying publication. A written Master’s thesis is also required.

Admission

The criteria for admission is the same as the M.F.A. in Art admission criteria. In addition to the official application to the M.F.A. program, Critical and Curatorial applicants must include (in lieu of a portfolio): a letter of intent, a writing sample (in the form of an exhibition proposal or review), and a proposed project. The application deadline for this concentration is March 1.

Specific Degree Requirements

First Year:	
ART 210	First-Year Graduate Seminar
ART 215	Graduate Seminar Topics

or ART 251	Special Topics Seminar
ART 230	Graduate Group Critique
ART 240	Interdisciplinary Projects
ART 250	Directed Reading and Research
ART 280	Contemporary Exhibition Systems
ART 280A	Introduction to Exhibition Systems
and select two Art or Visual Studies electives	

Second Year:	
ART 215	Graduate Seminar Topics
ART 215	Graduate Seminar Topics
or ART 251	Special Topics Seminar
ART 230	Graduate Group Critique
ART 240	Interdisciplinary Projects
ART 250	Directed Reading and Research
ART 280	Contemporary Exhibition Systems
and select three Art or Visual Studies electives	

Third Year:	
ART 215	Graduate Seminar Topics
ART 230	Graduate Group Critique
ART 240	Interdisciplinary Projects
ART 262	Graduate Thesis Independent Study (all three quarters)
ART 264	Critical and Curatorial Thesis Exhibition
and select two Art or Visual Studies electives	

NOTE: Students may be assessed a course materials fee for certain courses. Consult the online *Schedule of Classes* on the Registrar's (http://www.reg.uci.edu) website at for the most up-to-date information about which courses require a materials fee and the amount of the fee.

Faculty

Kevin H. Appel, M.F.A. University of California, Los Angeles, *Professor of Art*

Juli C. Carson, Ph.D. Massachusetts Institute of Technology, *Professor of Art*

Miles C. Coolidge, M.F.A. California Institute of the Arts, *Professor of Art*

Tony Delap, Claremont Graduate University, *Professor Emeritus of Art*

Martha Gever, Ph.D. City College of the City University of New York, *Professor Emerita of Art*

Bryan Jackson, M.F.A. University of California, Los Angeles, *Lecturer of Art*

Jesse C. Jackson, M.A. University of Toronto, *Assistant Professor of Art*

Ulysses S. Jenkins, M.F.A. Otis Art Institute, *Professor of Art*

Antoinette Lafarge, M.F.A. School of Visual Arts, *Professor of Art*

Simon Leung, B.A. University of California, Los Angeles, *Professor of Art; Asian American Studies*

Joseph S. Lewis, M.F.A. Maryland Institute College of Art, *Dean of the Claire Trevor School of the Arts* and *Professor of Art*

Sandra T. Loh, B.S. California Institute of Technology, *Associate Adjunct Professor of Art*

Mara Jane Lonner, M.F.A. California Institute of the Arts, *Lecturer with Security of Employment of Art*

Catherine B. Lord, M.F.A. State University of New York at Buffalo, *Professor Emerita of Art*

Monica Majoli, M.F.A. University of California, Los Angeles, *Professor of Art*

Daniel J. Martinez, B.F.A. California Institute of the Arts, *Professor of Art*

Yong Soon Min, M.F.A. University of California, Berkeley, *Professor of Art; Asian American Studies; Culture and Theory* (minority, diasporic, and third cinemas; media, nationalism, and globalization; race, sexuality, and popular culture)

Gifford C. Myers, M.F.A. University of California, Irvine, *Professor of Art*

Deborah Oliver, M.F.A. California Institute of the Arts, *Lecturer of Art*

Jennifer Pastor, M.F.A. University of California, Los Angeles, *Professor of Art*

Simon G. Penny, M.F.A. Hong Kong University of Science and Technology, *Professor of Art; Informatics* (robotic sculpture, interactive environments, electronic media, art practice history, critical theory)

Litia T. Perta, Ph.D. University of California, Berkeley, *Assistant Professor of Art*

Yvonne Rainer, *Claire Trevor Professor* and *Professor Emerita of Art*

William S. Roberts, M.F.A. California Institute of the Arts, *Lecturer of Art*

Constance J. Samaras, M.F.A. Eastern Michigan University, *Professor of Art; Culture and Theory* (photography, contemporary visual art, gender studies, culture and technology)

Lowery S. Sims, Ph.D. The Graduate Center, City University of New York, *UCI Distinguished Professor of Art*

David K. Trend, Ph.D. Miami University, *Department Chair and Professor of Art*

Bruce N. Yonemoto, M.F.A. Otis Art Institute, *Professor of Art*

Courses

ART 1A. Art in Context: History, Theory, and Practice. 4 Units.
First in a three-quarter foundation sequence introducing students to a broad range of contemporary art, media, and practices in relation to their twentieth-century cultural and historical antecedents. ART 1A deals specifically with contemporary painting and photography.

Restriction: Art majors have first consideration for enrollment.

(IV)

ART 1B. Art in Context: History, Theory, and Practice. 4 Units.
Deals with film/video/performance. Concerned with the development of modern/contemporary film, video, and performance, with a focus on experimental and avant-garde production from the early twentieth-century to today.

Restriction: Art majors have first consideration for enrollment.

(IV)

ART 1C. Art in Context: History, Theory, and Practice. 4 Units.
Third in a three-quarter foundation sequence introducing students to a broad range of contemporary art, media, and practice in relation to their twentieth-century cultural and historical antecedents. Deals specifically with space and cyberspace.

Restriction: Art majors have first consideration for enrollment.

(IV)

ART 9A. Visual Culture: Media, Art, and Technology. 4 Units.
Examines creative activities in all spheres of life, including the "artistic" impulses that dwell in the individual. Culture is addressed in broad terms of the many institutions and cultural forces that shape everyday activities of listening, seeing, doing.

Restriction: Art majors have first consideration for enrollment.

(IV)

ART 9B. Visual Culture: A Culture Divided. 4 Units.
Throughout the 1980s and 1990s controversies flourished in the mainstream media over purportedly obscene art, anti-American writing, and moral decay, among other issues. Examines these new conflicts as they manifest themselves in public life and everyday experience.

Restriction: Art majors have first consideration for enrollment.

(IV)

ART 9C. Visual Culture: Thematic Investigations. 4 Units.
Considers a broad range of concerns and questions raised by various acts of appropriation in contemporary art and visual culture, such as originality, authenticity, authorship, translation, audience and aesthetics, temporal dimensions of a work, and context.

Restriction: Art majors have first consideration for enrollment.

(IV)

ART 11A. History of Contemporary Art. 4 Units.
Surveys mid-nineteenth and twentieth-century art production, from modernity through post-modernity, in a historical and cultural context.

Prerequisite: ART 9A.

Restriction: Art majors only.

ART 11B. Media Art and Design History. 4 Units.
Survey of the roots of modern techno-media arts in both the history of visual arts and the history of devices such as automata, animatronics, robots, miniature theatres, optical machines, communications technologies, calculators, and computers.

Restriction: Art majors only.

ART 12A. Art, Design, and Electronic Culture. 4 Units.
Introduction to historical and theoretical foundations of digital media art, tracing how information technologies seeded growth of new expressive medium. Considers how today's pervasive digital culture evolved through interdisciplinary collaborations between artists, engineers, scientists, scholars. Course may be offered online.

(IV)

ART 12B. Art, Science and Society: Steam to Steampunk. 4 Units.
An overview of current practice and research in digital media art. Examines the effects of recent technological, scientific, cultural, and political developments. Addresses the increasing overlap of artistic and scientific practices and issues related to new and emerging technologies.

(IV)

ART 20A. Basic Drawing I. 4 Units.
Encourages an investigation of the premises and limits of drawing, primarily, but not inevitably, as a two-dimensional medium. Includes slide presentations and discussions of the historical uses of a wide range of drawing.

Restriction: Art majors have first consideration for enrollment.

ART 20B. Basic Drawing II. 4 Units.
Continuation of the investigation initiated in ART 20A, with an emphasis on experimentation, personal investigation, and development of conceptual working premises, as well as the acquisition of necessary skills. Group discussion and critique are emphasized.

Prerequisite: ART 20A or ART 20.

Restriction: Art majors have first consideration for enrollment.

ART 30A. Basic Painting I. 4 Units.
Examination of the fundamental components of painting: color, form, space, surface, scale, and content. Studio work, slide presentations, and critiques of student work.

Restriction: Art majors have first consideration for enrollment.

ART 30B. Basic Painting II. 4 Units.
Further examinations of the essential qualities of painting: color, form, space, surface, scale, and content. Studio work, slide presentations, and critiques of student work.

Prerequisite: ART 30A.

Restriction: Art majors have first consideration for enrollment.

ART 40. Basic Sculpture. 4 Units.
The practice of sculpture in the contemporary arts; inclusion of spatial interventions, site-specific and environmental design, appropriation of found materials; techniques in cutting joining, and assembly of wood, metals, and plastics. May include casting, welding, and ceramics. Materials fee.

Restriction: Art majors have first consideration for enrollment.

ART 50A. Matter and Media . 4 Units.
A project-based introduction to tools and approaches for creating and sharing digital media content within Internet-mediated social environments, with a particular emphasis on art-making and personal expression. Includes an overview of basic user experience and interaction design principles.

ART 50B. Interaction and Experience. 4 Units.
An overview of digital video and audio production for the Web, emphasizing art-making and personal expression. Includes digital media aesthetics and conceptual design, basic audio and video recording, and fundamentals of desktop video, audio, and Web authoring software applications.

ART 50C. Digital Media: Interaction Design. 4 Units.
Principles and practices of interaction design for interactive digital media systems that provide for active involvement of the participant. Students gain experience with interaction design issues through a series of media art projects, emphasizing art-making and personal expression.

Prerequisite: (ARTS 11 or ART 12A) and (ARTS 12 or ART 12B) and (ARTS 50 or ART 50A) and (ARTS 60 or ART 50B).

ART 51. Basic Ceramic Sculpture. 4 Units.
Exploration of use of clay as sculptural basis with an emphasis on development of an idea and its relation to contemporary and experimental art practice. Hand-building, glazing, finishing processes, and use of other structural materials. Materials fee.

Restriction: Art majors have first consideration for enrollment.

ART 65A. Foundations in Media Design. 4 Units.
Provides an overview of media design in the digital age, covering principles of design for different media (2D, time-based, interactive); history of relationship between art and design; and practice in working with different design approaches. Materials fee.

Restriction: Art majors have first consideration for enrollment.

ART 65B. Foundations in Internet Art and Design. 4 Units.
Introduction to creating art for the Internet, covering history and structure of networks; key types of net-based interactivity; basics of Web design and scripting. Materials fee.

Prerequisite: ART 65A. Recommended: ART 11B.

Restriction: Art majors have first consideration for enrollment.

ART 65C. Gizmology and Kinetics. 4 Units.
Provides students with basic skills in materials, construction and design applicable to making machines, musical instruments and things with moving parts enabling work in kinetic sculpture, custom interactive systems, Mechatronics, Robotics, and Maker/DIY culture. Materials fee.

ART 65E. Mechatronic Art I. 4 Units.
Introduces the practice and theory of analog electronics, emphasizing the design and development of simple interactive systems and the integration of such systems into real-world contexts of performance, installation, sculpture, and automated artifacts. Materials fee.

ART 71A. Introduction to Photography I. 4 Units.
Introduction to technical underpinnings emphasizing photography as a contemporary art practice. Topics include 35mm non-automatic camera operation, exposure and lighting, black and white printing, introduction to digital photography, discussion of critical and historical issues. Materials fee.

Restriction: Art majors have first consideration for enrollment.

ART 71B. Introduction to Photography II. 4 Units.
Techniques covered include medium and large format cameras, digital photography, studio lighting, digital and analog color printing, mural room. Conceptual direction is developed through critiques, critical readings, discussions, slide lectures. Materials fee.

Prerequisite: ART 71A.

Restriction: Art majors have first consideration for enrollment.

ART 81A. Video Production. 4 Units.
Introduction to three production stages of video making. Study of the narrative structure of cinema and acquisition of video production skills in camera, lighting, sound, and editing. Production work, readings, and screenings outside of class are assigned. Materials fee.

Restriction: Art majors have first consideration for enrollment.

ART 81B. Video Stage Production. 4 Units.
Focuses on video stage production, technical skills including camera operation, stage lighting, sound recording, and construction of basic scenic elements. Emphasis is placed on the function and responsibilities of the production crew and proper working and safety procedures. Materials fee.

Prerequisite: ART 81A.

Restriction: Art majors have first consideration for enrollment.

ART 91. Basic Performance Art. 4 Units.
Exploration of objects, gesture, action, text, image, and media to create narrative or non-narrative works. Elements of theory and history of performance art are discussed to illustrate techniques and styles to understand, identify, and articulate artistic vision and voice.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors have first consideration for enrollment.

ART 95. SPECIAL TOPICS IN BASIC MEDIA. 4 Units.
Basic instruction in media or disciplines not otherwise represented in the regular curriculum. Topics vary according to the instructor.

Repeatability: Unlimited as topics vary.

Restriction: Art majors have first consideration for enrollment.

ART 100. Special Topics in Art. 4 Units.
Materials fee, topic dependent.

Prerequisite: ART 9A. Lower-division writing strongly recommended.

Repeatability: May be taken for credit 6 times as topics vary.

Restriction: Art majors only.

ART 101W. Artists as Writers. 4 Units.
Contemporary art practice involves text, as final form or an integral element. Many contemporary artists consider writing as essential to their practice. Covers historical and contemporary uses of text and image as well as artists' writing.

Prerequisite: ART 9A and ART 11A. Satisfactory completion of the lower-division writing requirement.

Restriction: Art majors only.

(Ib)

ART 103. Intermediate Painting. 4 Units.
Continuation of the investigation initiated in basic painting, with an emphasis on experimentation, personal investigation, development of conceptual working premises, as well as the acquisition of necessary skills. Group discussion and critique are emphasized.

Prerequisite: ART 1A and ART 1B and ART 1C and ART 30A and ART 30B.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 104. Intermediate Sculpture. 4 Units.
Investigation of three-dimensional space, including the construction of objects and the manipulation of the environment. Students define personal projects and translate personal, social, and political experience into visual meaning. Range of artists' works introduced. Group discussion and critiques. Materials fee.

Prerequisite: ART 1A and ART 1B and ART 1C and ART 40.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 105. Intermediate Ceramic Sculpture. 4 Units.
Further investigation of the use of clay as a medium, with an emphasis on experimental practice and the relationship to contemporary visual art. Emphasizes discussion of ideas, and provides information on clay body, fabrication, glazing, and firing. Materials fee.

Prerequisite: ART 1A and ART 1B and ART 1C and ART 51.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 106A. Programming for Artists. 4 Units.
Programming as a means to create interactive artworks with an emphasis on the integration of video, sound, text, and stills. Topics include basic concepts in programming, understanding the limits of code, working with video and audio files, interface design. Materials fee.

Prerequisite: ART 65A. Recommended: ART 11B.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 106B. Game Studies. 4 Units.
Critical analysis of various genres of computer games and gaming theory and practice through playing, writing, and discussion. The focus is on creating a Design Document for the student's own gaming environment using gaming metaphors, design principles, and technologies. Materials fee.

Prerequisite: ART 65A. Recommended: ART 11B.

Restriction: Art majors only.

Concurrent with

ART 106C. Design for Print. 4 Units.
Investigates the use of print for communication as an artist. Covers the fundamentals of print design and output using digital media. Materials fee.

Prerequisite: ART 65A. Recommended: ART 11B.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 107. Intermediate Projects in Photography. 4 Units.
Students begin learning how to develop photographic projects of their own making. Focuses on employing and expanding upon previously learned technical and critical skills specific to students' individual interests and ideas. Critiques, readings, lectures, labs. Materials fee.

Prerequisite: ART 1A and ART 1B and ART 1C and ART 71A and ART 71B.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 108. Intermediate Video Projects. 5 Units.
Students learn to conceive, develop, and produce original video works building directly upon previously learned skills. Use of video stage and post-production editing facilities. Lectures on video/film subjects, production strategies, readings, screening, field trips, and group critiques. Materials fee.

Prerequisite: ART 81A and ART 81B.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 109. Performance and the Camera. 4 Units.
Surveys the development of contemporary artists who use performance strategies in the making of videos and films. Students analyze the artist's conceptual approach to performative gestures, actions, and landscapes created for their video or film art.

Prerequisite: ART 1B or ART 81A or ART 91 or ART 128.

Restriction: Art majors only.

ART 110B. Mechatronic Art II. 4 Units.
Introduces the practice and theory of embedded microcontrollers, digital electronics, coding, sensor interfacing, motor control and output stages along with mechanical and electromechanical design and construction, emphasizing the integration of such systems into real-world contexts of performance, installation, and art-making. Materials fee.

Prerequisite: ART 65E.

ART 110C. Mechatronic Art III. 4 Units.
As the capstone to the Mechatronic Art series, this course permits students to develop major projects utilizing electronics, microcontrollers, sensors, and electromechanical devices, in a methodical and supervised context, with technical, design, and aesthetic advice and critique. Materials fee.

Prerequisite: ART 65E.

ART 111. 3D Methods and Materials. 4 Units.
Presents a wide variety of concepts, materials, tools, and fabrication techniques vital to art production. Wood tools, clay, castable rubber, urethane foam, fiberglass, plaster, steel, and welding are introduced. Projects are based on conceptual problems incorporating these materials. Materials fee.

Prerequisite: ART 1A and ART 1B and ART 1C.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 116. Feminist Issues in Art. 4 Units.
Feminist perspectives and topics in relation to cultural production. Feminist debates on sexuality, perspectives on women of color, on race and gender, feminist film criticism, histories of the first and second waves of feminism, histories of feminist art.

Prerequisite: ART 9A. Recommended: Satisfactory completion of the Upper-Division Writing requirement.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 117. Issues in Popular Culture. 4 Units.
In-depth investigation of the relationship between visual art practices and popular culture.

Prerequisite: ART 9A. Recommended: satisfactory completion of the upper-division writing requirement strongly recommended.

Repeatability: Unlimited as topics vary.

Restriction: Art majors only.

ART 119. Issues in Contemporary Painting. 4 Units.
Investigation of issues in modern and contemporary art work and criticism, wherein an assessment of Modernist influences is followed by the examination of contemporary painting as a cross-disciplinary practice employing popular culture, "high art," theory, and new technology.

Prerequisite: ART 9A. Recommended: satisfactory completion of the upper-division writing requirement strongly recommended.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 120. Issues in Narrative. 4 Units.
Emphasizes the construction of narratives in different media--painting, photography, sculpture, video. Particular attention paid to the development of personal and community histories as a working base.

Prerequisite: ART 9A. Recommended: satisfactory completion of the upper-division writing requirement strongly recommended.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 121. Issues in Race and Representation. 4 Units.
Emphasizes the construction of racial difference and stereotyping in the visual and performing arts, and on the histories of cultures and artists who functioned outside the contemporary mainstream. Readings assigned.

Prerequisite: ART 9A. Recommended: satisfactory completion of the upper-division writing requirement strongly recommended.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 121A. Afro-Futurism I. 4 Units.
First of a two-part course on the futuristic artistic vision of Black film, video, and cyberspace. Deals with critical analyses of the Black image in Western Art history, and its association to contemporary Hip Hop culture, art, and music.

Prerequisite: ART 9A. Satisfactory completion of upper-division writing strongly recommended.

Restriction: Art majors only.

ART 121B. Afro-Futurism II. 4 Units.
Second of a two-part course on the futuristic artistic visions of Black film, video, and cyberspace. Deals with modern techno-culture, digital activism, and designing technology based on African aesthetic principles of contemporary Hip Hop International Culture.

Prerequisite: ART 9A. Satisfactory completion of upper-division writing strongly recommended.

Restriction: Art majors only.

ART 123A. Issues in the New Culture Wars. 4 Units.
"Culture wars" originally described Reagan/Bush era political efforts launched over matters like abortion, religion, gay rights, school curricula. Such controversies provided motivation and content for many artists. Addresses new culture wars emerging since 9/11 over privacy, technology globalization, terrorism.

Prerequisite: ART 9A. Recommended: satisfactory completion of the upper-division writing requirement strongly recommended.

Restriction: Art majors only.

ART 123B. Issues in Media, Violence, and Fear. 4 Units.
Violence has been instrumental in story-telling throughout history in art, literature, religion, and entertainment. Continuing presence of media violence provoked debates among parents, politicians, media producers, and academics. Examines history, theory, aesthetics, economics, and politics of violent representation.

Prerequisite: ART 9A. Recommended: satisfactory completion of the upper-division writing requirement strongly recommended.

Restriction: Art majors only.

ART 125. Issues in Photography. 4 Units.
Rigorous investigation of photographic practices and critical writings, the relationship of photography to the construction and maintenance of cultural institutions, the circulation of photographic ideas in society, and photography and technology.

Prerequisite: ART 1A or ART 71A or ART 71B or ART 152A or ART 152B or ART 152C or ART 152D or ART 152E or ART 190B. Recommended: Satisfactory completion of the Upper-Division Writing requirement.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 126. Issues in Media and Migration: Asia. 4 Units.
Media and migration are profound, twinned influences on contemporary globalized experience. A discourse on Asian cultural production and of its transnational dimensions. Students will explore migration in its multiple facets to include migrations of people, ideas, and technologies.

Prerequisite: ART 9A.

ART 126A. Tactical Media and the Politics of Information. 4 Units.
Overview of tactical media as a practice and its theoretical influences. Emerged in post-Cold War Europe in early 1990s. Tactical use of media and activism are point of reference for tactical media groups worldwide.

Restriction: Art majors only.

ART 126B. Issues in Techno-Arts. 4 Units.
Addresses issues related to artmaking practices that emerge in tandem with new technologies. Topics include sociopolitical contexts of techno-art; utopic/dystopic framings; key moments in the history of techno-arts.

Prerequisite: ART 9A. Recommended: ART 11B.

Restriction: Art majors only.

ART 127A. Issues in Video History and Criticism. 4 Units.
Investigation of historical development of video as artistic practice. Topics include relationships between art and video technology, critiques of television, experimentation with image processing/synthesis, performances designed for video, experiments in documentary representation, video installation. Readings and screenings assigned. Materials fee.

Prerequisite: ART 9A.

Restriction: Art majors only.

ART 127B. Issues in Experimental Film History. 4 Units.
A critical study of experimental film/video art genres and production techniques considering their narrative, structural, iconographic, and cultural aspects. Hollywood narrative, Nouvelle Vague, American Independent, and Video Art compared in terms of production innovation, design, and conceptual content. Materials fee.

Prerequisite: ART 9A.

Restriction: Art majors only.

ART 128. Issues in New Genres. 4 Units.
Investigates issues in post-studio practices, including concepts of time, relational aesthetics, site-specificity, institutional critique, and the post-medium condition.

Prerequisite: ART 9A. Recommended: satisfactory completion of the upper-division writing requirement strongly recommended.

Repeatability: Unlimited as topics vary.

Restriction: Art majors only.

ART 130A. Projects in New Technologies. 4 Units.
Working with media such as electronic still cameras, desktop publishing, faxes, satellites, virtual reality, digitized imaging. Cultural issues pertinent to the emergence of new technology (e.g., ethical concerns, social impact, copyright laws, nontraditional approaches to distribution, cyberpunk, global markets).

Prerequisite: ART 65A. Recommended: ART 11B and ART 106A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 130B. Topics in Game Design. 4 Units.
Investigates interaction paradigms, game mechanics, game development processes, and methods for analysis and critique of games; and provides opportunities for experimental game design.

Prerequisite: ART 106B.

Restriction: Art majors only.

ART 130C. World Building. 4 Units.
Interdisciplinary approaches to working across the digital/nondigital boundary to create an alternate universe. Emphasis is on critical thinking, comprehensive planning, integration of multiple media, and narrative development.

Prerequisite: ART 65A. Recommended: ART 11B. Recommended: ART 106A strongly recommended.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 131. Projects in Installation. 4 Units.
Investigates interior installation in particular spaces. Working in teams, students install, discuss, and remove projects. Technical information and hands-on experience with various media is provided. Materials fee.

Prerequisite: Art 40.

Repeatability: May be repeated for credit unlimited times.

ART 132A. Projects in Video Pre-Production. 4 Units.
Examines the preparatory and planning stages of video production, including script writing, story boarding, location scouting, script breakdown, and budgeting. Projects may encompass one or more of these stages which will be explored through readings, discussions, and demonstrations. Materials fee.

Prerequisite: ART 81A and ART 81B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 132B. Projects in Video Post-Production. 4 Units.
Examines procedures and techniques utilized in video production after principal shooting is completed, including effects processing, composting, sound design, and DVD authoring. Projects focus on these processes, and explored through readings, discussions, and demonstrations. Materials fee.

Prerequisite: ART 81A and ART 81B.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 133. The Graphic Novel . 4 Units.
An intensive workshop during which students will create a short graphic novel, taking the process all the way from concept to publication. Course work will focus on understanding how narrative emerges from a combination of visual and textual elements.

Prerequisite: ART 65A. Strongly recommended: ART 106C.

ART 141. Projects in Video Installation. 4 Units.
Incorporating narrative structures in a multi-screen context. Students design and produce an active space in which activities will move from one screen to another. Materials fee.

Prerequisite: ART 81A and ART 81B.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 143. Projects in Computer Painting. 4 Units.
Study and utilization of the computer as a digital sketchbook and design tool for the creation of paintings. Discussion of the issues related to benefits and limitations of new technology in the art-making process.

Prerequisite: ART 1A and ART 1B and ART 1C and ART 30A and ART 30B.

Restriction: Art majors only.

ART 146. The Artist Archives. 4 Units.
Addresses ways in which artistic production and archival practice intermingle and overlap. Examines critical works on the nature of knowledge and the archive, and uncovers methodologies of knowledge production and how these inform what we think of as art.

Prerequisite: ART 1A and ART 1B and ART 1C and ART 9A and ART 11A.

Restriction: Art majors only.

ART 150. Advanced Studio Topics--Painting. 4 Units.
Provides an intensive and specialized working environment. Thematic issues and material strategies will be explored. Materials fee.

Prerequisite: ART 30B.

Repeatability: Unlimited as topics vary.

Restriction: Art majors only.

ART 150C. Advanced Drawing . 4 Units.
Advanced studio problems in visual exploration. Students pursue individual solutions to self-defined and presubscribed projects. Techniques/materials are individual choice. Continual analysis of the personal process.

Prerequisite: ART 20B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 150F. Advanced Figure Drawing. 4 Units.
Students develop technical skills in rendering the figure. Live model sessions and an introduction to anatomy. Investigates use of the figure in contemporary art. Materials fee.

Prerequisite: ART 20B.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 151. Advanced Studio Topics--Sculpture. 4 Units.
Provides an intensive and specialized working environment. Thematic issues and material strategies will be explored. Materials fee.

Prerequisite: ART 40.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 152A. Advanced Studio Topics: Photography. 4 Units.
Focused investigation of a range of issues in photographic practice, with an emphasis on developing individual student projects, refining critical thinking, and conceptual framing. Technical topics covered as required. Readings, lectures, critiques, labs. Materials fee.

Prerequisite: ART 71B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 152B. Documentary Photography. 4 Units.
Documentary practice is examined through the realization of photo-based projects. Thematic focus of student's choosing will be refined through lectures, discussion, technical demonstrations, field trips, labs, and individual meetings. Materials fee.

Prerequisite: ART 71B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 152C. The Public Image. 4 Units.
Strategies for artistic intervention in the public circulation of images are examined alongside the role images play in constructing public identity. Individual or collaborative student projects will be directed around course themes. Materials fee.

Prerequisite: ART 71B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 152D. The Photographic Tableau. 4 Units.
Examines and develops photographic projects intended for traditional artistic venues (i.e., galleries and museums). In addition to exploring appropriate techniques and presentation strategies, students consider the interdependency between construction of images and semantic shaping of traditional art venues. Materials fee.

Prerequisite: ART 71B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 152E. The Constructed Image. 4 Units.
A studio investigation of theoretical ideas, critical possibilities, historical precedents, and various techniques involving the production of fabricated images. Techniques may include montage, digital, chemical and in-camera manipulations, studio constructions, appropriations, performance, and projected images. Materials fee.

Prerequisite: ART 71B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 152F. Seminar Production Component. 4 Units.
Photographic and/or inter-media production course tied to a specific Issues course (for example, Issues in Photography, Issues in Feminism, Issues in New Genres). Critiques, labs, field trips, discussion, demonstrations. Materials fee.

Prerequisite: ART 71B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 153. Advanced Studio Topics: Video. 4 Units.
Directed to the production of individual or collaborative videotapes, using studio, portable camera, and editing facilities and sound and computer elements. Emphasis will be on individually initiated projects. Readings and screenings are assigned. Materials fee.

Prerequisite: ART 81A and ART 81B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 154. Advanced Studio Topics: Performance. 4 Units.
An intensive investigation of the practice of performance art, with an emphasis on the development of individual projects, and the refinement of various technical skills, as well as audiences, spaces, and cultural connections.

Prerequisite: ART 91 or ART 109.

Repeatability: May be taken for credit 3 times.

Restriction: Art majors only.

ART 156. Advanced Studio Topics: Ceramic Sculpture. 4 Units.
Discussion of ideas, techniques, and personal control of form. Clay body, fabrication, glazing, and firing. Emphasis on development of personal direction. Materials fee.

Prerequisite: ART 51.

Repeatability: May be repeated for credit unlimited times.

Restriction: Art majors only.

ART 166A. Advanced Collaborative Projects in Video. 4 Units.
Original video projects produced in collaborative teams combining advanced video students with students from other areas, including Dance, Drama, and Music. Shoots may be carried out on the video stage as well as field locations. Materials fee.

Prerequisite: ART 81A and ART 81B.

Repeatability: May be taken for credit 2 times.

Restriction: Art majors only.

ART 189. Critical Aesthetics . 4 Units.
Surveys critical thought that has influenced twentieth-century art production, preparing the student to engage contemporary art with a critical eye, specifically addressing aesthetic and political debates of the historical avant-garde, the neo-avant garde, and postmodern culture.

Prerequisite: ART 1A and ART 1B and ART 1C.

Restriction: Upper-division students only. Art majors only.

ART 190. Senior Project and Critique. 4 Units.
Directed-study critique class in preparation for final project and life after graduation; documentation and portfolio preparation for graduate school. Investigation of exhibition spaces and funding opportunities, participation in artists' communities outside the university, and artists' rights issues.

Repeatability: May be repeated for credit unlimited times.

Restriction: Seniors only. Art majors only.

ART 190B. Senior Projects and Critique in Photography. 4 Units.
Directed group study focused on production of photographic projects of significant scope and ambition. Emphasis on preparation for continued study and/or practice in photography in advanced settings beyond the undergraduate university experience. Materials fee.

Prerequisite: ART 1A and ART 1B and ART 1C and ART 71A and ART 71B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Seniors only. Art majors only.

ART 190C. Senior Projects and Critique in Video. 4 Units.
Directed group study focused on production and exhibition of individual video projects of significant scope and ambition. Emphasis is placed on critical evaluation. Assignments include work documentation, graduate school preparation, and investigation for future opportunities outside the University. Materials fee.

Prerequisite: ART 81A and ART 81B.

Repeatability: May be taken for credit 2 times.

Restriction: Seniors only. Art majors only.

ART 197. Art Internship. 1-4 Units.
Under faculty supervision, students participate directly in a variety of art institution settings, including museums, galleries, and nonprofit organizations.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Juniors only.

ART 198. Honors Exhibition. 4 Units.
Preparation, installation, and participation in the annual honors exhibition. Materials fee.

Grading Option: Pass/no pass only.

Restriction: Juniors or seniors only. Art Honors students only.

ART 199. Independent Study. 1-4 Units.
Individual study or directed creative projects as arranged with faculty member. Materials fee.

Repeatability: May be repeated for credit unlimited times.

ART 210. First-Year Graduate Seminar. 4 Units.
Introductory theory class to contemporary art: intellectual history, theoretical antecedents, and current critical concerns.

Restriction: Graduate students only.

ART 211. Methods and Materials Workshop. 4 Units.
Comprised of a series of workshops introducing graduates to production and facilities in photography, video, digital media, and sculpture.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

ART 215. Graduate Seminar Topics. 4 Units.
In-depth discussion of contemporary art production in relation to a variety of theoretical, cultural, and historical topics. Material is determined by the given instructor's current research interest. Topics vary.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ART 220. Graduate Seminar: Issues in Contemporary Art. 4 Units.
Classroom interaction with artists, curators, critics, lecturers from fields outside of the arts or from cross-disciplines. Includes recommended readings, discussions, panel participation, writing assignments.

Prerequisite: ART 210.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

ART 230. Graduate Group Critique. 4 Units.
Focus on studio production. Students are expected to help foster and develop an environment in which serious and sophisticated peer critique can take place.

Repeatability: May be taken for credit 9 times.

Restriction: Graduate students only.

ART 236. Graduate Topics in Studio Production. 4 Units.
Graduate group study of a specific medium or art practice (e.g., painting; video, installation, photography, sculpture/3D, performance, digital media, public art, sound art; film). Includes consideration of technical, theoretical, historical, and/or formal issues.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ART 240. Interdisciplinary Projects. 4 Units.
Intensive faculty-led discussion of in-progress graduate studio projects--can be discipline driven or working across fields in a rigorous interdisciplinary studio environment where students meet with the professor both individually and in small groups.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ART 250. Directed Reading and Research. 4 Units.
Independent study with a supervising faculty member to direct academic research, develop bibliographies, and discuss assigned readings.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ART 251. Special Topics Seminar. 4 Units.
Directed reading and/or study group on a given research topic. Agreed-upon meeting structure may be flexible in order to accommodate off-campus field trips and travel.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ART 255. Graduate Interdisciplinary and Collaborative Projects. 4 Units.
For graduate students working collaboratively across the School of the Arts or cross-university. May be team taught with one of the faculty members based in the Department of Art.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ART 257. Curatorial Projects. 2-8 Units.
Independent or group study for graduates working on or developing curatorial projects.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ART 261. Graduate Thesis Writing Seminar. 4 Units.
Seminar for writing as a component of the thesis. Different models of writing, text, and spoken word will be discussed. Required second year.

Corequisite: ART 262.
Prerequisite: ART 210 and ART 215 and ART 220.

Restriction: Graduate students only.

ART 262. Graduate Thesis Independent Study. 1-4 Units.
Tutorials and directed study in thesis writing, research and/or studio production with thesis committee chair and/or thesis committee members to be taken during final quarters of study.

Corequisite: ART 261.
Prerequisite: ART 210 and ART 215 and ART 220.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ART 263. Graduate Thesis, Exhibition Critique. 4 Units.
Group critique required for matriculating M.F.A. students during the quarter in which their thesis exhibitions are scheduled. Public presentation/lecture on student's work required.

Prerequisite: ART 210 and ART 215 and ART 220 and ART 230 and ART 240 and ART 261 and ART 262.

Restriction: Graduate students only.

ART 264. Critical and Curatorial Thesis Exhibition. 8 Units.
Intensive tutorial geared toward execution of professional gallery exhibition, which is one half of the degree requirement for the M.F.A. concentration in Critical and Curatorial Studies. Must be taken under direction of Committee Chair.

ART 280. Contemporary Exhibition Systems. 4 Units.
Investigates contemporary case studies of curatorial practice. Sometimes taught in collaboration with a host institution. The history, theory and criticism or curatorial practice are tested through the explication of real exhibitions.

Prerequisite: ART 280A.

Repeatability: May be taken for credit 4 times.

ART 280A. Introduction to Exhibition Systems. 4 Units.
Introduces the basics of curating, covering the fundamentals of collection, research, fundraising, publicity, and installation. Also introduces the related categories of public programming and art criticism.

Restriction: M.F.A. students only.

ART 399. University Teaching. 4 Units.
Limited to Teaching Associates working under the active guidance and supervision of a regular rank faculty member responsible for curriculum and instruction at the University.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit for 12 units.

Restriction: Graduate students only.

Department of Dance

300 Mesa Arts Building; (949) 824-7283
http://dance.arts.uci.edu/
Lisa Naugle, **Department Chair**

The Department of Dance fosters an educational environment in which performance opportunities, creative projects, and theoretical studies complement and reinforce each other, providing a foundation for careers in dance. The program focuses on the dance techniques of ballet, modern, jazz, tap, world dance, and dance and technology. Theoretical studies include dance history and theory; dance writing; Laban studies; dance pedagogy; dance ethnography; dance science; and aesthetics of digital media. Creative opportunities bridge the studio and theoretical work through performance and choreography for multiple contexts; creative applications of animation, motion capture, audio and video technologies; lecture demonstration; and critical, historical, ethnographical, and scientific writing.

The objective of studio work is to develop kinesthetic resources, precision, flexibility, creativity, and freedom in a coordinated and intelligently responsive dancer. The techniques of classical ballet, modern dance, and jazz constitute crafts and styles for the dancer that serve not only as a basis for the training of the body, but also as a basic language of movement for the choreographer.

The theoretical, historical, and scientific courses are designed both to broaden the perspective of those students whose first interest is performance or choreography, and to provide a foundation for those students who plan to pursue careers in the academic, scientific, technological, or administrative fields of dance.

The dance archives in the UCI Langson Library Special Collections offer a rich source of research materials which enhance the Dance program. Among other special holdings, the archives include the extensive Ruth Clark Lert collection of dance books, journals, photographs, original costume sketches, and memorabilia of dance in Europe and the United States from pre-World War I to the present.

Careers for the Dance Major

Careers in dance require excellent training and extraordinary discipline, tenacity, and dedication. Graduates of the Department have an excellent record of placement in the many fields of dance. Some have become professional dancers in ballet companies (including the Metropolitan Opera Ballet, San Francisco Ballet, Nashville Ballet, and Joffrey); in modern dance companies (including Hubbard Street Dance Company, MOMIX, and Martha Graham Dance Ensemble); in touring companies (including The Lion King, Fame: The Musical, Carousel, and Cirque du Soleil); and in films, television, and theatre.

In addition to training for professional dance performance and choreography, the major in dance serves as a basis for graduate study or job opportunities in fields such as dance history, dance science, dance pedagogy, dance reconstruction, dance criticism, dance video, and technology. Related fields, such as arts administration, law in relation to the arts, arts therapies, design and production, and music also offer positions for graduates. Students who are interested in a career in athletic training, physical therapy, or dance science will find a major in Dance, with related course work in chemistry, physics, biology, and mathematics, to be excellent preparation for further study.

The Undergraduate Program

The Bachelor of Arts (B.A.) is designed for those who wish to obtain a broad undergraduate background as preparation for careers or graduate work and related fields. It offers students a dance education that stresses performance and choreography, and, at the same time, intellectual depth and scope. In addition to the core, 12 units of elective Dance courses are required. The remaining elective units required for graduation may be chosen from Dance or other disciplines in relation to a student's individual interest. While the program of study in Dance stresses technical proficiency and academic understanding in dance, the B.A. degree program also enables students to pursue elective subjects in their special areas of interest in other academic disciplines.

The Bachelor of Fine Arts (B.F.A.) degree program with specializations in Performance and Choreography, is designed for students who wish to prepare intensively for careers in those areas. The courses required in addition to the core are primarily in Dance. The B.F.A. program allows for a few free electives in other areas. Admission to the B.F.A. program with a specialization in Choreography is by faculty approval only.

The B.F.A. program with a specialization in Performance does not require additional faculty approval beyond the required audition for admission to the Dance major; students should declare their intention to pursue this specialization during spring quarter of their sophomore year.

Proficiency Levels

In addition to meeting the general requirements for admission to UCI, applicants must demonstrate technical and creative promise. The Department holds annual entrance auditions for potential freshmen and transfer students during the winter quarter prior to the fall quarter when entrance is anticipated. First-year students wishing to major in Dance must be at technique level II in at least one of the three major genres (ballet, modern, jazz).

Placement auditions for admitted students are held during Welcome Week to determine levels of technical ability for placement in courses. It is suggested that transfer students wishing to pursue a B.A. degree in Dance complete, in addition to their general education requirements, one course in choreography, two courses in dance technique, and one course in music for dancers prior to transfer to UCI.

Previously admitted majors who wish to obtain a B.F.A. degree should contact the School of the Arts Student Affairs Office to obtain information about change of major requirements, procedures, and policies.

Transfer students wishing to pursue the B.F.A. degree must declare their intention in writing at the time of their entrance audition and demonstrate technique and/or choreography levels appropriate to their year. It is suggested that transfer students complete, in addition to their general education requirements, one course in choreography, two courses in dance technique, one course in music for dancers, and one course in dance performance prior to transfer to UCI.

Students deficient in level of performance or academic preparation should be prepared to extend their studies beyond the normal four-year program in order to meet the requirements for graduation.

Requirements for the B.A. Degree in Dance

All students must meet the University Requirements (p. 71)**.**

School Requirements: None.

Departmental Requirements for the Major

A. Complete the following:	
DANCE 2	Dance Health and Injury Prevention
DANCE 21A	Music for Dancers
DANCE 60A	Choreography
DANCE 90A	Dance History 1A
DANCE 90B	Dance History 1B
DANCE 90C	Dance History 1C
DANCE 100	Kinesiology for Dance
DANCE 180C	Laban Studies
DANCE 185	Critical Issues in Dance
B. Complete one four-unit course from the following:	
DANCE 125A	Teaching of Dance
DANCE 127A	Costume Design for Dance
DANCE 162A	Choreography II
DANCE 163	Dance and Video Technology
DANCE 164	Screendance
DANCE 180A	Laban Studies
DANCE 194	Topics Vary
DANCE 195	Arts Management
C. Technique: Students must complete at least one Dance technique course (ballet, modern dance, jazz, Spanish, world dance, pointe, social dance, tap, or repertory) each quarter in residence. At a minimum, students must complete level II in Ballet, Modern, and Jazz (DANCE 132A-DANCE 132B-DANCE 132C, DANCE 142A-DANCE 142B-DANCE 142C, and DANCE 152A-DANCE 152B-DANCE 152C) and level III in either Ballet or Modern (DANCE 133A-DANCE 133B-DANCE 133C or DANCE 143A-DANCE 143B-DANCE 143C). Students who place above level II in any technique must take a year of that technique at the level in which they are placed. All students must also complete one course chosen from DANCE 12A, DANCE 12B, DANCE 12C (Spanish Dance), DANCE 14 (Social Dance), DANCE 52A, DANCE 52B, DANCE 52C (Tap I) or DANCE 110 (World Dance). NOTE: Units earned in ballet, jazz, and modern technique courses beyond the required amount do not count toward departmental elective requirements but may count toward University requirements.	
D. Performance:	
Select two of the following:	
DANCE 170	Dance Performance
DANCE 171	Dance Workshop
DANCE 172	Master of Fine Arts Concert

E. Four units of DRAMA 101 (Theater Production) must be taken during the first year in residence.

F. Electives: 12 units of electives must be completed within the major.

Requirements for the B.F.A. Degree in Dance

All students must meet the University Requirements (p. 71)**.**

School Requirements: None.

Departmental Requirements for the Major

Students must complete the departmental requirements as listed for the B.A. degree in Dance. In addition, B.F.A. students must complete the requirements for either the specialization in Choreography or Performance.

Choreography Specialization:	
DANCE 60B	Choreography
DANCE 60C	Choreography
DANCE 127A	Costume Design for Dance
DRAMA 30A	Acting
DRAMA 50C	Introduction to Lighting Design
Any three quarters of courses chosen from the following:	
DANCE 162A- 162B- 162C	Choreography II and Choreography II and Choreography II
DANCE 164	Screendance
Select two courses in DANCE 165 [1]	
Four units (one or two courses) in Art History, Music, Studio Art, or Drama (in addition to DRAMA 30A, DRAMA 50C, and DRAMA 101 requirements).	
Performance Specialization:	
Technique: At a minimum, students must complete level III in Ballet, Modern, and Jazz (DANCE 133A, DANCE 133B, DANCE 133C, DANCE 143A, DANCE 143B, DANCE 143C, and DANCE 153A, DANCE 153B, DANCE 153C) and level IV in either Ballet or Modern (DANCE 134A-DANCE 134B-DANCE 134C or DANCE 144A-DANCE 144B-DANCE 144C). Students who place above level III in any technique must take a year of that technique at the level in which they are placed.	
DANCE 139	Partnering
Performance:	
DANCE 137	Repertory
or DANCE 179	UCI Etude Ensemble
DANCE 170	Dance Performance (series) [2]
Select one of the following:	
DRAMA 30A	Acting
or a fourth additional performance in the DANCE 170 series.	

1 Choreographic Projects—one original choreographic work, approved by the faculty, must be presented in both the junior and senior years.

2 DANCE 170 series: must be in three additional performances beyond the B.A. requirements, one of which must be DANCE 170, DANCE 171, DANCE 172, or DANCE 174. DANCE 171 and DANCE 172 may be repeated for credit. Students must demonstrate proficiency in at least two dance genres in these performances.

Sample Program for Freshmen (B.A. and B.F.A. Programs)

Fall	Winter	Spring
WRITING 39B	WRITING 39C	DANCE 2
DANCE 21A	General Education	General Education
Technique	General Education	General Education
General Education	Technique	Technique
	Drama 101 (2 units)	Drama 101 (2 units)

Master of Fine Arts Program

Degree Offered

M.F.A. in Dance.

General Information

The M.F.A. program is an intensive program requiring a core of courses in studio and academic areas. The student's individual area of interest is explored through the thesis project in the second year. Projects or written theses may be pursued in choreography, video choreography, dance training, dance history and theory, ethnography, dance science, dance reconstruction, and dance and digital technology.

Admission

Applicants for admission to the degree program must meet the general requirements for admission to graduate study and hold a B.A. or B.F.A. in Dance or the equivalent. Candidates must meet the minimum requirements for the B.A. degree in Dance at UCI. Proposals for three choreographic works that could be completed in the graduate program must be submitted. An audition in ballet and modern technique is required for admission and is held in winter quarter. At this audition, applicants must also present a prepared five-minute choreographed piece, which may be a solo performed by the applicant, or a videotape of the applicant's choreography. Interviews with faculty are conducted following the audition, and applicants are given a short writing exercise.

Teaching Assistantships

Graduate students are encouraged to apply for teaching assistantships in areas such as notation, dance science, history, music for dancers, choreography, world dance, dance video, critical issues, and all technique classes. Students with expertise in any of these areas are given special consideration.

General Degree Requirements

Normally two years of residence are required. Each candidate must enroll for three courses each quarter for six quarters, exclusive of summer sessions.

In the second year, satisfactory attainment must be demonstrated by a major thesis; in choreography this consists of the composition and production of a choreographic work; in other areas, such as dance history, dance training, or dance science, this consists of a written thesis or a comprehensive project in a chosen area of study. All theses must be defended in a one-hour oral examination which may also test the candidate's general knowledge in the area.

The normative time to degree for students in the M.F.A. program is two years. Residence is required. The normative time to degree can be extended to three years only when a student requests extra time for more involved thesis research through a petition to the Chair of the Department. The maximum time to degree is three years. Students who do not complete the degree in three years will be dropped from the program.

Specific Degree Requirements

Seventy-two quarter units in graduate or approved upper-division undergraduate courses must be completed with a grade of at least B in each course. No more than 20 units in upper-division courses may count toward the degree. Fulfillment of the technique course requirements must be approved by the faculty advisor.

Required Courses	
Six courses chosen from any graduate or upper-division dance technique course, and completion of the following:	
DANCE 201	Seminar in Kinesiology for Dance
DANCE 222	Musical Resources
DANCE 225	Seminar in the Teaching of Dance Techniques
DANCE 261A- 261B	Graduate Studio in Choreography and Graduate Studio in Choreography
DANCE 281	Dance and Video Technology
DANCE 282	Seminar in Movement Analysis
DANCE 283	Critical Issues in Dance
DANCE 284	Bibliography and Research
DANCE 286	Thesis
DANCE 296	Proseminar in Dance History

By the end of their first year, students will choose their area of study for their thesis. Students who wish to produce a choreographic thesis must apply to the graduate choreography advisor during winter of their first year. The faculty will review the applications and will consider the quality of the student's work in Dance 261, as well as the choreographic proposal, in making their selection.

Faculty

David Allan, Choreographer/Former Soloist, National Ballet of Canada; Choreographer, ballet companies, operas, film, and television, *Professor Emeritus of Dance* (ballet, pas de deux, choreography)

Arthur D. Ando, DPT Temple University, *Lecturer of Dance*

Mary E. Corey, M.A. University of California, Riverside; Certified Professional Labanotator, *Professor of Dance* (dance history, modern dance, notation and reconstruction, dance and digital technology)

John L. Crawford, Media Artist and Software Designer, *Director of the Digital Arts Minor and Associate Professor of Dance* (dance film, interactive media, telematic performance, motion capture, digital arts)

Diane L. Diefenderfer, Former Soloist, Los Angeles Ballet, Eglevsky Ballet Company, Frankfurt Ballet Company, Director of Pilates Program for Dance Wellness, *Lecturer with Potential Security of Employment of Dance* (ballet, pointe, repertory)

Jennifer J. Fisher, Ph.D. University of California, Riverside; Decade diversity mentor, founder and editor of Dance Major Journal, *Graduate Advisor and Associate Professor of Dance* (dance history and theory)

Israel Gabriel, Bat-Dor Dance Company; Former Assistant Artistic Director, *Lecturer with Security of Employment Emeritus of Dance* (ballet, modern, pas de deux, repertory)

Michel Gervais, *Lecturer of Dance*

Chad M. Hall, M.F.A. Ohio State University; Pilates Mat Certified, *Assistant Professor of Dance* (modern dance, choreography, improvisation)

David M. Lim, B.S. California State Polytechnic University, Pomona, *Lecturer of Dance*

Loretta Livingston, B.F.A. California Institute of the Arts; Certified Laban Movement Analyst; former principal with Bella Lewitzky Dance Company, *Associate Professor of Dance* (modern dance, choreography, improvisation, Laban movement analysis, teaching of dance)

Molly L. Lynch, M.F.A. University of California, Irvine; Pilates Certified; Choreographer/Artistic Director of the National Choreographers Initiative, *Associate Professor of Dance* (ballet, pointe, repertory, partnering, arts management)

Donald McKayle, Choreographer/Director , *Claire Trevor Professor* and *Professor Emeritus of Dance* (choreography, modern dance)

Lisa Marie Naugle, Ph.D. New York University, *Department Chair and Professor of Dance* (modern dance, choreography, dance and digital technology, improvisation, teaching of dance)

James W. Penrod, M.F.A. University of California, Irvine; C.M.A. Laban Institute of Movement Studies, *Professor Emeritus of Dance* (ballet, modern, dance notation, choreography, movement analysis)

Janice G. Plastino, Ph.D. University of Southern California, *Professor Emerita of Dance* (kinesiology/anatomy, research methods, choreography, dance science/medicine)

Nancy L. Ruyter, Ph.D. Claremont Graduate University, *Professor Emerita of Dance* (dance history, Spanish dance, bibliography and research)

Kelli Sharp, DPT Chapman University, *Assistant Professor of Dance* (somatic practices, dance science, kinesiology, physical therapy)

Alan Terricciano, M.A. Eastman School of Music, *Professor of Dance* (musical resources, music for dancers, dance accompaniment, composition, multimedia arts)

Tong Wang, M.F.A. University of Utah; Principal dancer with the Shanghai Ballet, Tulsa Ballet Theatre, Dayton Ballet, Ballet West, *Assistant Professor of Dance* (ballet, choreography, men's ballet)

Darren Wong, B.S. University of California, Irvine, *Lecturer of Dance*

Sheron C. Wray, M.A. Middlesex University, *Assistant Professor of Dance; African American Studies* (jazz, choreography, improvisation)

Courses

DANCE 2. Dance Health and Injury Prevention. 4 Units.
An overview of factors that affect the health of dancers. Includes evaluation of general health measures and prevention and management of common dance injuries.

Restriction: Dance majors only.

DANCE 3. Scientific Concepts of Health. 4 Units.
Introduction to the scientific foundations of health, emphasizing those pertaining to success in college and lifetime wellness. Includes principles of cardiorespiratory, musculoskeletal, flexibility, and nutritional fitness. A variety of learning experiences will be offered to apply science to real life.

(II)

DANCE 4. Introduction to Quantitative Research in Exercise Science. 4 Units.
Introduction to quantitative scientific inquiry as it pertains to exercise science and related fields. Includes evaluation of primary scientific research literature, research design, data collection and analysis, and research communication.

(II)

DANCE 12A. Studio Workshop in Spanish Dance. 2 Units.
Principles of Spanish dance with focus on basic movement techniques, castanet work, and introduction to flamenco and other Spanish dance genres.

Repeatability: May be taken for credit 3 times.

DANCE 12B. Studio Workshop in Spanish Dance. 2 Units.
Principles of Spanish dance with focus on basic movement techniques, castanet work, and introduction to flamenco and other Spanish dance genres.

Prerequisite: DANCE 12A.

Repeatability: May be taken for credit 3 times.

DANCE 12C. Studio Workshop in Spanish Dance. 2 Units.
Principles of Spanish dance with focus on basic movement techniques, castanet work, and introduction to flamenco and other Spanish dance genres.

Prerequisite: DANCE 12B.

Repeatability: May be taken for credit 3 times.

DANCE 14. Social Dance. 2 Units.
Contemporary and historical forms. Current ballroom, disco, and Western square dance forms; Latin ballroom dances; dances from the 20s, 30s, and 40s.

Grading Option: Pass/no pass only.

DANCE 21A. Music for Dancers. 4 Units.
Emphasis on the development of musical skills most pertinent to the dancer: vocabulary, notational literacy, rhythmic and melodic acuity, score reading, and fundamental analysis; working with live accompaniment.

Restriction: Dance majors only.

DANCE 30A. Studio Workshop in Ballet I. 2 Units.
Beginning ballet: fundamentals and principles of classical ballet with an emphasis on technique.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

DANCE 30B. Studio Workshop in Ballet I. 2 Units.
Beginning ballet: fundamentals and principles of classical ballet with an emphasis on technique.

Prerequisite: DANCE 30A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

DANCE 30C. Studio Workshop in Ballet I. 2 Units.
Beginning ballet: fundamentals and principles of classical ballet with an emphasis on technique.

Prerequisite: DANCE 30A and DANCE 30B.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

DANCE 34. Men's Studio Workshop in Ballet. 2 Units.
Emphasis on men's traditional ballet, techniques, and movements.

Prerequisite: DANCE 30A and DANCE 30B and DANCE 30C.

Repeatability: May be repeated for credit unlimited times.

DANCE 40A. Studio Workshop in Modern I. 2 Units.
Fundamentals of modern dance: principles of modern tradition developed from Graham, Humphrey, and Wigman.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

DANCE 40B. Studio Workshop in Modern I. 2 Units.
Fundamentals of modern dance: principles of modern tradition developed from Graham, Humphrey, and Wigman.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

DANCE 40C. Studio Workshop in Modern I. 2 Units.
Fundamentals of modern dance: principles of modern tradition developed from Graham, Humphrey, and Wigman.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

DANCE 50A. Studio Workshop on Jazz I. 2 Units.
Fundamentals of jazz: principles of jazz dance and contemporary forms incorporating the personal point of view of the instructor.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

DANCE 50B. Studio Workshop on Jazz I. 2 Units.
Fundamentals of jazz: principles of jazz dance and contemporary forms incorporating the personal point of view of the instructor.

Prerequisite: DANCE 50A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

DANCE 50C. Studio Workshop on Jazz I. 2 Units.
Fundamentals of jazz: principles of jazz dance and contemporary forms incorporating the personal point of view of the instructor.

Prerequisite: DANCE 50B.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

DANCE 52A. Workshop in Tap I. 2 Units.
Beginning tap: principles of rhythm and basic tap steps.

Repeatability: May be taken for credit 2 times.

DANCE 52B. Workshop in Tap I. 2 Units.
Beginning tap: principles of rhythm and basic tap steps.

Prerequisite: DANCE 52A.

Repeatability: May be taken for credit 2 times.

DANCE 52C. Workshop in Tap I. 2 Units.
Beginning tap: principles of rhythm and basic tap steps.

Prerequisite: DANCE 52B.

Repeatability: May be taken for credit 2 times.

DANCE 60A. Choreography. 4 Units.
Beginning-to-intermediate study of principles of dance composition. May include composition assignments for stage and video. By audition, works may be shown quarterly in public studio performances.

Restriction: Dance Majors only.

DANCE 60B. Choreography. 4 Units.
Beginning-to-intermediate study of principles of dance composition. May include composition assignments for stage and video. By audition, works may be shown quarterly in public studio performances.

Prerequisite: DANCE 60A.

Restriction: Dance majors only.

DANCE 60C. Choreography. 4 Units.
Beginning-to-intermediate study of principles of dance composition. May include composition assignments for stage and video. By audition, works may be shown quarterly in public studio performances.

Prerequisite: DANCE 60A and DANCE 60B.

Restriction: Dance majors only.

DANCE 80. Introduction to Ballet and Modern Dance. 4 Units.
Survey of nineteenth and twentieth-century ballet, modern dance, and theatre dance.

Overlaps with DANCE 90B, DANCE 90C, DANCE 90A.

Restriction: Non-major only.

(IV, VIII)

DANCE 81. American Ballet and Modern Dance since 1900. 4 Units.
A survey of American ballet and modern dance in the twentieth and twenty-first centuries. Lectures are supplemented by video.

Overlaps with DANCE 90C.

Restriction: Non-major only. Dance 81 and Dance 90C may not both be taken for credit.

(IV)

DANCE 82. Topics in World Dance. 4 Units.
Various topics in world dance studies focusing on historical, social, and cultural contexts.

Repeatability: May be repeated for credit unlimited times.

(VIII)

DANCE 83. Dance in Feature Film. 4 Units.
Dance in film musicals and commercial dance films, concentrating especially on films from the 1930s through the 1970s.

(IV)

DANCE 85. Gender, Meaning, and Culture in Ballet. 4 Units.
Explores the way ballet as an art form and as a practice reflects culture, as well as embodying new ideas that read counter to conventional narratives.

(IV)

DANCE 90A. Dance History 1A. 4 Units.
Global perspectives. Topics and histories of dance and movement practices from various parts of the world.

Overlaps with DANCE 80.

Restriction: Dance majors have first consideration for enrollment.

(IV, VIII)

DANCE 90B. Dance History 1B. 4 Units.
The history of dance in the western tradition from the Renaissance through the nineteenth century.

Prerequisite: DANCE 90A

Overlaps with DANCE 80.

Restriction: Dance majors have first consideration for enrollment.

(IV, VIII)

DANCE 90C. Dance History 1C. 4 Units.
The history of dance in the western tradition: the twentieth and twenty-first centuries.

Prerequisite: DANCE 90B

Overlaps with DANCE 80, DANCE 81.

Restriction: Dance majors have first consideration for enrollment.

(IV, VIII)

DANCE 100. Kinesiology for Dance. 4 Units.
The study of the production of dance movement by the musculoskeletal system. Anatomical and dynamic analysis of dance movement.

Restriction: Dance majors only.

DANCE 103. Pilates. 2 Units.
Basics of technique emphasizing alignment, breath control, correction of muscular imbalances.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 104. Pilates Reformer. 2 Units.
Utilizes the Universal Reformer apparatus, aiding the student in core stabilization, correcting muscular imbalances, increasing flexibility, and improving strength.

Prerequisite: DANCE 103.

Restriction: Dance majors only.

DANCE 110. World Dance . 2 Units.
Studio workshop of dances and movement sources of specified countries or areas.

Repeatability: May be taken for credit 6 times as topics vary.

DANCE 125A. Teaching of Dance. 4 Units.
Pedagogy. The methods and theory of teaching dance forms.

Prerequisite: DANCE 133A and DANCE 133B and DANCE 133C and DANCE 143A and DANCE 143B and DANCE 143C.

Restriction: Dance majors only. Upper-division students only.

DANCE 127A. Costume Design for Dance. 4 Units.
Costume design and construction specific to the body in motion. Theoretical study and practical execution.

Restriction: Dance majors only.

DANCE 130A. Pointe Class. 2 Units.
Beginning and intermediate pointe work; principles of classical ballet with an emphasis on technique.

Prerequisite: DANCE 132A and DANCE 132B and DANCE 132C.

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 130B. Pointe Class. 2 Units.
Beginning and intermediate pointe work; principles of classical ballet with an emphasis on technique.

Prerequisite: DANCE 130A.

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 130C. Pointe Class. 2 Units.
Beginning and intermediate pointe work; principles of classical ballet with an emphasis on technique.

Prerequisite: DANCE 130A and DANCE 130B.

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 132A. Studio Workshop in Ballet II. 2 Units.
Intermediate ballet and beginning pointe work; principles of classical ballet with an emphasis on technique.

Prerequisite: (DANCE 30A and DANCE 30B and DANCE 30C) or audition. Prerequisites are for non-Dance majors only.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors have first consideration for enrollment.

DANCE 132B. Studio Workshop in Ballet II. 2 Units.
Intermediate ballet and beginning pointe work; principles of classical ballet with an emphasis on technique.

Prerequisite: DANCE 132A.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors have first consideration for enrollment.

DANCE 132C. Studio Workshop in Ballet II. 2 Units.
Intermediate ballet and beginning pointe work; principles of classical ballet with an emphasis on technique.

Prerequisite: DANCE 132A and DANCE 132B.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors have first consideration for enrollment.

DANCE 133A. Advanced Studio Workshop in Ballet III. 2 Units.
Advanced intermediate ballet and pointe work; principles of classical ballet with an emphasis on technique.

Prerequisite: (DANCE 132A and DANCE 132B and DANCE 132C) or audition.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 133B. Advanced Studio Workshop in Ballet III. 2 Units.
Advanced intermediate ballet and pointe work; principles of classical ballet with an emphasis on technique.

Prerequisite: DANCE 133A.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 133C. Advanced Studio Workshop in Ballet III. 2 Units.
Advanced intermediate ballet and pointe work; principles of classical ballet with an emphasis on technique.

Prerequisite: DANCE 133A and DANCE 133B.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 134A. Advanced Studio Workshop in Ballet IV. 4 Units.
Advanced ballet, pointe work, and performance styles: principles of classical ballet.

Prerequisite: (DANCE 133A and DANCE 133B and DANCE 133C) or audition. DANCE 133C with a grade of B+ or better.

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 134B. Advanced Studio Workshop in Ballet IV. 4 Units.
Advanced ballet, pointe work, and performance styles: principles of classical ballet.

Prerequisite: DANCE 134A.

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 134C. Advanced Studio Workshop in Ballet IV. 4 Units.
Advanced ballet, pointe work, and performance styles: principles of classical ballet.

Prerequisite: DANCE 134A and DANCE 134B.

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 135A. Advanced Studio Workshop in Ballet V. 4 Units.
Advanced ballet, pointe work, and performance styles: principles of classical ballet.

Prerequisite: (DANCE 134A and DANCE 134B and DANCE 134C) or audition. DANCE 134C with a grade of B+ or better.

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 135B. Advanced Studio Workshop in Ballet V. 4 Units.
Advanced ballet, pointe work, and performance styles: principles of classical ballet.

Prerequisite: DANCE 135A.

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 135C. Advanced Studio Workshop in Ballet V. 4 Units.
Advanced ballet, pointe work, and performance styles: principles of classical ballet.

Prerequisite: DANCE 135A and DANCE 135B.

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 137. Repertory . 2 Units.
Rehearsal and performance of repertoire from established ballet, modern, or jazz choreographers.

Prerequisite: (DANCE 133A and DANCE 133B and DANCE 133C) or (DANCE 143A and DANCE 143B and DANCE 143C).

Repeatability: May be taken for credit 3 times.

Restriction: Dance majors only.

DANCE 139. Partnering. 2 Units.
Principles of partnering techniques in various dance performance styles.

Prerequisite: DANCE 133A and DANCE 133B and DANCE 133C and DANCE 143A and DANCE 143B and DANCE 143C.

Repeatability: May be taken for credit 4 times.

Restriction: Dance majors only.

DANCE 142A. Studio Workshop in Modern II. 2 Units.
Introduction to the principles of motion, including the use of breath, gravity, spatial awareness, and time values.

Prerequisite: DANCE 40A and DANCE 40B and DANCE 40C. Prerequisites are for non-Dance majors only.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors have first consideration for enrollment.

DANCE 142B. Studio Workshop in Modern II. 2 Units.
Introduction to the principles of motion, including the use of breath, gravity, spatial awareness, and time values.

Prerequisite: DANCE 142A.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors have first consideration for enrollment.

DANCE 142C. Studio Workshop in Modern II. 2 Units.
Introduction to the principles of motion, including the use of breath, gravity, spatial awareness, and time values.

Prerequisite: DANCE 142A and DANCE 142B.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors have first consideration for enrollment.

DANCE 143A. Advanced Studio Workshop in Modern III. 2 Units.
Builds on fundamentals of Dance 142A-B-C and introduces performance techniques.

Prerequisite: DANCE 142A and DANCE 142B and DANCE 142C.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 143B. Advanced Studio Workshop in Modern III. 2 Units.
Builds on the fundamentals of DANCE 142A-DANCE 142B-DANCE 142C and introduces performance techniques.

Prerequisite: DANCE 143A.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 143C. Advanced Studio Workshop in Modern III. 2 Units.
Builds on fundamentals of DANCE 142A-DANCE 142B-DANCE 142C and introduces performance techniques.

Prerequisite: DANCE 143A and DANCE 143B.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 144A. Advanced Studio Workshop in Modern IV. 2 Units.
Synthesis of fundamentals and performance technique. Aims to bring students to the preprofessional level.

Prerequisite: DANCE 143A and DANCE 143B and DANCE 143C.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 144B. Advanced Studio Workshop in Modern IV. 2 Units.
Synthesis of fundamentals and performance technique. Aims to bring students to the preprofessional level.

Prerequisite: DANCE 144A.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 144C. Advanced Studio Workshop in Modern IV. 2 Units.
Synthesis of fundamentals and performance technique. Aims to bring students to the preprofessional level.

Prerequisite: DANCE 144A and DANCE 144B.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 152A. Intermediate Studio Workshop in Jazz II. 2 Units.
Intermediate jazz: principles of jazz dance and contemporary forms incorporating the personal views of the instructor.

Prerequisite: DANCE 50A and DANCE 50B and DANCE 50C. Prerequisites are for non-Dance majors only.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors have first consideration for enrollment.

DANCE 152B. Intermediate Studio Workshop in Jazz II. 2 Units.
Intermediate jazz: principles of jazz dance and contemporary forms incorporating the personal views of the instructor.

Prerequisite: DANCE 152A.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors have first consideration for enrollment.

DANCE 152C. Intermediate Studio Workshop in Jazz II. 2 Units.
Intermediate jazz: principles of jazz dance and contemporary forms incorporating the personal views of the instructor.

Prerequisite: DANCE 152A and DANCE 152B.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors have first consideration for enrollment.

DANCE 153A. Advanced Studio Workshop in Jazz III. 2 Units.
Advanced jazz: principles of jazz dance and contemporary forms incorporating the personal views of the instructor.

Prerequisite: DANCE 152A and DANCE 152B and DANCE 152C.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 153B. Advanced Studio Workshop in Jazz III. 2 Units.
Advanced jazz: principles of jazz dance and contemporary forms incorporating the personal views of the instructor.

Prerequisite: DANCE 153A.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 153C. Advanced Studio Workshop in Jazz III. 2 Units.
Advanced jazz: principles of jazz dance and contemporary forms incorporating the personal views of the instructor.

Prerequisite: DANCE 153A and DANCE 153B.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 154A. Advanced Jazz: Performance Techniques IV. 2 Units.
Advanced jazz emphasizing performance techniques.

Prerequisite: DANCE 153A and DANCE 153B and DANCE 153C.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 154B. Advanced Jazz: Performance Techniques IV. 2 Units.
Advanced jazz emphasizing performance techniques.

Prerequisite: DANCE 154A.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 154C. Advanced Jazz: Performance Techniques IV. 2 Units.
Advanced jazz emphasizing performance techniques.

Prerequisite: DANCE 154A and DANCE 154B.

Repeatability: May be taken for credit 2 times.

Restriction: Prerequisite required and Dance majors only

DANCE 160. Improvisation. 2 Units.
Structured and experiential improvisation to heighten the personal intuitive processes, the kinesthetic sense, spatial and temporal awareness, and to encourage insights into the potential movement resources of the individual for performance and choreography. Course encourages freedom of exploration.

Repeatability: May be taken for credit 2 times.

DANCE 162A. Choreography II. 4 Units.
Directed choreographic projects for stage or video integrating the elements of stagecraft. In process or completed works may be shown quarterly in public studio or stage performances.

Prerequisite: DANCE 60A and DANCE 60B and DANCE 60C. Audition required.

Restriction: Dance majors only.

DANCE 162B. Choreography II. 4 Units.
Directed choreographic projects for stage or video integrating the elements of stagecraft. In process or completed works may be shown quarterly in public studio or stage performances.

Prerequisite: DANCE 162A. Audition required.

Restriction: Dance majors only.

DANCE 162C. Choreography II. 4 Units.
Directed choreographic projects for stage or video integrating the elements of stagecraft. In process or completed works may be shown quarterly in public studio or stage performances.

Prerequisite: DANCE 162A and DANCE 162B. Audition required.

Restriction: Dance majors only.

DANCE 163. Dance and Video Technology. 4 Units.
Introduction to video and audio documentation of dance performance. Integrating dance performance within the film aesthetic. Techniques and technologies of video cameras, formats, editing, and projection. Overview of video compression and DVD authoring.

Prerequisite: DANCE 60A.

Restriction: Dance majors only.

DANCE 164. Screendance. 4 Units.
Overview of dance for film and choreography for the camera. Aesthetics of creating dance for the screen. Approaches for delivery of dance films to an audience, including projection, DVD, Web, and mobile devices. A final dance film project is required.

Prerequisite: DANCE 163.

Restriction: Dance majors only.

DANCE 165. Choreographic Projects. 1-4 Units.
Supervised choreographic projects for workshop productions.

Prerequisite: Audition required.

Repeatability: May be taken for credit 2 times.

Restriction: Dance majors only.

DANCE 170. Dance Performance. 1-4 Units.
Rehearsal and performance in a faculty-choreographed production.

Prerequisite: Audition required.

Repeatability: May be repeated for credit unlimited times.

DANCE 171. Dance Workshop. 1-4 Units.
Rehearsal and performance in a student-choreographed production.

Prerequisite: Audition required.

Repeatability: May be repeated for credit unlimited times.

DANCE 172. Master of Fine Arts Concert. 1-4 Units.
Rehearsal and performance in a graduate student-choreographed production.

Prerequisite: Audition required.

Repeatability: May be repeated for credit unlimited times.

DANCE 174. UCI Dance Ensemble Performance. 1-4 Units.
Performance with the UCI Dance Ensemble.

Repeatability: May be taken for credit 6 times.

Restriction: Sophomores, juniors, and seniors only.

DANCE 176. UCI Jazz Dance Ensemble. 2-4 Units.
Rehearsal and performance in theatrical jazz dance, designed to provide an experience in assimilating various styles of jazz dance and in refining dance performance techniques. Students will master aspects of dance company promotion.

Prerequisite: DANCE 152A and DANCE 152B and DANCE 152C.

Repeatability: May be taken for credit 6 times.

Restriction: Sophomores, juniors, and seniors only.

DANCE 177. UCI Spanish Dance Ensemble. 1-4 Units.
Rehearsal and performance with the UCI Spanish Dance Ensemble. Flamenco and other Spanish dance genres are presented throughout the year for campus and off-campus events.

Repeatability: May be taken for credit 12 times.

DANCE 179. UCI Etude Ensemble. 4 Units.
Repertory and performances by undergraduate Dance majors. Concert presentations on and off campus. Faculty directed, student/faculty choreographed.

Prerequisite: Audition required.

Repeatability: May be taken for credit 9 times.

Restriction: Sophomores, juniors, and seniors only.

DANCE 180A. Laban Studies. 4 Units.
Elementary Labanotation and motif writing.

Prerequisite: DANCE 21A and DANCE 180C.

Restriction: Dance majors only.

DANCE 180C. Laban Studies. 4 Units.
Laban movement analysis.

Prerequisite: DANCE 21A.

Restriction: Dance majors only.

DANCE 185. Critical Issues in Dance. 4 Units.
Critical thinking and writing about dance, with a section on dance criticism and a major emphasis on persuasive writing about significant issues in the dance world. Course may be offered online.

Prerequisite: DANCE 90A and DANCE 90B and DANCE 90C. Satisfactory completion of the lower-division writing requirement.

Restriction: Dance majors only.

DANCE 185W. Critical Issues in Dance. 4 Units.
Critical thinking and writing about dance, with a section on dance criticism and a major emphasis on persuasive writing about significant issues in the dance world. Course may be offered online.

Prerequisite: DANCE 90A and DANCE 90B and DANCE 90C. Satisfactory completion of the lower-division writing requirement.

Restriction: Dance majors only.

(Ib)

DANCE 193. Selected Topics in Dance. 1-4 Units.
Directed group studies of topics in dance.

Repeatability: May be taken for credit 3 times as topics vary.

DANCE 194. Topics Vary. 4 Units.
Seminar in Dance Studies. Variable topics related to gender, race, politics, and dance writing, and criticism, with attention to linking dance practices to the wider world.

Prerequisite: DANCE 90A and DANCE 90B and DANCE 90C.

Repeatability: Unlimited as topics vary.

DANCE 195. Arts Management. 4 Units.
Designed for students interested in the developmental and management of nonprofit arts organizations. Examines the organizational structure and areas of operation such as marketing, fundraising, budgeting, production, and administration.

Repeatability: May be taken for credit 2 times.

DANCE 197. Independent Study. 1-4 Units.
Individual independent projects in experimental laboratory, library, field, performance, under instructor's direction. Students can receive conceptual, creative, and theoretical instruction in the successful completion of a written report or performance.

Repeatability: May be repeated for credit unlimited times.

DANCE 199. Senior Thesis. 4 Units.
Directed research or creative activity for senior Dance majors. Research consists of a substantial essay on dance history, research in dance science, or the creation of original or reconstructed choreography.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Dance majors only.

DANCE 201. Seminar in Kinesiology for Dance. 4 Units.
Introduction to the anatomical, biomechanical, and physiological principles of dance movement.

Prerequisite: DANCE 100.

DANCE 210. Graduate Studio: World Dance. 2 Units.
Principles, techniques, and styles of selected genres of world dance such as those of Mexico, Spain, Japan, or other cultures.

Repeatability: May be taken for credit 6 times.

Restriction: Dance grad students only and consent of instructor to enroll.

DANCE 222. Musical Resources. 4 Units.
Detailed study of music as it relates to dance. Historical overview of musical form, style, and other elements. Analysis of various affinities between music and dance. Practical applications.

DANCE 225. Seminar in the Teaching of Dance Techniques. 4 Units.
Principles and theories of teaching dance techniques. Supervised presentation and teaching of technique class.

DANCE 231A. Graduate Studio: Ballet. 2 Units.
Advanced ballet, pointe work, and performance style: principles of the classical ballet with an emphasis on technique.

Repeatability: May be repeated for credit unlimited times.

Restriction: Audition required.

DANCE 231B. Graduate Studio: Ballet. 2 Units.
Advanced ballet, pointe work, and performance style: principles of the classical ballet with an emphasis on technique.

Prerequisite: DANCE 231A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Audition required.

DANCE 231C. Graduate Studio: Ballet. 2 Units.
Advanced ballet, pointe work, and performance style: principles of the classical ballet with an emphasis on technique.

Prerequisite: DANCE 231B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Audition required.

DANCE 241A. Graduate Studio: Modern. 2 Units.
Advanced modern dance: synthesis of fundamentals and performance technique. Aims to bring students to the preprofessional level.

Repeatability: May be repeated for credit unlimited times.

Restriction: Audition required.

DANCE 241B. Graduate Studio: Modern. 2 Units.
Advanced modern dance: synthesis of fundamentals and performance technique. Aims to bring students to the preprofessional level.

Prerequisite: DANCE 241A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Audition required.

DANCE 241C. Graduate Studio: Modern. 2 Units.
Advanced modern dance: synthesis of fundamentals and performance technique. Aims to bring students to the preprofessional level.

Prerequisite: DANCE 241B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Audition required.

DANCE 251A. Graduate Studio: Jazz. 2 Units.
Principles of jazz dance and contemporary forms, incorporating the personal views of the instructor.

Repeatability: May be repeated for credit unlimited times.

Restriction: Audition required.

DANCE 251B. Graduate Studio: Jazz. 2 Units.
Principles of jazz dance and contemporary forms, incorporating the personal views of the instructor.

Prerequisite: DANCE 251A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Audition required.

DANCE 251C. Graduate Studio: Jazz. 2 Units.
Principles of jazz dance and contemporary forms, incorporating the personal views of the instructor.

Prerequisite: DANCE 251B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Audition required.

DANCE 252A. Graduate Studio: Tap. 2 Units.
An overview of tap concentrating on the development of various technique forms using basic and intermediate principles.

Repeatability: May be taken for credit 4 times.

DANCE 252B. Graduate Studio: Tap. 2 Units.
An overview of tap concentrating on the development of various technique forms using basic and intermediate principles.

Prerequisite: DANCE 252A.

Repeatability: May be taken for credit 4 times.

DANCE 252C. Graduate Studio: Tap. 2 Units.
An overview of tap concentrating on the development of various technique forms using basic and intermediate principles.

Prerequisite: DANCE 252B.

Repeatability: May be taken for credit 4 times.

DANCE 261A. Graduate Studio in Choreography. 4 Units.
Graduate work in dance composition emphasizing the individual aesthetic. Assignments in movement discovery, solo and group forms, with the main emphasis on independent work.

Repeatability: May be repeated for credit unlimited times.

DANCE 261B. Graduate Studio in Choreography. 4 Units.
Graduate work in dance composition emphasizing the individual aesthetic. Assignments in movement discovery, solo and group forms, with the main emphasis on independent work.

Prerequisite: DANCE 261A.

Repeatability: May be repeated for credit unlimited times.

DANCE 264. Screendance. 4 Units.
Overview of dance for film and choreography for the camera. Aesthetics of creating dance for the screen. Approaches for delivery of dance films to an audience, including projection, DVD, Web, and mobile devices. A final dance film project is required.

Prerequisite: DANCE 281.

DANCE 265. Performance Capture. 4 Units.
Projects in performance capture, motion capture, motion tracking, and computer animation. Introduction to techniques for sensing and recording human movement and transforming the result into digital representations using computer technology. Discussion of aesthetic issues related to movement representation. Choreographic projects.

Prerequisite: DANCE 264 and DANCE 281.

DANCE 281. Dance and Video Technology. 4 Units.
Introduction to video and audio documentation of dance performance. Integrating dance performance within the film aesthetic. Techniques and technologies of video cameras, formats, editing, and projection. Overview of video compression and DVD authoring.

DANCE 282. Seminar in Movement Analysis. 4 Units.
Theories of movement analysis and nonverbal communication applied to dance.

DANCE 283. Critical Issues in Dance. 4 Units.
Reading, writing, discussing, and presenting key issues that relate to dance studies. Basics of dance analysis and criticism. Special emphasis on effective ways of defining, clarifying, and arguing for points of view.

Prerequisite: DANCE 284.

DANCE 284. Bibliography and Research. 4 Units.
Understanding the field of dance studies, available resources, research methods, and academic formats in preparation for thesis writing.

DANCE 285. Graduate Projects. 4 Units.
Projects may be educational, choreographic, scientific, historical, or philosophical in scope and must have faculty advisor approval.

Repeatability: May be taken for credit 6 times.

DANCE 286. Thesis. 4 Units.
Substantial research in a topic approved by the student's graduate committee. Results of the research must be written in approved thesis style.

Repeatability: May be taken for credit 6 times.

DANCE 287. Graduate Lectures in Dance. 1-4 Units.
A series of lectures and discussions of announced topics in dance. Content may be from history, ethnology, notation, medicine, music, or other areas in the field.

Repeatability: Unlimited as topics vary.

DANCE 296. Proseminar in Dance History. 4 Units.
Discussion seminar with emphasis on reading and thinking about problems in dance history; presentation of oral and written reports.

Repeatability: May be taken for credit 2 times as topics vary.

DANCE 297. Directed Reading. 1-4 Units.
Topic to be approved by instructor. Paper required.

Repeatability: May be repeated for credit unlimited times.

DANCE 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Dance graduate students only.

Department of Drama

249 Drama Building; 949-824-6614
http://drama.arts.uci.edu/
Daniel Gary Busby, **Department Chair**

The top-ranked Drama Department is a member of the University/Regional Theatre association (U/RTA) and offers two undergraduate degrees.

The Bachelor of Arts (B.A.) degree in Drama combines broad liberal study as well as comprehensive training in several sub-disciplines of theatre making. Drama majors study and get practical experience in each of several mutually-related areas of the theatre: performance, literature, history, criticism, design, stage management, and production in a curriculum that is structured to relate practice and technical resources/production techniques to the development of dramatic literature as well as current critical theory.

The Bachelor of Arts degree is designed for students who have a serious interest in the literature, theory and practice of drama, though they may not *necessarily* be planning to make the theatre their vocation, as well as students *preparing to work professionally* in the theatre (often after more specialized training at the graduate level).

The Drama Department also offers a Bachelor of Fine Arts (B.F.A.) for students who demonstrate a professional aptitude for a career as musical theatre performers. The B.F.A.in Music Theatre offers these students the opportunity to train more extensively in acting, singing, and dancing for the stage. Students may audition for the B.F.A. program after completing one quarter of Music Theatre Workshop, Level III (DRAMA 143A or DRAMA 143B or DRAMA 143C). B.F.A. students are given priority when enrolling in all music theatre courses. Auditions for the B.F.A. program are held three times per year: (a) during Welcome Week (b) during finals week of Fall quarter (c) during finals week of Winter Quarter. A grade point average of 3.0 in musical theatre courses completed *prior* to the B.F.A. audition is required.

Careers for the Drama Major

Graduates from the UC Irvine Drama Department perform, stage manage, or design on Broadway, in national tours, regional and summer theatres, in films and on television. UC Irvine Drama alumni serve as artistic directors, business managers, designers, art directors, and performers at more than 100 theatre companies, and are faculty at more than 75 institutions of higher learning.

A degree in Drama may or may not lead to professional employment in theatre or film. Not all Drama majors become professional theatre artists. Many use the skills learned from their degree and embark upon careers in law, business, arts management, advertising, and teaching; others pursue further study at UC Irvine or other notable institutions.

Requirements for the B.A. Degree in Drama

All students must meet the University Requirements (p. 71)**.**

School Requirements: None.

Departmental Requirements for the Major

DRAMA 10	Introduction to Theatre
Select one of the following:	
DRAMA 15	Performance Now
DRAMA 20A	Culture in Performance
DRAMA 20B	Culture in Performance
DRAMA 20C	Culture in Performance
One year in acting:	
DRAMA 30A	Acting
DRAMA 30B	Acting
DRAMA 30C	Acting
One year survey in the development of drama: [1]	
DRAMA 40A- 40B- 40C	Development of Drama and Development of Drama and Development of Drama
Select three of the following: [2]	
DRAMA 50A	Introduction to Costume Design
DRAMA 50B	Introduction to Scenic Design
DRAMA 50C	Introduction to Lighting Design
DRAMA 50D	Introduction to Sound Design
DRAMA 50E	Introduction to Stage Management
DRAMA 50F	History and Theories of Scenography
Select seven upper-division courses, which must include three dramatic literature courses from DRAMA 103–129, or 180 (excluding DRAMA 101, 198, and 199).	
Theatre Production (DRAMA 101) requirements:	
Freshmen—eight units, of which four units must be completed during the first year of residency at UCI;	
Transfer Students: Sophomores—six units, of which four units must be completed during the first year of residency at UCI; Juniors and Seniors—four units, which must be completed during the first year of residency at UCI.	

1 Students are required to take DRAMA 40A, DRAMA 40B, DRAMA 40C in their sophomore year, after completion of the lower-division writing requirement.

2 Students entering the Department as freshman must complete the requirement of three courses chosen from DRAMA 50A, DRAMA 50B, DRAMA 50C, DRAMA 50D, DRAMA 50E, DRAMA 50F by the end of their junior year. All other students must complete these courses within one year of entering the major.

Sample Program for Freshmen

Fall	Winter	Spring
DRAMA 30A	DRAMA 30B	DRAMA 30C
DRAMA 10	DRAMA 15	Drama 50
Drama 101 (2 units)	Drama 101 (2 units)	General Education
WRITING 39B	WRITING 39C	General Education

Requirements for the B.F.A. Degree in Music Theatre

All students must meet the University Requirements (p. 71)**.**

School Requirements: None.

Department Requirements for the Major

DRAMA 10	Introduction to Theatre
Select one of the following:	
DRAMA 15	Performance Now

DRAMA 20A	Culture in Performance
DRAMA 20B	Culture in Performance
DRAMA 20C	Culture in Performance
DRAMA 30A- 30B- 30C	Acting and Acting and Acting
DRAMA 40A- 40B- 40C	Development of Drama and Development of Drama and Development of Drama
Select one of the following design courses:	
DRAMA 50A	Introduction to Costume Design
DRAMA 50B	Introduction to Scenic Design
DRAMA 50C	Introduction to Lighting Design
DRAMA 50D	Introduction to Sound Design
DRAMA 50E	Introduction to Stage Management
DRAMA 50F	History and Theories of Scenography
DRAMA 100	University Theatre
DRAMA 136	Music Theatre Acting
DRAMA 142	Music Theatre Workshop II
DRAMA 143A- 143B- 143C	Music Theatre Workshop III and Music Theatre Workshop III and Music Theatre Workshop III
DRAMA 144	Music Theatre Workshop IV
DRAMA 145	Music Theatre Singing (taken three times)
DRAMA 146	NYSP-Preparation
DRAMA 148A- 148B- 148C	History of American Musical Theatre and History of American Musical Theatre and History of American Musical Theatre
DRAMA 149	Music Proficiency for Actors
DRAMA 176	Script and Score
DRAMA 177	Song Repertoire
Complete the following:	
DRAMA 182A- 182B	Dance Technique, Level I and Dance Technique, Level I
or	
DRAMA 183A- 183B	Dance Technique, Level II and Dance Technique, Level II
Select one Dramatic Literature course from DRAMA 103-129 or 180.	
Theatre Production (DRAMA 101) requirements:	
Freshmen—eight units, of which four units must be completed during the first year of residency at UCI.	
Transfer Students: Sophomores—six units, of which four units must be completed during the first year of residency at UCI; Juniors and Seniors—four units, which must be completed during the first year of residency at UCI.	
Plus each of the following courses when in residence in the New York Satellite Program:	
DRAMA 190	NYSP-Acting
DRAMA 191	NYSP - Dance
DRAMA 192	NYSP - Singing
DRAMA 193	NYSP - Performance
DRAMA 194	NYSP-UCI Residency
Also complete two ballet classes, one tap class, and one jazz class in Dance.	

Application Process to Declare the Major

Drama majors may audition for the program upon acceptance into the Music Theatre Workshop, Level III (DRAMA 143A, DRAMA 143B, or DRAMA 143C). B.F.A. auditions are held three times per year: during Welcome Week and finals week of the fall and winter quarters. A grade point average of 3.0 in music theatre courses completed prior to the B.F.A. audition is required.

Departmental Honors Programs

Honors in Acting Program

Admission to the Honors in Acting Program requires both eligibility and a special audition. The eligibility requirements for sophomore-level transfer students and native UCI students are (1) at least one year in good standing as a UCI Drama major; (2) completion of DRAMA 130 or DRAMA 136 and at least one section of either DRAMA 135 or DRAMA 142, all at UCI; (3) honors students must possess and maintain an overall GPA of at least 3.2, with a GPA of 3.4 or higher in all acting courses; (4) performance in at least three official UCI Drama productions; (5) completion of six units of Drama 101 (Production/Crew); and (6) completion of the eligibility form.

The eligibility requirements for junior-level transfer students are (1) one year in good standing as a UCI Drama major; (2) completion of DRAMA 130 or DRAMA 136 at UCI; (3) honors students must possess and maintain an overall GPA of at least 3.2, with a GPA of 3.4 or higher in all acting courses; (4) completed performance in at least one official UCI Drama production; (5) completion of four units of Drama 101; and (6) completion of eligibility form.

A student's audition will determine final admission to the Honors in Acting program. Only truly exceptional students, no more than 10 to 20 percent of those eligible, will be admitted. The Honors auditions, for eligible candidates only, are held at the end of fall quarter and by special arrangement. Auditions will consist of a standard presentation: one classical and one modern monologue, totaling no more than three minutes.

Honors in Acting Program students receive (1) the "Honors in Acting" notation on their official transcript at graduation; and (2) nomination and recommendation for national University/Resident Theatre Association (U/RTA) auditions. Honors in Acting students may also be eligible to join M.F.A. Acting students in on-campus auditions for professional theatres and attend M.F.A. Actors' "Dynamics" classes.

Honors in Design/Technology Program

The Honors in Design/Technology Program provides the opportunity for Drama majors to concentrate on the study and practice of scenery, costume, lighting, sound design, or technology. Honors in Design/Technology students study basic and advanced design and production techniques, participate in classes with graduate design students, and may serve as an assistant to a graduate student or faculty designer, or design a production at UCI.

Eligibility requirements are (1) at least one year in good standing at UCI as a Drama major; (2) completion of DRAMA 50A, DRAMA 50B ,DRAMA 50C, DRAMA 50D for Scenic or Costume designers; or completion of DRAMA 50C, DRAMA 50D and two of DRAMA 50A, DRAMA 50B, or DRAMA 50F for Sound or Lighting designers (3) completion of at least two courses selected from DRAMA 50E, upper-division studio courses (Drama 150–162, 167–169, 171, or 179), or graduate-level design courses, including at least one from the design area in which the student is applying for honors; (4) possess and maintain an overall GPA of at least 3.2, with a GPA of 3.4 or higher in all design and production technique courses; (5) completion of four out of eight units of Drama 101 (Theatre Production); and (6) completion of the eligibility form.

Admission to the Honors in Design/Technology Program is competitive. Students may be admitted as early as the winter quarter of their sophomore year. Upon completion of eligibility requirements, the student will schedule an informal portfolio review with a member of the design faculty appropriate to the student's specialty area(s).

Only truly exceptional students will be admitted to Honors in Design/Technology as determined by the Design faculty.

If the faculty mentor determines that the student is a good candidate for the Honors in Design/Technology Program, the mentor will present the student's portfolio to the Design Faculty. The Design Faculty, led by the Head of Design, will then decide if the student shall be admitted to the Honors in Design Program.

Honors in Design/Technology students receive (1) the "Honors in Design/Technology" notation on their official transcript at graduation; (2) an assistant designer assignment with a graduate student or faculty designer; (3) special consideration to design a budgeted and technically supported production; and (4) Honors in Design students may also receive nomination and recommendation for national University/Resident Theatre Association (U/RTA) interviews.

Honors in Design/Technology students are expected to maintain a high level of performance and commitment to their work and the Drama Department. Honors students meet with their faculty mentor at the beginning of every quarter to evaluate their progress and check that all grade, course, and production requirements are being satisfied.

Once admitted into the Honors in Design/Technology Program, students are expected to:

1. Maintain an overall GPA of a least 3.2, with a GPA of at least 3.4 in all design and production technique courses.
2. Remain in good standing as a Drama major.
3. Satisfy any provisional conditions for acceptance into the Honors in Design/Technology program.
4. Complete production assignments as assigned by the faculty mentor.
5. Continue to take at least two courses (as enumerated in the eligibility section) or independent studies per year, at least half of which must come from the area of design in which the student is applying for honors.
6. Complete any safety and auxiliary training commensurate with M.F.A. students in a particular discipline.
7. Maintain the Drama Department's CORE values (http://drama.arts.uci.edu/policies.html).

Should a student, having been previously admitted to the Honors in Design Program, fail to meet expectations, the Design Faculty will meet to evaluate the situation; the student may lose their Honors in Design status and have to re-apply to the Program.

For more information contact the Head of Design in Drama or Area Head of design discipline.

Honors in Directing Program

The Honors in Directing Program provides the opportunity for Drama majors to concentrate on the study and practice of stage direction. Honors in Directing students study basic and advanced directing techniques, participate in the directing studio classes with graduate Directing students, and direct two full plays in the Director Class Projects series. Honors students also have the opportunity to receive credit as the assistant director to a Drama Department main season show, or as a production internship with a professional theatre company.

Admission to the Honors in Directing Program is competitive. Candidates must first complete DRAMA 184 (Directing) and receive instructor approval to enroll in DRAMA 185 (Advanced Directing). Candidates must apply, as a director, for DRAMA 198 (Director Class Project) by submitting a proposal to direct a play in the Director Class Project. If the proposal is accepted, the candidate must declare to the Head of Directing that the production is to be counted as an audition for admission to the Honors in Directing Program. A committee of three Drama faculty members, including the Head of Directing, will then see and evaluate the production for clarity of interpretation, unity of style, strength of acting, and ensemble performance, and will examine the candidate's self-evaluation and the evaluations of the director by members of the cast. The Head of Directing will inform the candidate of the committee's decision as to whether or not the candidate is admitted to the Honors Program.

Undergraduate Drama majors can be admitted into the program as early as the winter quarter of their freshman year but no later than the spring quarter of their junior year. Students may be admitted to the program retroactively if all the requirements for Directing Honors have been met by their final year, but only if a faculty committee of three has seen their workshops and agrees to admit the candidate.

To achieve the Honors in Directing distinction, students must fulfill all the courses required of the regular Drama major, with an overall GPA of 3.2 or higher. In addition, students must complete the following courses with a GPA of 3.4 or higher:

1. DRAMA 184 (Directing).
2. Two courses in DRAMA 185 (Advanced Directing). In this course, undergraduate Directing students present work in the Directing Laboratory along with graduate Directing students.
3. Two Director Class projects, one of which must be taken as DRAMA 198 (Director Class Project) with the candidate serving as director. The candidate must stage a second Director Class Project as DRAMA H198 (Honors Director Class Project), for which a letter grade is earned.
4. Four additional units to be satisfied by any of the following: DRAMA 199 (as a summer internship, approved by the Head of Directing, with the candidate serving a professional theatre company as director, assistant director, or production assistant); DRAMA 199 (as a production/directing project for Playwright's Workshop); DRAMA 100 (as assistant director to a faculty director); or DRAMA 199 (as assistant director to a graduate director's thesis production).

Honors candidates meet with the Head of Directing at the beginning of every quarter to evaluate their progress and to check that all grade and course requirements are being satisfied. Successful graduating seniors will receive the "Honors in Directing" notation on their official transcript and will receive a nomination and recommendation for national University/Resident Theatre Association (U/RTA) interviews.

NOTE: All of the above courses are open to all students even though they may not qualify for the Honors Program.

Honors in Dramatic Literature, History, and Theory Program

The Honors in Dramatic Literature, History, and Theory Program is designed to challenge superior students beyond the scholarly requirements of the Drama major. It provides them with the opportunity to advance their knowledge of dramatic literature, history, and theory and to further develop their writing, analytical, and research skills. An additional purpose of the program is to better prepare students for graduate study in not only dramatic literature, history, and theory, but in all fields in the humanities and social sciences, as well as in law.

Eligibility requirements are (1) completion of DRAMA 40A, DRAMA 40B, DRAMA 40C and two courses selected from Drama 103–129 (for upper-division writing credit), or equivalents to these courses from other institutions; (2) possess and maintain an overall GPA of at least 3.2, with a GPA of 3.4 or higher in all dramatic literature, history, and theory courses; and (3) completion of the eligibility form.

Admission to the Honors in Dramatic Literature, History, and Theory Program is competitive. Students must apply to the program prior to the spring quarter of their junior year. Upon completion of eligibility requirements, applicants must submit at least two critical essays, most likely written previously for courses, totaling no more than 30 pages. These essays will be used by the Honors Committee (comprised of the Head of Dramatic Literature, History, and Theory and two additional members of the Drama faculty) to determine admission. Only truly exceptional students (no more than 10 to 20 percent of those eligible) will be admitted.

Beyond fulfilling the regular requirements of the Drama major, honors students must take three additional upper-division courses in dramatic literature, history, and/or theory, one of which must be focused on theory. Upper-division courses in other departments may be used to fulfill these requirements, as long as the Honors Committee approves them.

Honors students must also write an honors thesis, a 30–40 page research paper written under the supervision of a faculty member on a topic chosen by the student. In consultation with the student, the adviser for this project is selected before the end of the fall quarter of the student's senior year. Students develop their projects until the spring quarter when they enter the writing phase. It is only during the spring quarter that students achieve full course credit for their work on the thesis, in the form of an independent study course with their advisor. This independent study is the final course of the program.

Successful graduating seniors will receive the "Honors in Dramatic Literature, History, and Theory" notation on their official transcript.

Honors in Music Theatre

Successful graduating seniors in both the B.A. in Drama and the B.F.A. in Music Theatre can achieve Honors in Music Theatre. An overall GPA of 3.2 or higher is required along with an overall GPA of 3.4 in all music theatre courses. B.F.A. students need to complete all course work listed under "Departmental Requirements for the B.F.A. Major" while B.A. students need to complete the following additional music theatre courses:

DRAMA 142	Music Theatre Workshop II
DRAMA 143A- 143B- 143C	Music Theatre Workshop III and Music Theatre Workshop III and Music Theatre Workshop III
DRAMA 145	Music Theatre Singing (taken three times)
DRAMA 146	NYSP-Preparation
DRAMA 148A- 148B- 148C	History of American Musical Theatre and History of American Musical Theatre and History of American Musical Theatre
DRAMA 149	Music Proficiency for Actors
DRAMA 176	Script and Score
Select one of the following in any combination:	
DRAMA 182A- 182B	Dance Technique, Level I and Dance Technique, Level I
DRAMA 183A- 183B	Dance Technique, Level II and Dance Technique, Level II
DRAMA 190	NYSP-Acting
DRAMA 191	NYSP - Dance
DRAMA 192	NYSP - Singing
DRAMA 193	NYSP - Performance
DRAMA 194	NYSP-UCI Residency
Two ballet classes in Dance.	
One tap class in Dance.	
One jazz class in Dance.	

At graduation, successful Honors students receive the "Honors in Music Theatre" notation on their transcripts.

Honors in Stage Management Program

The Honors in Stage Management Program provides the opportunity for Drama majors to concentrate on the study and practice of stage management. Honors students study basic and advanced stage management techniques, participate in classes with graduate stage managers, work as assistant stage managers with the graduate stage managers on graduate student-directed and faculty-directed productions, and stage manage a graduate student-directed or faculty-directed production at UCI.

Eligibility requirements are (1) minimum one year in good standing at UCI as a Drama major; (2) completion of three of the following: DRAMA 50A, DRAMA 50B, DRAMA 50C, DRAMA 50D, DRAMA 50F or equivalent courses; (3) completion of DRAMA 50E; (4) possess and maintain an overall GPA of at least 3.2, with a GPA of 3.4 or higher in all stage management and production courses; (5) completion of eight units of Drama 101 (Theatre Production); and (6) completion of the eligibility form.

Admission to the Honors in Stage Management Program is competitive. Students may be admitted as early as the winter quarter of their sophomore year but no later than the spring quarter of their junior year. Only truly exceptional students (no more than 10 to 20 percent of those eligible) will be admitted to the program as determined by the Honors Committee. Upon completion of eligibility requirements, the student will submit to the Honors Committee: (1) two prompt books; (2) a resume including all stage management and production experience; (3) letters of reference from two directors with whom the student has worked; and (4) a written paper on the subject of stage management.

Students receive the “Honors in Stage Management” notation on their final transcript; nomination and recommendation for national University/Resident Theatre Association (U/RTA) interviews; assistant stage manager assignments working with graduate stage managers; and a stage management assignment on a graduate student-directed or faculty-directed production.

Honors candidates meet with the Head of Stage Management at the beginning of every quarter to evaluate their progress.

Master of Fine Arts Program

Degree Offered

M.F.A. in Drama, with emphasis in Acting, Directing, Design, or Stage Management.

A graduate emphasis in Feminist Studies also is available. Refer to the Department of Gender and Sexuality Studies (p. 891) section of the *Catalogue* for information.

Admission

Applicants for admission to the degree program must meet the general requirements for admission to graduate study and hold a B.A., B.F.A., or higher degree.

Applicants must submit dossiers of biographical information and theatrical experience, together with photographs, essays, reviews, production books, and portfolios, as appropriate.

Normally an audition is required for all applicants who intend to follow the curriculum in Acting. UCI coordinates its auditions with the University/Resident Theatre Association (U/RTA), and conducts auditions, both for U/RTA finalists and UCI applicants, in New York, Chicago, San Francisco, and Irvine during January and February. Other U/RTA audition sites may be considered. Interviews for applicants in Directing, in Design, and in Stage Management also are required.

General Degree Requirements

Normally three years of residence is required. Each candidate must enroll for three courses each quarter for nine quarters, exclusive of summer sessions.

The normative time to degree for students in the M.F.A. program is three years. Residence is required. The maximum time to degree can be extended to four years only through petition to the Head of the Program for extenuating circumstances. Students who do not complete the degree in four years will be dropped from the program.

During the first year of residence each candidate will prepare, for credit, two graduate projects, in acting, directing, design, stage management, theatrical research, or a combination of two of these. Satisfactory completion of these projects, as determined by the faculty, is prerequisite to entering the second year of the program.

The required thesis normally consists of directing, designing, stage managing, or playing a principal role in a major production, and collecting in essay form the evidences of research, analysis, and judgments which formed a part of the production experience.

Each graduate student is expected to participate in productions throughout residence at UCI.

Specific course requirements must be satisfied in one of the following four areas:

Acting

Select nine graduate studios in acting:	
DRAMA 200	Graduate Studio: Acting
Select, in tandem, nine graduate studios in:	
DRAMA 201	Graduate Studio: Voice
DRAMA 202	Graduate Studio: Speech
DRAMA 203	Graduate Studio: Movement
DRAMA 206	Graduate Studio: Voice/Movement Dynamics
Select three master classes in acting from various topics offered in Drama 219.	
Complete:	
DRAMA 235	Script Analysis and Research
Select one seminar in dramatic literature, performance theory, criticism, history of theatre, or contemporary theatre from the following:	
DRAMA 220–225	
Select six graduate projects, of which two may be the following professional internships:	

DRAMA 240	Graduate Projects
or DRAMA 295	Professional Internship

A total of 110 quarter units in graduate or approved upper-division undergraduate courses must be completed with a grade of at least B in each course.

Design

Select seven graduate studios in design seminars:	
DRAMA 255	Graduate Design Seminar
Select six courses in graduate projects (one of which may be a professional internship: DRAMA 295):	
DRAMA 240	Graduate Projects
Select two elective courses from course numbered 100 and above.	
Course numbered 100 and above.	
Select four courses in dramatic literature, performance theory, criticism, or history of theater from the following:	
DRAMA 220	Seminar in Dramatic Literature
DRAMA 221	Seminar in Criticism
DRAMA 248A- 248B- 248C	History of American Music Theatre and History of American Musical Theatre and History of American Musical Theatre
DRAMA 164A	History of Costume
DRAMA 164B	History of Costume
or other substitutions as approved by mentor.	
Select three courses in design techniques from the following:	
Drama 258–282	
Complete three foundation courses taken during the first year of study:	
DRAMA 251A- 251B- 251C	Foundations of Theatre and Foundations of Theatre and Foundations of Theatre
Select eight Colloquium courses:	
DRAMA 259	Theatre Colloquium
Complete one Survival and Professional Practice in Design:	
DRAMA 256	Survival and Professional Practice in Design

A total of 112 quarter units in graduate or approved upper-division undergraduate courses must be completed with a grade of at least B in each course.

Directing

Select nine graduate studios in directing:	
DRAMA 211	Graduate Studio: Directing (one of which is the creation of a thesis portfolio and resume)
Complete two courses in Foundations:	
DRAMA 251A- 251C	Foundations of Theatre and Foundations of Theatre
Select one course in Multiculturalism:	
DRAMA 220	Seminar in Dramatic Literature
Select two courses as professional internships:	
DRAMA 295	Professional Internship
Select two courses in acting:	
DRAMA 200	Graduate Studio: Acting (may include movement, voice classes approved by the faculty program head)
Select two seminars in dramatic literature, performance theory, criticism, theatre history	
DRAMA 199	Project in Theatre
DRAMA 221	Seminar in Criticism
DRAMA 248A- 248B- 248C	History of American Music Theatre and History of American Musical Theatre and History of American Musical Theatre
Select six projects:	

DRAMA 240	Graduate Projects (of which one is the thesis and one is an off-site production)
Select two design or stage management courses (approved by the faculty program head)	
DRAMA 157	Lighting Composition
DRAMA 159	Proseminar in Theatre Design
DRAMA 199	Project in Theatre
DRAMA 254	Graduate Stage Management
DRAMA 255	Graduate Design Seminar
And a minimum of three electives.	

A total of 116 quarter units in graduate or approved upper-division undergraduate courses must be completed with a grade of at least B in each course.

Stage Management

Select seven graduate studios in stage management:	
DRAMA 254	Graduate Stage Management
Complete one thesis project course:	
DRAMA 257E	Thesis Writing Project-Stage Management
Select seven courses in graduate projects:	
DRAMA 240	Graduate Projects
Complete one professional internship course:	
DRAMA 295	Professional Internship
Select three electives as approved by the faculty advisor from the following:	
graduate-level (Drama 200+)	
upper-division (Drama 100–199)	
Complete three courses in foundations in theatre:	
DRAMA 251A- 251B- 251C	Foundations of Theatre and Foundations of Theatre and Foundations of Theatre
Select two courses in production techniques from the following:	
Drama 150–159, 162–164, 167–168, 170–171, 260A, B–262, 265–266	
Complete one seminar in script analysis and research:	
DRAMA 235	Script Analysis and Research
Select one course in dramatic literature, criticism, contemporary theatre, or history of music theatre from the following:	
DRAMA 220	Seminar in Dramatic Literature
DRAMA 221	Seminar in Criticism
DRAMA 248A- 248B- 248C	History of American Music Theatre and History of American Musical Theatre and History of American Musical Theatre

A total of 112 quarter units in graduate or approved upper-division undergraduate courses must be completed with a grade of at least B in each course.

Doctoral Degree Program

Degree Offered

Ph.D. in Drama and Theatre.

This is a joint program offered by the UCI Department of Drama and the UCSD Department of Theatre and Dance.

Preparation

Students with a B.A. (minimum GPA of 3.5), M.A., or M.F.A. degree in Drama and Theatre are eligible for admission to the doctoral program. Students with training in literature (or another area in the humanities) will also be considered, provided they can demonstrate a background in drama or theatre. Experience in one of the creative activities of theatre (acting, directing, playwriting, design, dramaturgy) enhances a student's chances of admission.

All applicants are required to take the Graduate Record Examination and to submit samples of their critical writing.

While not required for admission, a working knowledge of a second language is highly desirable (see Language Requirement (p. 215)).

Course of Study

Students are required to take a minimum of 144 units, which is equivalent to four years of full-time study (full-time students must enroll for a minimum of 12 units each quarter). Forty of these units are taken in required seminars; the balance is made up of elective seminars, independent study and research projects (including preparing the three qualifying papers), and dissertation research. Students must take a minimum of one seminar per year in the UCSD Department of Theatre and Dance. The program of study makes it possible for students to take a significant number of elective courses and independent studies both with faculty in Drama and Theatre and in other departments.

Required Courses

Students must take a minimum of 12 units (three seminars) each of DRAMA 290 Dramatic Literature and Theatre History Prior to 1900 and DRAMA 291 Dramatic Literature and Theatre History, 1900 to Present, and 16 units (four seminars) of DRAMA 292 Cultural and Critical Theory.

All graduate courses may be repeated when the topic varies. Descriptions of the topics to be treated in a given academic year are published by the Department in the fall. Enrollment in each course requires the consent of the instructor. The courses are limited to registered doctoral students.

These 10 required seminars must be completed by all students, including those who have an M.A. or an M.F.A. degree, before the end of the third year. In addition, students must pass comprehensive examinations at the end of their first and second years.

DRAMA 293 Directed Studies and DRAMA 294 Dissertation Research are also required.

Graduate Emphasis in Dramaturgy (Elective):

This Emphasis may be taken at any time during a graduate student's doctoral work, preferably during the first 4 years of graduate study, prior to the dissertation. The Emphasis includes 3 courses: DRAMA 244 Dramaturgy: Theory and Methods; DRAMA 297 Dramaturgy Practicum; DRAMA 290 Dramatic Literature and Theatre History Prior to 1900 or DRAMA 291 Dramatic Literature and Theatre History, 1900 to Present, with research component on dramaturgy in consultation with the Instructor .

Comprehensive Examinations

In the first year, students prepare for the Written Comprehensive Examination, which is based on a reading list of approximately 150 titles ranging from the Ancient Greeks to the present. Students take this examination at the beginning of the fall quarter of their second year. (Comprehensive examinations are scheduled at the beginning of fall quarter in order to allow students the summer to prepare.) Students who fail the Written Comprehensive may retake it no later than the first week of winter quarter of their second year. Students who fail the Written Comprehensive for a second time are dismissed from the program.

In their second year, students prepare for the Oral Comprehensive Examination. The reading list for this examination is designed to permit students to acquire a knowledge of their dissertation subject area, broadly conceived. The reading list is compiled by the student and the dissertation advisor, in consultation with other members of the faculty, as appropriate; the reading list must be established by the end of winter quarter of the second year. Students take the Oral Comprehensive at the beginning of the fall quarter of their third year. Students also submit a dissertation prospectus (approximately five pages) when they take this examination. Students who fail the Oral Comprehensive may retake it no later than the first week of winter quarter of their third year. Students who fail the Oral Comprehensive for a second time are dismissed from the program.

Advancement to Candidacy: Three Qualifying Papers

Students normally select a dissertation advisor during their second year and must do so before the end of spring quarter of that year. In consultation with the dissertation advisor and other faculty members, students develop topics for three qualifying papers, which are written during their third year. The three qualifying papers—one long (approximately 50 pages) and two short (approximately 30 pages each)—must be completed by the end of the third year; these completed papers provide the basis for the Oral Qualifying Examination. Students write the long paper under the direction of their dissertation advisor; it is understood that the long paper is preparatory to the dissertation. The short papers deal with other related topics, subject to the approval of the student’s advisors; the two short papers are understood as engaging in exploring the larger contexts of the dissertation. The normative time for students to pass the Qualifying Examination and advance to candidacy is at the end of their third year; students must advance to candidacy no later than the end of fall quarter of their fourth year. Once advanced to candidacy, students write their dissertation which, upon completion, is defended in a final oral examination.

Students may select a dissertation advisor from either the UCI Department of Drama or the UCSD Department of Theatre and Dance. All UCI doctoral dissertation committees must include at least one faculty member from UCSD.

Language Requirement

Students are required to complete an advanced research project using primary and secondary material in a second language (materials may include live and/or recorded performance; interviews with artists, critics, and scholars; and other non-documentary sources, as well as more conventional textual sources). This requirement may be satisfied by writing a seminar paper or a qualifying paper (see Advancement to Candidacy above) that makes extensive use of materials in a second language. The second-language requirement must be satisfied before the end of the third year. This requirement will not be waived for students who are bi- or multilingual; all students are required to do research-level work in more than one language.

It is assumed that students will have acquired a second language before entering the doctoral program, although second-language proficiency is not a requirement for admission. While students may study one or more second languages while at UCI or UCSD, language courses may not be counted toward doctoral program requirements.

Teaching

Students are required to teach a minimum of four quarters. No more than eight units of apprentice teaching may be counted toward the required 144 units.

Departmental Ph.D. Time-Limit Policies

Students must advance to candidacy by the end of the fall quarter of their fourth year. Departmental normative time for completion of the degree is five years; total registered time in the Ph.D. program at UCI or UCSD cannot exceed seven years.

Financial Support

Ph.D. students entering the program with a B.A. may be supported (either by teaching assignments or fellowships) for five years. Students who have an M.A. and have been given transfer credit may be supported for four years. Such support depends upon the funds available, the number of students eligible, and the student's rate of progress.

Faculty

Lonnie R. Alcaraz, M.F.A. University of California, Irvine, *Professor of Drama* (lighting design, digital imaging)

Stephen F. Barker, Ph.D. University of Arizona, *Professor of Drama* (post-modern theatre, Beckett, critical theory)

Cynthia M. Bassham, M.F.A. American Conservatory Theatre, *Lecturer with Security of Employment of Drama* (voice, speech for actors, acting)

Richard A. Brestoff, M.F.A. New York University, *Professor of Drama* (film and television acting)

Daniel Gary Busby, D.M.A. University of California, Los Angeles, *Department Chair and Associate Professor of Drama* (music theatre, singing, conducting)

Dennis R. Castellano, M.F.A. University of California, Irvine, *Head of Music Theatre and Senior Lecturer of Drama* (music theatre)

Robert S. Cohen, D.F.A. Yale University, *Claire Trevor Professor* and *Professor of Drama* (acting theory, acting, directing)

Myrona L. Delaney, M.F.A. University of California, Irvine, *Lecturer with Security of Employment of Drama* (music theatre, singing, acting)

Holly Durbin, M.F.A. University of California, Los Angeles, *Professor of Drama* (costume design)

Clifford L. Faulkner, M.A. California State University, Long Beach, *Senior Lecturer with Security of Employment of Drama* (scenery design, history of design, gay theatre)

Keith Fowler, D.F.A. Yale University, *Professor of Drama* (directing, acting)

Michael J. Ganio, M.F.A. New York University, *Assistant Professor of Drama* (scenery design)

Clayton Garrison, Ph.D. Stanford University, *Professor Emeritus of Drama* (opera, musical theatre, movement, dramatic literature)

Douglas S. Goheen, Ph.D. University of Denver, *Professor Emeritus of Drama* (scenery design, digital imaging)

George C. Harvey, M.F.A. University of California, Irvine, *Professor Emeritus of Drama* (artistic direction, producing, lighting design)

Donald D. Hill, M.F.A. University of Southern California; Associate Producer, *Head of Stage Management and Senior Lecturer with Security of Employment of Drama* (stage management, directing, acting)

Michael K. Hooker, M.F.A. California Institute of the Arts, *Professor of Drama* (sound design)

Ketu H. Katrak, Ph.D. Bryn Mawr College, *Professor of Drama; Comparative Literature* (drama and performance, African drama and Ancient Sanskrit drama [from India], postcolonial literature and theory, women writers and feminist theory)

Madeline Kozlowski, M.F.A. Brandeis University, *Professor Emerita of Drama* (costume design)

Anthony James Kubiak, Ph.D. University of Wisconsin-Madison, *Head of Doctoral Studies and Professor of Drama* (American and modern drama, modern poetry, critical theory, philosophy)

Daphne Pi-Wei Lei, Ph.D. Tufts University, *Professor of Drama; Asian American Studies* (Asian theatre, Asian American theatre, intercultural theatre, gender theory, performance theory)

Annie M. Loui, *Professor of Drama* (movement, directing, acting)

Mihai Maniutiu, Ph.D. Caragiale Academy of Theatrical Arts and Cinematography, *UCI Distinguished Professor of Drama* (directing)

David J. McDonald, Ph.D. Stanford University, *Professor Emeritus of Drama* (dramatic theory, Irish drama, theatre history, playwriting)

Ian Andrew Munro, Ph.D. Harvard University, *Associate Professor of Drama* (European drama and performance, early modern popular culture, theatrical performance of wit)

Vincent Olivieri, M.F.A. Yale University, *Head of Design and Associate Professor of Drama* (sound design)

Jane M. Page, M.F.A. Indiana University, *Head of Directing and Assistant Professor of Drama* (directing, acting)

Andrew A. Palermo, B.F.A. University of Cincinnati, College-Conservatory of Music, *Assistant Professor of Drama* (music theatre choreography)

Janelle Reinelt, Ph.D. Stanford University, *Professor Emerita of Drama* (British theatre, political theory, performance)

Bryan R. Reynolds, Ph.D. Harvard University, *UCI Chancellor's Professor of Drama* (Shakespeare, Renaissance drama, critical theory, feminist theory, performance theory, cultural studies)

Eli Simon, M.F.A. Brandeis University, *Professor of Drama* (acting, directing)

Jaymi Smith, B.F.A. DePaul University, *Associate Professor of Drama* (lighting design)

Philip D. Thompson, M.F.A. University of California, Irvine, *Head of Acting and Associate Professor of Drama* (voice, speech for actors, acting)

Richard J. Triplett, M.A. Otis Art Institute, *Professor Emeritus of Drama* (scenery and costume design, history of design)

Joel R. Veenstra, M.F.A. University of California, Irvine, *Lecturer with Potential Security of Employment of Drama* (stage management, acting)

Robert K. Weimann, Ph.D. Humboldt State University, *Professor Emeritus of Drama* (theory, criticism, literature)

Frank B. Wilderson III, Ph.D. University of California, Berkeley, *Professor of African American Studies; Culture and Theory; Drama; Film and Media Studies* (film theory, Marxism, dramaturgy, black political theory)

Shigeru Yaji, M.F.A. California State University, Long Beach, *Lecturer of Drama* (costume design)

Courses

DRAMA 10. Introduction to Theatre. 4 Units.
An interactive introduction to the world of theatre that serves to develop an appreciation of theatrical arts, to establish an awareness of landmarks within the performance history, and to create an understanding of the collaborative roles and departments that exist.

(IV)

DRAMA 11. The Rock and Roll Spectacle Show. 4 Units.
A thorough overview to the development and cultural significance of the Rock 'n' Roll Spectacle show. Focus on historical and recent developments of the spectacle show, trends in the aesthetics of the field, and various sub-genres.

(IV)

DRAMA 14. Performing Rock 'N' Roll. 4 Units.
Explores major movements in the history of rock 'n' roll in terms of performance, not virtuosity necessarily of the performers as musicians, rather as performances of aesthetics in modes of embodied ideology, iconoclastic spectacle, mixed media fashion, and subcultural formation.

DRAMA 15. Performance Now. 4 Units.
Exposes students to what is most current in the world of performance and theatre. Begins with a series of lectures on the idea of performance, and the various theories that frame it.

Restriction: Drama and Music Theatre majors have first consideration for enrollment.

(IV)

DRAMA 16. Performing Culture. 4 Units.
Culture, aesthetics, and ideology (combined in the concept "subculture") work to fashion social identities. Using theories and methodologies of performance studies, with an emphasis on American culture, this course explores why and how culture is reinforced through performance.

(IV)

DRAMA 20A. Culture in Performance. 4 Units.
A three-quarter foundation series exploring the rich depth of theatre, drama, and other genres of performance across a wide variety of worldwide forms, for performer and audience.

(IV)

DRAMA 20B. Culture in Performance. 4 Units.
A three-quarter foundation series exploring the rich depth of theatre, drama, and other genres of performance across a wide variety of worldwide forms, for performer and audience.

(IV)

DRAMA 20C. Culture in Performance. 4 Units.
A three-quarter foundation series exploring the rich depth of theatre, drama, and other genres of performance across a wide variety of worldwide forms, for performer and audience.

(IV)

DRAMA 30A. Acting. 4 Units.
A one-year course in basic acting technique and discipline. Stage technique and stage discipline. Freeing vocal and physical movement and liberating emotional power. Elementary stage movement and voice. Elimination of regionalisms in speech. Overcoming stage fright. Readings in acting theory.

Repeatability: May be taken for credit 2 times.

Restriction: Drama and Music Theatre majors have first consideration for enrollment.

DRAMA 30B. Acting. 4 Units.
A one-year course in basic acting technique and discipline. Improvisations and scenes. Rehearsal and presentation of at least two scenes with different partners. Developing stage contact with tactics in a “play” situation.

Prerequisite: DRAMA 30A.

Repeatability: May be taken for credit 2 times.

Restriction: Drama and Music Theatre majors have first consideration for enrollment.

DRAMA 30C. Acting. 4 Units.
A one-year course in basic acting technique and discipline. Characterization, scenes and auditioning. Development of character in at least three rehearsed scenes from different plays. Script analysis and performance technique. Preparation of audition pieces. The profession of acting.

Prerequisite: DRAMA 30A and DRAMA 30B.

Repeatability: May be taken for credit 2 times.

Restriction: Drama and Music Theatre students have the first consideration for enrollment.

DRAMA 34. Movement for Actors. 4 Units.
A studio course in fundamentals of stretch, strength, and alignment; exploring spatial awareness and physical control through mime isolations, techniques, and related improvisation.

Repeatability: May be taken for credit 3 times.

DRAMA 35. Speech for the Theatre. 4 Units.
A course aimed at (1) improving natural, clear, unaffected speech and (2) eliminating negative habits and regional accents: exercises for physical tension, vocal support, tone production, vocal quality, and articulation.

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama and Music Theatre majors only.

DRAMA 40A. Development of Drama. 4 Units.
The development of Western Drama, concentrating on the drama's intellectual, social, and artistic foundations. About 10 plays and supplementary critical material are read each quarter. Greek Drama through Shakespeare.

Prerequisite: DRAMA 10.

Restriction: Drama and Music Theatre majors have first consideration for enrollment.

(IV, VIII)

DRAMA 40B. Development of Drama. 4 Units.
The development of Western Drama, concentrating on the drama's intellectual, social, and artistic foundations. About 10 plays and supplementary critical material are read each quarter. Restoration Drama through Ibsen.

Prerequisite: DRAMA 10.

Restriction: Drama and Music Theatre majors have first consideration for enrollment.

(IV, VIII)

DRAMA 40C. Development of Drama. 4 Units.
The development of Western Drama, concentrating on the drama's intellectual, social, and artistic foundations. About 10 plays and supplementary material are read each quarter. Contemporary Drama. Post Naturalistic theatre.

Prerequisite: DRAMA 10.

Restriction: Drama and Music Theatre majors have first consideration for enrollment.

(IV, VIII)

DRAMA 50A. Introduction to Costume Design. 4 Units.
Introduction to the process and procedures employed by the costume designer for the theatre. The elements of design are discussed in the context of character development, historical period, and style. Exercises extend to drawing, rendering, and investigation of human proportions.

Prerequisite: DRAMA 10.

Restriction: Drama and Music Theatre majors only.

DRAMA 50B. Introduction to Scenic Design. 4 Units.
Introduction to the principles and practice of scenic design. Weekly problems include research into various periods and styles of production with an emphasis on the conceptual idea. Perspective drawing, rendering, and model building are covered in studio exercises and assignments.

Prerequisite: DRAMA 10.

Restriction: Drama and Music Theatre majors only.

DRAMA 50C. Introduction to Lighting Design. 4 Units.
Introduction to the principles, theories, and equipment employed by the lighting designer for the stage. Areas of investigation include history, technology, and script analysis. Detailed studio attention is given to the theory and practice of design.

Prerequisite: DRAMA 10.

Restriction: Drama and Music Theatre majors only.

DRAMA 50D. Introduction to Sound Design. 4 Units.
Principles, theories, equipment use, and terminology employed by the sound designer for the stage. Areas of study include history, technology, and script analysis. Focuses on the theory and practice of design.

Prerequisite: DRAMA 10.

Restriction: Drama and Music Theatre majors only.

DRAMA 50E. Introduction to Stage Management. 4 Units.
A basic study of theatrical, dance, and opera stage management practices, forms, and methods, from first script reading to closing night. Opportunity to observe professionals at work in regional and touring situations as available.

Prerequisite: DRAMA 10.

Restriction: Drama and Music Theatre majors only.

DRAMA 50F. History and Theories of Scenography. 4 Units.
Explores the aesthetics of the stage and the evolution of scenery and costume in live performance as inspiration for today's theatre analysts. Topics include shared vocabulary, historical trends, shifts in approaches, and focus briefs on leaders in the field.

Prerequisite: DRAMA 10.

Restriction: Drama and Music Theatre majors only.

DRAMA 60. Careers in Stage Management. 4 Units.
Nurtures a greater appreciation for the stage manager and his or her process, and supports students who are interested in pursuing a career in professional stage management.

Repeatability: May be taken for credit 3 times as topics vary.

DRAMA 65. Music Theatre Workshop I. 2 Units.
Basic vocal technique and characterization of musical theatre repertoire explored.

Prerequisite: Audition required.

Repeatability: May be taken for credit 2 times.

DRAMA 83. Directing I . 4 Units.
Exercises introduce students to standard practices for shaping a play, such as table work, blocking, business, and actor coaching. Students take charge of sample rehearsals, guiding casts through exercises, followed by peer review, and instructor critique.

Prerequisite: DRAMA 30A and DRAMA 30B and DRAMA 30C.

Repeatability: May be repeated for credit unlimited times.

DRAMA 100. University Theatre . 4 Units.
Rehearsal and performance in a faculty-directed,production.

Prerequisite: Audition required.

Repeatability: May be repeated for credit unlimited times.

DRAMA 101A. Theatre Production: Costume. 1-6 Units.
The production courses are offered to give students the opportunity to participate in departmental productions. Students engage in the production and construction of designed work as well as its applied execution during performance.

Repeatability: May be taken for credit for 24 units.

Restriction: May be taken for credit for a maximum of 24 units provided productions change.

DRAMA 101B. Theatre Production: Scenic. 1-6 Units.
The production courses are offered to give students the opportunity to participate in departmental productions. Students engage in the production and construction of designed work as well as its applied execution during performance.

Repeatability: May be taken for credit for 24 units.

Restriction: May be taken for credit for a maximum of 24 units provided productions change.

DRAMA 101C. Theatre Production: Lighting. 1-6 Units.
The production courses are offered to give students the opportunity to participate in departmental productions. Students engage in the production and construction of designed work as well as its applied execution during performance.

Repeatability: May be taken for credit for 24 units.

Restriction: May be taken for credit for a maximum of 24 units provided productions change.

DRAMA 101D. Theatre Production: Stage Management. 1-8 Units.
The production courses are offered to give students the opportunity to participate in departmental productions. Students engage in the production and construction of designed work as well as its applied execution during performance.

Repeatability: May be taken for credit 24 times.

Restriction: May be taken for credit for a maximum of 24 units provided productions change.

DRAMA 101E. Theatre Production: Audio. 1-6 Units.
The production courses are offered to give students the opportunity to participate in departmental productions. Students engage in the production and construction of designed work as well as its applied execution during performance.

Repeatability: May be taken for credit for 24 units.

Restriction: May be taken for credit for a maximum of 24 units provided productions change.

DRAMA 101S. Theatre Production: Theatre Management. 1-6 Units.
The production courses are offered to give students the opportunity to participate in departmental productions. Students engage in the production and construction of designed work as well as its applied execution during performance.

Repeatability: May be taken for credit for 24 units.

Restriction: May be taken for credit for a maximum of 24 units provided productions change.

DRAMA 103. Lectures in Dramatic Literature. 4 Units.
Courses include Medieval and Tudor Drama, Elizabethan and Jacobean Drama, Shakespeare, Restoration and Eighteenth Century Drama, Modern British Drama, Modern American Drama, Tragedy, and Comedy.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 103W. Lectures in Dramatic Literature. 4 Units.
Courses include Medieval and Tudor Drama, Elizabethan and Jacobean Drama, Shakespeare, Restoration and Eighteenth-Century Drama, Modern British Drama, Modern American Drama, Tragedy, and Comedy.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 109. Special Topics in Theory and Criticism. 4 Units.
Discussion of recent major trends and ideas in critical theory, concentrating on in-depth readings and lectures in particular facets of theory and criticism: Derrida, Butler, Lacan, Deleuze, and others.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 109W. Special Topics in Theory and Criticism. 4 Units.
Discussion of recent major trends and ideas in critical theory, concentrating on in-depth readings and lectures in particular facets of theory and criticism: Derrida, Butler, Lacan, Deleuze, and others.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

(Ib)

DRAMA 110. Special Topics in Classical Dramas . 4 Units.
Designed to introduce students to various classical traditions-early Greek and Roman theatres, to be sure, but also, by way of comparison, the classical traditions of non-European cultures.

Prerequisite: DRAMA 40A and DRAMA 40B and DRAMA 40C. Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 110W. Special Topics in Classical Dramas. 4 Units.
Designed to introduce students to various classical traditions-early Greek and Roman theatres, to be sure, but also, by way of comparison, the classical traditions of non-European cultures.

Prerequisite: DRAMA 40A and DRAMA 40B and DRAMA 40C. Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

(Ib)

DRAMA 112. Special Topics in Early Modern and Neoclassical Theatre. 4 Units.
Investigates aspects of European theatre and culture in the sixteenth, seventeenth, and eighteenth centuries; individual courses may focus on specific topics within this broad expanse.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 112W. Special Topics in Early Modern and Neoclassical Theatre. 4 Units.
Investigates aspects of European theatre and culture in the sixteenth, seventeenth, and eighteenth centuries; individual courses may focus on specific topics within this broad expanse.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

(Ib)

DRAMA 116. Special Topics in Nineteenth-Century Dramas. 4 Units.
Looks at the various trends and conventions of theatres in the nineteenth century, both Euro-American and beyond, paying special attention to the culture and political milieu within which these various traditions appeared.

Prerequisite: DRAMA 40A and DRAMA 40B and DRAMA 40C. Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 116W. Special Topics in Nineteenth-Century Dramas. 4 Units.
Looks at the various trends and conventions of theatres in the nineteenth century, both Euro-American and beyond, paying special attention to the culture and political milieu within which these various traditions appeared.

Prerequisite: DRAMA 40A and DRAMA 40B and DRAMA 40C. Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

(Ib)

DRAMA 118. Special Topics in Modern and Contemporary Drama. 4 Units.
An investigation into the many forms and permutations of modern (1880-1945), and contemporary (since 1945) drama, paying special attention to the historical and philosophical interpretations of text and performance.

Prerequisite: DRAMA 40A and DRAMA 40B and DRAMA 40C. Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 118W. Special Topics in Modern and Contemporary Drama . 4 Units.
An investigation into the many forms and permutations of modern (1880-1945), and contemporary (since 1945) drama, paying special attention to the historical and philosophical interpretations of text and performance.

Prerequisite: DRAMA 40A and DRAMA 40B and DRAMA 40C. Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

(Ib)

DRAMA 121. Introduction to Asian Theatre. 4 Units.
An introduction to some of the major traditional theatrical forms and dramatic texts from India, China, and Japan. Other than dramatic texts (in English translation), attention is also paid to theory, history, and performance styles of traditional Asian theatre.

Restriction: Drama and Music Theatre majors only.

DRAMA 122. Asian American Theatre. 4 Units.
An introduction to the history and development of Asian American theatre and drama. Besides play analysis, special attention is also paid to the history and politics of Asian American identity and experience, as well as to aspects of theatrical performance.

Prerequisite: DRAMA 40A and DRAMA 40B and DRAMA 40C.

Restriction: Drama and Music Theatre majors only.

DRAMA 123. Multicultural Theatres. 4 Units.
A study of the history, culture, aesthetics, and literature of various traditional performing arts and their connections to the contemporary multicultural society.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 126. African American Film and Drama. 4 Units.
A critical investigation of films and plays written by African Americans, with emphasis on dramaturgical and cinematic strategies, individual and collective representation, and the legacy of African American political struggle.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Restriction: Drama and Music Theatre majors only.

DRAMA 126W. African American Film and Drama. 4 Units.
A critical investigation of films and plays written by African Americans, with emphasis on dramaturgical and cinematic strategies, individual and collective representation, and the legacy of African American political struggle.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Restriction: Drama and Music Theatre majors only.

(Ib)

DRAMA 129. Advanced Topics in Performance. 4 Units.
Addresses particular issues in theatre and performance that typically lie outside of regular course offerings. May address such issues as the theatre of the Avant Garde, performing gender, transversality and performance, body art, installation and performance art, among other topics.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 129W. Advanced Topics in Performance. 4 Units.
Addresses particular issues in theatre and performance that typically lie outside of regular course offerings. May address such issues as the theatre of the Avant Garde, performing gender, transversality and performance, body art, installation and performance art, among other topics.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

(Ib)

DRAMA 130. Intermediate Acting. 4 Units.
Rehearsal and presentation of scenes from contemporary material. Focus on connection with scene partner, playing actions, and text analysis. Introduction to the credibility and theatricality of characterization and style.

Prerequisite: DRAMA 30A and DRAMA 30B and DRAMA 30C with an average grade of B or better. For transfer students: one year of beginning acting with an average grade of B or better.

Repeatability: May be taken for credit 2 times.

Restriction: Drama and Music Theatre majors only.

DRAMA 132A. Writing for Performance. 4 Units.
Completion of a full-length play or its equivalent; discussion of student writing and of relevant literary texts.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 132AW. Writing for Performance. 4 Units.
Completion of a full-length play or its equivalent; discussion of student writing and of relevant literary texts.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

(Ib)

DRAMA 134. Advanced Movement for Actors. 4 Units.
Studio course in conditioning and partnering techniques to the practice of contact improvisation. Contact improvisation is explored and applied in scene study.

Prerequisite: DRAMA 34. DRAMA 34 with a grade of B or better.

DRAMA 135. Master Classes in Acting. 1-4 Units.
Advanced acting in specialized areas including acting for the camera: situation comedy, commercials; auditioning and industry preparation; Shakespeare; Molière; Chekov; improvisation; advanced movement and voice and speech for the actor; self-starting; stage combat; repertory acting, singing; comedy; clowning; and masks.

Prerequisite: DRAMA 130. DRAMA 130 with a grade of B or better.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 136. Music Theatre Acting. 4 Units.
An acting class exclusive to the students in the B.F.A. in Music Theatre program.

Prerequisite: DRAMA 30A and DRAMA 30B and DRAMA 30C.

Restriction: Music Theatre majors only.

DRAMA 142. Music Theatre Workshop II. 4 Units.
A workshop in audition technique and song interpretation.

Prerequisite: Audition required.

Repeatability: May be taken for credit 4 times.

DRAMA 143A. Music Theatre Workshop III. 4 Units.
Scene study and song repertoire examined by era for the advanced Music Theatre student. 1800's-1940.

Prerequisite: DRAMA 142. Audition required.

DRAMA 143B. Music Theatre Workshop III. 4 Units.
Scene study and song repertoire examined by era for the advanced Music Theatre student. 1940's-1970's.

Prerequisite: DRAMA 142. Audition required.

DRAMA 143C. Music Theatre Workshop III. 4 Units.
Scene study and song repertoire examined by era for the advanced Music Theatre student. 1970's-present.

Prerequisite: DRAMA 142. Audition required.

DRAMA 144. Music Theatre Workshop IV. 4 Units.
A performance class concentrating on role building. Work culminates with in-class performances of abbreviated versions of musicals.

Prerequisite: For B.F.A. students: DRAMA 143A, DRAMA 143B, DRAMA 143C, and audition. For Drama graduate students: audition required.

Repeatability: May be taken for credit 4 times.

Restriction: Music Theatre majors and Drama graduate students only.

DRAMA 145. Music Theatre Singing. 1 Unit.
Private weekly voice lessons for the advanced Music Theatre student.

Corequisite: DRAMA 143A or DRAMA 144.

Repeatability: May be taken for credit 9 times.

Restriction: Music Theatre majors only.

DRAMA 146. NYSP-Preparation. 4 Units.
Class preparation for the New York Satellite Program (NYSP) - an immersion experience in New York City for the musical theatre performer.

Prerequisite: Admission is by audition and the following prerequisites: DRAMA 30C and two quarters of DRAMA 148A, DRAMA 148B, or DRAMA 148C (if the 148 prerequisite is not complete at the time of auditions, student must enroll during the fall and winter quarters in the same year as the trip to New York); senior Drama majors must have successfully completed DRAMA 40C and DRAMA 120C; non-Drama majors must have sophomore standing or higher and must carefully plan their course schedule as many spring quarter classes cannot be taken while part of the NYSP.

Repeatability: May be taken for credit 2 times.

DRAMA 148A. History of American Musical Theatre. 4 Units.
A survey of the influential artists who produce, write, direct, and perform on America's musical stages. Surveys 1700s-1940s.

Restriction: Drama and Music Theatre majors only.

Concurrent with DRAMA 248A.

DRAMA 148B. History of American Musical Theatre. 4 Units.
A survey of the influential artists who produce, write, direct, and perform on America's musical stages. Surveys 1940s-1970s.

Restriction: Drama and Music Theatre majors only.

Concurrent with DRAMA 248B.

DRAMA 148C. History of American Musical Theatre. 4 Units.
A survey of the influential artists who produce, write, direct, and perform on America's musical stages. Surveys 1970s to present day.

Restriction: Drama and Music Theatre majors only.

Concurrent with DRAMA 248C.

DRAMA 149. Music Proficiency for Actors. 2 Units.
A musicianship class introducing basic musical terminology, theory, and sight singing skills.

Repeatability: May be taken for credit 2 times.

Restriction: Drama and Music Theatre majors only.

DRAMA 150. Costume Production Techniques. 4 Units.
Studio instruction in pattern making, draping, millinery, and construction techniques.

Prerequisite: DRAMA 50A.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 157. Lighting Composition. 4 Units.
Provides an opportunity for students to pursue stage lighting composition in a studio atmosphere. Laboratory practice includes weekly exercises in style and genre. Emphasis is placed on the realization of conceptual ideas.

Prerequisite: DRAMA 50C.

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama and Music Theatre majors only.

DRAMA 158. Topics in Theatre Design. 4 Units.
Examines the various functions of scenery and costume: locale, historical period, mood, and atmosphere, with special assignments in each area. Discussion of problems in scenic metaphors and visualization, emphasizing techniques of planning and presentation (e.g., floor plans, models, and rendering).

Prerequisite: DRAMA 50A OR DRAMA 50B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama or Music Theatre majors only.

DRAMA 159. Proseminar in Theatre Design. 4 Units.
Topics in theatre design.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 160. Light Plotting Techniques. 4 Units.
A study of the development of theatrical lighting plots from initial conceptualization through final documentation. Areas of emphasis include script analysis, visual approaches, equipment selection, and compositional qualities of light.

Prerequisite: DRAMA 50C and DRAMA 157.

Restriction: Drama and Music Theatre majors only.

DRAMA 164A. History of Costume. 4 Units.
A study of the development of dress and the influence of cultural factors on clothing from the time of Egyptians to Early Baroque.

Prerequisite: DRAMA 50A.

Restriction: Drama and Music Theatre majors only.

DRAMA 164B. History of Costume. 4 Units.
A study of the development of dress and the influence of cultural factors on clothing from late Baroque to World War I.

Prerequisite: DRAMA 50A.

Restriction: Drama and Music Theatre majors only.

DRAMA 167. Fabric Modification Techniques. 4 Units.
Exploration of various dying, printing, painting, and texture modification techniques.

Prerequisite: DRAMA 50A.

Restriction: Drama and Music Theatre majors only.

DRAMA 168. Theatrical Mask Techniques. 4 Units.
Design and construction of theatrical masks including paper mache, leather, plastics, and latex. Projects employ traditional and contemporary techniques.

Prerequisite: DRAMA 50A.

Restriction: Drama and Music Theatre majors only.

DRAMA 169. Costume Rendering Techniques. 4 Units.
Development of costume rendering skills and techniques. Explores collage, pastel, and ink and emphasizes watercolor.

Prerequisite: DRAMA 50A.

Repeatability: May be taken for credit 2 times.

Restriction: Drama and Music Theatre majors only.

DRAMA 176. Script and Score. 4 Units.
A form and analysis seminar discussing the libretto and score of landmark musicals.

Prerequisite: Two courses from DRAMA 148A or DRAMA 148B or DRAMA 148C.

Restriction: Drama and Music Theatre majors only.

DRAMA 177. Song Repertoire. 2 Units.
A song coaching class culminating in a song recital or showcase. Each quarter will feature a different composer, lyricist, or musical style.

Repeatability: May be taken for credit 6 times.

Restriction: Music Theatre majors only.

DRAMA 179. Intermediate Sound Design. 4 Units.
A project-based analysis of the principles of sound design for the theatre. Projects are executed in the sound design studio and may include sound manipulation and recording. Emphasis is placed on the realization of conceptual ideas.

Prerequisite: DRAMA 50D.

Restriction: Drama and Music Theatre majors only.

DRAMA 180. Contemporary Dramatic Criticism and Theory. 4 Units.
Reading and analysis of theories and critical approaches to contemporary theatre: Brecht, Artaud, and others who have contributed to the form and idea of the modern theatre. Writing of assigned exercises in dramatic criticism.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 180W. Contemporary Dramatic Criticism and Theory. 4 Units.
Reading and analysis of theories and critical approaches to contemporary theatre: Brecht, Artaud, and others who have contributed to the form and idea of the modern theatre. Writing of assigned exercises in dramatic criticism.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

(Ib)

DRAMA 181. Acting Theory. 4 Units.
A study of the theory of acting, with readings in Plato, Aristotle, Quintilian, Shakespeare, Diderot, Stanislavsky, Brecht, Strasberg, Meisner, Grotowski, and other theorists, ancient to contemporary.

Prerequisite: DRAMA 130.

Restriction: Drama and Music Theatre majors only. Juniors only.

Concurrent with DRAMA 224.

DRAMA 182A. Dance Technique, Level I. 4 Units.
Advanced beginner and intermediate dance training including musical theatre, ballet, jazz and contemporary modern techniques and repertoire. Body conditioning is also a major component of the course.

Prerequisite: DRAMA 65 or DRAMA 142. Audition required.

Repeatability: May be taken for credit 4 times.

Restriction: Drama and Music Theatre majors only.

DRAMA 182B. Dance Technique, Level I. 4 Units.
Advanced beginner and intermediate dance training including musical theatre, ballet, jazz and contemporary modern techniques and repertoire. Body conditioning is also a major component of the course.

Prerequisite: (DRAMA 65 or DRAMA 142) and DRAMA 182A. Audition required.

Repeatability: May be taken for credit 4 times.

Restriction: Drama and Music Theatre majors only.

DRAMA 183A. Dance Technique, Level II. 4 Units.
Intermediate and advanced dance training including musical theatre, ballet, jazz and contemporary modern techniques and repertoire. Body conditioning is also a major component of the course.

Prerequisite: DRAMA 65 or DRAMA 142. Audition required.

Repeatability: May be taken for credit 4 times.

Restriction: Drama and Music Theatre majors only.

DRAMA 183B. Dance Technique, Level II. 4 Units.
Intermediate and advanced dance training including musical theatre, ballet, jazz and contemporary modern techniques and repertoire. Body conditioning is also a major component of the course.

Prerequisite: (DRAMA 65 or DRAMA 142) and DRAMA 183A. Audition required.

Repeatability: May be taken for credit 4 times.

Restriction: Drama and Music Theatre majors only.

DRAMA 184. Directing II. 4 Units.
The principles of stage directing, covering the director's functions in the areas of interpretation, composition, coaching, and styling a theatrical production. Directing exercises and projects; the final project is the preparation of a hypothetical proposal for a play production.

Prerequisite: DRAMA 30A and DRAMA 30B and DRAMA 30C and DRAMA 40A and DRAMA 40B and DRAMA 40C.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theater majors only.

DRAMA 185. Advanced Directing. 4 Units.
A seminar in directorial organization and research. Student prepares a textual and dramaturgical analysis, a production timetable, and a hypothetical production book of an assigned play.

Prerequisite: DRAMA 184.

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama and Music Theatre majors only.

DRAMA 190. NYSP-Acting. 1-4 Units.
New York Satellite Program acting classes taught by guest faculty in New York.

Prerequisite: DRAMA 146.

Repeatability: May be taken for credit 2 times.

DRAMA 191. NYSP - Dance. 4 Units.
New York Satellite Program dance classes in ballet, tap, jazz, and musical theatre styles taught by guest faculty in New York.

Prerequisite: DRAMA 146.

Repeatability: May be taken for credit 2 times.

DRAMA 192. NYSP - Singing. 4 Units.
New York Satellite Program private and group lessons in musical theatre singing taught by guest faculty in New York.

Prerequisite: DRAMA 146.

Repeatability: May be taken for credit 2 times.

DRAMA 193. NYSP - Performance. 4 Units.
New York Satellite Program rehearsals and public, staged readings of original musicals in New York.

Prerequisite: DRAMA 146.

Repeatability: May be taken for credit 2 times.

DRAMA 194. NYSP-UCI Residency. 4 Units.
New York Satellite Program follow-up classes and performances back on Irvine campus upon the return from New York.

Prerequisite: DRAMA 146.

Repeatability: May be taken for credit 2 times.

DRAMA 195. Music Theatre Dance - Special Topics. 1-4 Units.
Advanced dance classes in specialized areas including the dance styles of a choreographer (de Mille, Fosse, Robbins, Tune, Stroman), genre (tap, ballroom, jazz, swing, hip-hop), or in musical theatre choreography.

Prerequisite: DRAMA 182A or DRAMA 182B or DRAMA 182C or DRAMA 183A or DRAMA 183B or DRAMA 183C. Audition required.

Repeatability: Unlimited as topics vary.

Restriction: Drama and Music Theatre majors only.

DRAMA 198. Director Class Project. 1-8 Units.
For students who are involved in the Director Class Projects at UCI as actors, directors, designers, stage managers and their assistants. M.F.A. Directors and the Head of Directing (HoD) supervise the projects.

Grading Option: Pass/no pass only.

Repeatability: Unlimited as topics vary.

DRAMA H198. Honors Director Class Project. 1-4 Units.
For graduate student actors and undergraduate directors who are candidates for Honors in Directing and involved in the Director Class Projects. The Head of Directing (HoD) supervises these students.

Repeatability: Unlimited as topics vary.

DRAMA 199. Project in Theatre . 1-4 Units.
Independent theatre projects with Drama faculty.

Repeatability: Unlimited as topics vary.

DRAMA 200. Graduate Studio: Acting. 4 Units.
Work in graduate studio taken in tandem with graduate studios in stage voice (DRAMA 201), stage speech (DRAMA 202), and stage movement (DRAMA 203).

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 201. Graduate Studio: Voice. 1 Unit.
Graduate studio in vocal production for actors.

Repeatability: Unlimited as topics vary.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 202. Graduate Studio: Speech. 1 Unit.
Graduate studio in speech for actors.

Repeatability: Unlimited as topics vary.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 203. Graduate Studio: Movement. 2 Units.
Work in graduate studio: stage movement taken in tandem with nine graduate studios in acting (DRAMA 200), voice (DRAMA 201), speech (DRAMA 202), and voice/movement dynamics (DRAMA 206).

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 206. Graduate Studio: Voice/Movement Dynamics. 2 Units.
Daily conditioning exercises.

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 211. Graduate Studio: Directing. 4 Units.
Graduate studio in directing.

Repeatability: Unlimited as topics vary.

Restriction: Drama graduate students only.

DRAMA 212. Graduate Studio: Playwriting. 4 Units.
Completion of a full-length play or its equivalent and production of a staged reading of the play at the end of the spring quarter. Discussion of relevant literary texts and student writings.

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 219. Graduate Master Class. 1-4 Units.
Various topics such as Shakespeare, comedy, Molière, improvisation, Kabuki, television acting.

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 220. Seminar in Dramatic Literature. 4 Units.
Topics in Dramatic Literature.

Repeatability: Unlimited as topics vary.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 221. Seminar in Criticism. 4 Units.
Topics in criticism.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

DRAMA 224. Acting Theory. 4 Units.
A study of the theory of acting, with readings in Plato, Aristotle, Quintilian, Shakespeare, Diderot, Stanislavsky, Brecht, Strasberg, Meisner, Grotowski, and other theorists, ancient to contemporary.

Prerequisite: DRAMA 130.

Restriction: Graduate students only.

Concurrent with DRAMA 181.

DRAMA 225. Seminar on Theatre Pedagogy. 4 Units.
A seminar on the major teaching systems in the dramatic arts with particular attention to professional arts training. Required prior to applying for Teaching Assistantships in studio areas.

Restriction: Drama graduate students only.

DRAMA 227. Communication Skills for Graduate Students. 2 Units.
Teaches basic public speaking techniques to graduate students, aids students in presenting persuasively for audiences large and small.

Grading Option: Satisfactory/unsatisfactory only.

DRAMA 235. Script Analysis and Research. 4 Units.
Analysis of dramatic scripts. Examination of dramaturgic structure, character intentions and interactions, historical and literary milieu, and potentials for theatrical realization.

Restriction: Graduate students only.

DRAMA 240. Graduate Projects . 1-4 Units.
Various projects depending on student’s concentration (acting, design, musical theatre, directing).

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 244. Dramaturgy: Theory and Methods. 4 Units.
Examines the practice, place, and theory of dramaturgy. Explores plays in terms of how they work: dramatic form and structure, historical context, and more. Study includes dramaturgy as a theatrical practice.

Restriction: Drama M.F.A. and Ph.D. students only.

DRAMA 248A. History of American Music Theatre. 4 Units.
A survey of the influential artists who produce, write, direct, and perform on America's musical stages. Surveys 1700s-1940s.

Restriction: Graduate only.

Concurrent with DRAMA 148A.

DRAMA 248B. History of American Musical Theatre. 4 Units.
A survey of the influential artists who produce, write, direct and perform on America's musical stages. Surveys 1940s-1970s.

Restriction: Graduate only.

Concurrent with DRAMA 148B.

DRAMA 248C. History of American Musical Theatre. 4 Units.
A survey of the influential artists who produce, write, direct and perform on America's musical stages. Surveys 1970s to present day.

Concurrent with DRAMA 148C.

DRAMA 251A. Foundations of Theatre. 4 Units.
Seeks to create greater understanding in the roots and theories of theatrical models, aesthetics, action vs. reaction of differing thoughts in theatrical doctrine, and art, architecture, music, and fashion that contributed to the style and practice of theatre.

Restriction: Drama graduate students only.

DRAMA 251B. Foundations of Theatre. 4 Units.
Seeks to create greater understanding in the roots and theories of theatrical models, aesthetics, action vs. reaction of differing thoughts in theatrical doctrine, and art, architecture, music, and fashion that contributed to the style and practice of theatre.

Restriction: Drama graduate students only.

DRAMA 251C. Foundations of Theatre. 4 Units.
Seeks to create greater understanding in the roots and theories of theatrical models, aesthetics, action vs. reaction of differing thoughts in theatrical doctrine, and art, architecture, music, and fashion that contributed to the style and practice of theatre.

Restriction: Drama graduate students only.

DRAMA 254. Graduate Stage Management. 4 Units.
Studio exercises and projects in stage management.

Repeatability: Unlimited as topics vary.

Restriction: Open only to Drama graduate students pursuing Stage Management emphasis.

DRAMA 255. Graduate Design Seminar. 4 Units.
Projects, lectures, and critical discussion in costume, scenery, lighting, and sound design.

Restriction: Open only to Drama graduate students pursuing Design emphasis.

DRAMA 256. Survival and Professional Practice in Design. 4 Units.
Provides an in-depth examination of business skills needed to survive as a theatrical designer. Required 'Bridge' course in the Design MFA programs, relevant to all disciplines.

Restriction: Drama graduate students only.

DRAMA 257E. Thesis Writing Project-Stage Management. 4 Units.
Development of thesis topic with focus on organization, research, timeline, and execution.

Prerequisite: 12 units of DRAMA 254.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Drama graduate students only.

DRAMA 258. Drawing for Designers. 2 Units.
A multi-skill level course in drawing technique focusing on skills essential to stage designers including line, proportion, perspective and creating dynamic compositions. Focus will primarily be in figure drawing but may include still-life, landscape, and architectural drawings. Materials fee.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 9 times.

DRAMA 259. Theatre Colloquium. 1 Unit.
Exposes students to a wider range of theatrical practitioners, theories, and topics through guest lecturers, special projects, and cross-disciplinary dialogue.

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 260A. Digital Costume Rendering. 4 Units.
A studio course in costume rendering for the theatre using computer image manipulation. Instruction in compositing and painting techniques and performance design conventions.

DRAMA 260B. Digital Textile Design and Printing. 4 Units.
A studio course in textile design using digital printing and embossing techniques. Instruction in state-of-the-art software and output manipulation for artistic expression.

DRAMA 261. Digital Design: Drawing/Painting/Rendering. 4 Units.
A studio course in scenic or costume rendering for the theatre using the computer for drawing/painting through the use of the digital pen/tablet.

Repeatability: May be taken for credit 2 times.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 262. Digital Design: 2D/3D Modeling. 4 Units.
A studio course in CAD's 2D drafting and 3D modeling capabilities for theatrical design. Instruction in state-of-the-art software for 2D and 3D object creation and theatrical presentation conventions.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 263. Digital Design: 3D Rendering. 4 Units.
A studio course in theatrical design through 3d modeling on computer and use of state-of-the-art rendering software. Instruction emphasizes collaborative design process through the use of scenic designer/lighting designer teams for all projects.

Prerequisite: DRAMA 262.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 264. Lighting Graphics. 4 Units.
A studio course in the various graphic methods employed by lighting designers in the theatre. Projects include manual and CAD techniques for Light Plot and Paperwork creation.

Prerequisite: DRAMA 262.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 265. Digital Design: 2D CAD. 4 Units.
A studio course in theatrical design and architectural lighting design on the computer. Instruction in state-of-the-art software for 2D object creation. Theatrical and architectural standards implemented in performance design.

Prerequisite: DRAMA 262.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 266. Digital Design: Digital Audio Systems. 4 Units.
Comprehensive tutorial on digital audio including hard disk recording, editing, data compression, and ethernet audio distribution. Focus is on recording, editing, and delivery of audio as used by the sound designer in the digital domain.

Restriction: Drama graduate students only.

DRAMA 267. Digital Design: Creating Sounds from Scratch. 4 Units.
The process of analyzing sounds for their core timbral components and using that data to create new sounds - from realistic to fantastic - by means of digital manipulation.

Prerequisite: DRAMA 266.

Restriction: Open only to Drama graduate students pursuing Sound Design emphasis.

DRAMA 271. Conceptual Sound Design. 4 Units.
An intensive, project-based seminar for exploring relationships between sound and sight. Synesthesia, creative intent vs. audience perception, and sound/movement are typical of the many topics to be explored. A series of creative projects are assigned and critiqued in peer review.

Prerequisite: DRAMA 266.

Restriction: Open only to Drama graduate students pursuing Sound Design emphasis.

DRAMA 272. Musical Theatre Sound/Concert Sound. 4 Units.
A concept-to-opening study of the process of designing sound systems for musicals and live/touring sound. Special attention given to the paperwork and documentation required to package, build, and mix these shows.

Restriction: Open only to Drama graduate students pursuing Sound Design emphasis.

DRAMA 277. Critical Listening. 4 Units.
Exploration of the many variables that affect (and effect) the audio chain. Perceiving and understanding these parameters unlocks the art of controlling sound and stylizing cues. Also includes the process of equalizing/aligning sound systems and the art of audio mastering.

Prerequisite: DRAMA 266.

Restriction: Open only to Drama graduate students pursuing Sound Design emphasis.

DRAMA 279. Advanced Sound Design. 4 Units.
An in-depth investigation into sound design for the theatre. Special emphasis is placed on text analysis, design conception, content creation, content delivery, and design organization. Class projects include creating paper designs and paperwork for different texts.

DRAMA 280A. Techniques in Costume Design. 4 Units.
Student exercises in the techniques and implementation of costume design.

Repeatability: Unlimited as topics vary.

Restriction: Open only to Drama graduate students pursuing Costume Design emphasis.

DRAMA 280B. Techniques in Scenery Design. 4 Units.
Student exercises in the techniques and implementation of scenic design.

Repeatability: Unlimited as topics vary.

Restriction: Open only to Drama graduate students pursuing Scenic Design emphasis.

DRAMA 280C. Techniques in Lighting Design. 4 Units.
Student exercises in the techniques and implementation of lighting design.

Repeatability: Unlimited as topics vary.

Restriction: Open only to Drama graduate students pursuing Lighting Design emphasis.

DRAMA 280D. Techniques in Sound Design. 4 Units.
Student exercises in the techniques and implementation of sound design.

Repeatability: Unlimited as topics vary.

Restriction: Open only to Drama graduate students pursuing Sound Design emphasis.

DRAMA 282. Stage Electronics/Introduction to Show Control. 4 Units.
Using computers and dedicated hardware to cue, control or automate sound, scenery, and lighting for live performance and themed entertainment applications.

Restriction: Drama graduate students and Drama and Theatre graduate students only.

DRAMA 290. Dramatic Literature and Theatre History Prior to 1900. 4 Units.
Studies in selected areas of dramatic literature and theatre history prior to 1900. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

DRAMA 291. Dramatic Literature and Theatre History, 1900 to Present. 4 Units.
Studies in selected areas of dramatic literature and theatre history, 1900 to present. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

DRAMA 292. Cultural and Critical Theory. 4 Units.
Studies in selected areas of cultural and critical theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

DRAMA 293. Directed Studies. 4-12 Units.
Directed study with Drama faculty.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

DRAMA 294. Dissertation Research. 4-12 Units.
Dissertation research with Drama faculty.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DRAMA 295. Professional Internship. 1-12 Units.
An arranged internship at the South Coast Repertory Theatre, or other equity theatre company, for qualifying M.F.A. students. A stipend and equity points are provided by the theatre company.

Repeatability: May be repeated for credit unlimited times.

Restriction: Drama graduate students only.

DRAMA 296. Seminar in Drama Pedagogy. 4 Units.
Seminar in preparation for and required prior to receiving a Teaching Assistantship in Drama/Comparative Literature 40 (Development of Drama) course; particular attention on course preparation and pedagogical techniques.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: First-year Drama and Theatre graduate students only.

DRAMA 297. Dramaturgy Practicum. 4 Units.
Requires doctoral students to identify two plays from the Drama Department's season to work as dramaturges. Students write a Dramaturgy Booklet recording their research and interactions with director, actors, and the design team. Students will work with doctoral faculty.

Restriction: Drama doctoral students only.

DRAMA 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

Department of Music

303 Music and Media Building; 949-824-6615
http://music.arts.uci.edu/
David Brodbeck, **Department Chair**

Undergraduate Program

The Department of Music offers the degrees of Bachelor of Arts in Music and Bachelor of Music. Both provide a secure foundation in the academic and applied study of music. This does not necessarily mean, however, that all undergraduates will go on to become professional musicians or musicologists.

A good number do indeed continue to further study at the graduate level. However, many also use their degrees in Music as a more general educational qualification. Music is perhaps unique among the arts and humanities in terms of the wide range of transferable skills developed in the undergraduate curriculum. Musicians learn how to think, to write, to present themselves in public, and to work collaboratively in different kinds of teams. They have intellectual, technical, and social skills that tend to be widely admired by employers in many fields. They have also demonstrated over the long term a determination and commitment, and a desire to succeed, often beyond the norm. With a degree in Music, students will find that many career paths lie before them.

The **Bachelor of Arts (B.A.)** degree program enables students to study music history, music theory, composition, or performance within a curriculum that is flexible enough to allow for a second major, study abroad, and other curricular options. A senior thesis or project is required.

The **Bachelor of Music (B.Mus.)** degree program offers students the opportunity in their junior and senior years to specialize in piano performance, vocal performance, instrumental performance (flute, oboe, clarinet, bassoon, horn, trumpet, trombone, tuba, percussion, violin, viola, violoncello, and double bass), jazz studies (piano, saxophone, trumpet, trombone, bass, and percussion), and guitar and lute performance. Students in this program receive weekly private instrumental or vocal instruction, and present a public solo recital during their senior year. For details on admission to this program, click on the "Majors" tab above and scroll down to **"Entrance to the Bachelor of Music Program**."

Undergraduate Admissions. All applicants, regardless of their degree objective, apply to the B.A. program and must demonstrate appropriate vocal or instrumental proficiency, as determined by the results of the Department's required entrance audition (typically scheduled on campus in late January or early February). *For the most up-to-date information, visit the Music Department* (http://music.arts.uci.edu) *website.* NOTE: Transfer applicants who perform at a sufficiently high level in the entrance audition, have the requisite background in music theory and musicianship, and wish to earn the B.Mus. rather than B.A. degree, will be offered the opportunity to change their degree objective from B.A. to B.Mus. upon matriculation at the University.

Study Abroad

The Department actively encourages this option for eligible students and makes every effort to accommodate the student's work abroad within departmental requirements. Interested students should consult with the undergraduate faculty advisor at the earliest possible date for advice on this matter. For further information, visit the Study Abroad Center (http://www.cie.uci.edu/academics/music.html) website.

Requirements for the Bachelor's Degree in Music

All students must meet University Requirements (p. 71)**.**

School Requirements: None.

Departmental Requirements—Common Curriculum: All courses must be completed with a grade of C- or higher.

MUSIC 15A- 15B- 15C	Musicianship I and Musicianship II and Musicianship III
MUSIC 16A- 16B- 16C	Music Theory and Music Theory and Music Theory
MUSIC 16D	Theory/Musicianship
MUSIC 40B- 40C	History of European Music: Josquin to Wagner and History of European Music: Josquin to Wagner
MUSIC 40D	Twentieth-Century Music
Select six quarters of instrumental or vocal instruction for Music majors from the following:	
MUSIC 65–70	

Additional Requirements for the Bachelor of Arts Degree

In addition to completing the common curriculum, students in the B.A. program must pass the departmental piano proficiency examination or take three quarters of MUSIC 10 (Piano for Majors) with a grade of C or better and complete the following course requirements:

1. Select three courses in Theory, Composition, and Technology from the following:	
MUSIC 51	Music Technology and Computers
MUSIC 131	Post-Tonal Theory
MUSIC 132	Jazz Theory
MUSIC 136	Instrumentation
MUSIC 147	Studies in Music Technology
MUSIC 150	Composition
MUSIC 151	Computer Music Composition
MUSIC 152	Interactive Arts Programming
MUSIC 155	Analysis

MUSIC 157	Advanced Study in Composition
MUSIC 183A	Jazz Composition
MUSIC 183B	Jazz Composition
MUSIC 183C	Jazz Composition
MUSIC 189	Accompanying for Plucked Strings: Continuo and Changes

2. Select three courses in Music and Culture (including at least two upper-division courses) from the following:

AFAM 143	Topics in African American Music
AFAM 144	Topics in Expressive Forms
ANTHRO 138M	Music as Expressive Culture
CHC/LAT 115A	Latino Music: A View of Its Diversity and Strength
MUSIC 4	Introduction to Opera
MUSIC 8	The Beatles and the Sixties
MUSIC 9	Rock: The Early Years
MUSIC 14A	European and American Music 1700 - Twentieth Century
MUSIC 14B	European and American Music 1700 - Twentieth Century
MUSIC 14C	European and American Music 1700 - Twentieth Century
MUSIC 41	Major Composer
MUSIC 42	Music and Gender
MUSIC 44	Classical Music in Society
MUSIC 45	History of Film Music
MUSIC 49A	Asian in Western Music
MUSIC 78	History of Jazz
MUSIC 82A	Pish Radif: Introduction to Classical Persian Music
MUSIC 82B	Pish Radif: Introduction to Classical Persian Music
MUSIC 82C	Pish Radif: Introduction to Classical Persian Music
MUSIC 140	Studies in Medieval Music
MUSIC 141	Studies in Renaissance Music
MUSIC 142	Studies in Baroque Music
MUSIC 143	Studies in Classical Music
MUSIC 144	Studies in Romantic Music
MUSIC 145	Studies in Twentieth-Century Music
MUSIC 146	Studies in Jazz Music
MUSIC 148	Studies in Ethnomusicology
MUSIC 149	Studies in Music History
MUSIC 156A	Song Literature
MUSIC 156B	Song Literature
MUSIC 156C	Song Literature
MUSIC 180	Music Criticism
MUSIC 181	Improvisation

3. Select six courses in Performance and Practice from the following:

MUSIC 21A	Keyboard Skills
MUSIC 21B	Keyboard Skills
MUSIC 21C	Keyboard Skills
MUSIC 158A	Diction
MUSIC 158B	Diction
MUSIC 158C	Diction
MUSIC 160	University Orchestra
MUSIC 161	Wind Ensemble
MUSIC 162	UNIVERSITY CHORUS
MUSIC 164	Opera Workshop
MUSIC 171	Chamber Singers
MUSIC 172	Men in Blaque

MUSIC 176	Chamber Ensembles
MUSIC 178	Jazz Orchestra
MUSIC 182	Advanced Jazz Combo
MUSIC 193	Conducting
MUSIC 197	Word and Music

4. Depending upon the student's area of emphasis, one of the following senior projects (which may develop work originally completed in meeting the requirements of another course) must be completed:

(1) a formal lecture or lecture/performance lasting a minimum of 20 minutes

(2) a composition or portfolio of compositions of appropriate length growing out of work done in MUSIC 157

(3) a thesis of at least 20 double-spaced pages on an appropriate musical subject

Proposed projects, along with the name of the Senate faculty member who has agreed to supervise it, must be submitted to the undergraduate faculty advisor by November 1 of the academic year in which graduation is expected. Upon approval of the project proposal the student may register for up to two quarters of independent study (Music 199) in which to complete the project.

Departmental Honors Program in Music and Culture

The Honors Program in Music and Culture is designed to challenge superior students in the B.A. or B.Mus. program beyond the academic requirements of the Music major. It provides them with the opportunity to advance their knowledge in the scholarly fields of music while developing their writing, analytical, and research skills. The honors program is ideally suited for students who wish to study music at the graduate level, but not in performance, and who may be preparing for graduate work in arts criticism, the humanities, the social sciences, and the law.

Eligibility requirements are (1) completion of the core requirements for the major; (2) an overall GPA of 3.5 or higher; and (3) completion of the eligibility form (available for download through the Departmental Web site).

Admission to the Honors Program in Music and Culture is competitive. Students must apply no later than the spring quarter of their junior year. The application should be accompanied by two substantial writing samples. These may represent work done for courses at UCI. Only truly exceptional students may undertake Honors projects.

Students who are admitted to the Honors Program, regardless of whether they are in the B.A. or B.Mus. program, are required to complete three additional courses in categories 1 and 2 under Additional Requirements for the Bachelor of Arts Degree beyond those taken in fulfillment of the core requirement; all three must be upper-division courses (numbered 100 or higher). Relevant upper-division courses in other departments may be taken to fulfill this requirement by approval of the Department Honors Committee.

The capstone project is a senior thesis, an extended original research project prepared under the supervision of the faculty advisor on a topic chosen by the student in consultation with that advisor. The thesis topic must be approved by the Departmental Honors Committee prior to the end of the fall quarter of the senior year. Students develop their topic during an ensuing two-quarter sequence of Senior Thesis (MUSIC 195A-MUSIC 195B). Upon successful completion of the thesis, a single grade is applied for both quarters and 4 units (total) are posted to the student's record (2 units each for and MUSIC 195B).

Entrance to the Bachelor of Music Degree Program

Admission to the B.Mus. degree program is by a second audition (the B.Mus. audition), typically taken in the spring quarter of the second year (for most students) or, in certain circumstances, in the first year (for third-year transfers only). The B.Mus. audition is evaluated by at least two members of the faculty. No student will be allowed to begin the B.Mus. program before having completed MUSIC 15A, MUSIC 15B, MUSIC 15C and MUSIC 16A, MUSIC 16B, MUSIC 16C (or their equivalents at another institution).

Additional Requirements for the Bachelor of Music Degree

In addition to completing the common curriculum, students in the B.Mus. program must pass the departmental piano proficiency examination, perform a senior recital (and, for voice students only, a junior recital), and complete the following course requirements:

1. Select three courses in Theory, Composition, and Technology from the following:

MUSIC 155	Analysis
and select two others from the following:	
MUSIC 51	Music Technology and Computers
MUSIC 131	Post-Tonal Theory
MUSIC 132	Jazz Theory
MUSIC 136	Instrumentation
MUSIC 147	Studies in Music Technology
MUSIC 150	Composition
MUSIC 151	Computer Music Composition
MUSIC 152	Interactive Arts Programming

MUSIC 157	Advanced Study in Composition
MUSIC 183A	Jazz Composition
MUSIC 183B	Jazz Composition
MUSIC 183C	Jazz Composition
MUSIC 189	Accompanying for Plucked Strings: Continuo and Changes
2. Select three courses in Music and Culture from the following:	
AFAM 143	Topics in African American Music
AFAM 144	Topics in Expressive Forms
ANTHRO 138M	Music as Expressive Culture
CHC/LAT 115A	Latino Music: A View of Its Diversity and Strength
MUSIC 41	Major Composer
MUSIC 42	Music and Gender
MUSIC 44	Classical Music in Society
MUSIC 45	History of Film Music
MUSIC 49A	Asian in Western Music
MUSIC 140	Studies in Medieval Music
MUSIC 141	Studies in Renaissance Music
MUSIC 142	Studies in Baroque Music
MUSIC 143	Studies in Classical Music
MUSIC 144	Studies in Romantic Music
MUSIC 145	Studies in Twentieth-Century Music
MUSIC 146	Studies in Jazz Music
MUSIC 148	Studies in Ethnomusicology
MUSIC 149	Studies in Music History
MUSIC 180	Music Criticism
MUSIC 181	Improvisation
3. Select six quarters of instrumental or vocal instruction for Music Performance majors from the following:	
MUSIC 165–170	
4. Completion of the following courses according to the approved Bachelor of Music specialization:	
Guitar and Lute:	
MUSIC 176	Chamber Ensembles (every quarter in residence)
Jazz Studies:	
MUSIC 78	History of Jazz
MUSIC 132	Jazz Theory
MUSIC 160	University Orchestra (or MUSIC 161 Wind Ensemble or MUSIC 178 Jazz Orchestra, every quarter in residence)
MUSIC 176	Chamber Ensembles (or MUSIC 182 Advanced Jazz Combo, every quarter in residence)
Piano:	
MUSIC 21A	Keyboard Skills
MUSIC 21B	Keyboard Skills
MUSIC 21C	Keyboard Skills
MUSIC 122A	Piano Literature
MUSIC 122B	Piano Literature
MUSIC 122C	Piano Literature
MUSIC 126	Piano Pedagogy
MUSIC 176	Chamber Ensembles (six quarters, as assigned by the Department)
Select three quarters of the following as assigned by the Department:	
MUSIC 162P	University Chorus: Accompanying
or MUSIC 164P	Opera Workshop: Accompanying
or MUSIC 166P	String Accompaniment
or MUSIC 197	Word and Music

Transfer students must complete six quarters of chamber ensembles and/or accompanying in residence.	
Voice:	
MUSIC 156A	Song Literature
MUSIC 156B	Song Literature
MUSIC 158A	Diction
MUSIC 158B	Diction
MUSIC 158C	Diction
MUSIC 164	Opera Workshop (two quarters)
Select nine quarters of choral ensembles (minimum of three quarters for junior transfers; minimum of six quarters for sophomore transfers) from the following:	
MUSIC 162	UNIVERSITY CHORUS
MUSIC 171	Chamber Singers
MUSIC 172	Men in Blaque
Woodwinds, Brass, Percussion, and Strings:	
MUSIC 160	University Orchestra (or MUSIC 161 Wind Ensemble, every quarter in residence)
MUSIC 176	Chamber Ensembles (every quarter in residence)

Master of Fine Arts Program

Degree Offered

M.F.A. in Music, with emphasis in Choral Conducting, Collaborative Piano, Guitar/Lute Performance, Instrumental Performance, Integrated Composition, Improvisation, and Technology (ICIT), Musicology, Piano Performance, and Vocal Arts.

Admission (in all emphases except Musicology)

In addition to meeting all general requirements for admission to graduate study, applicants should hold a B.A. in Music, a B.Mus., or the equivalent.

The online application must be submitted and all supporting materials must be received by January 15. Late applications cannot be considered. Supporting materials must include at least one substantial writing sample, preferably on a musical subject. This requirement may be fulfilled by the submission of an undergraduate paper of appropriate scope, preferably on a musical topic.

Applicants must audition for members of the Music faculty by February 1. In exceptional cases (as approved in advance by the departmental graduate advisor), a recently recorded performance may be accepted in lieu of a live audition. Applicants in composition must, in addition, submit a representative sample of scores and recordings of their works.

Applicants are expected to have good general knowledge of music history and music theory, competence in basic musicianship skills, including sight-singing, written and keyboard harmony, dictation, and basic keyboard facility (including sight-reading). Entering students will be given diagnostic tests in music theory prior to the beginning of classes and will be advised to remedy any evident deficiencies during the first year in residence by registering for the appropriate undergraduate courses or through other appropriate means. Credit earned in such courses cannot be counted toward fulfillment of any degree requirement.

Admission (emphasis in Musicology)

In addition to meeting all general requirements for admission to graduate study, applicants should hold a B.A. degree in Music, a B.Mus. degree, or their equivalent. Applications, including all supporting materials must be submitted online by January 15 for fellowship consideration. Applications submitted after this date but before the application deadline of February 1 will be considered for admission without fellowship support. Required supporting materials include (1) a statement of purpose outlining background of study and reasons for pursuing the degree, (2) three letters of recommendation from former teachers or others in position to address the merits of the application, (3) at least two writing samples that demonstrate promise for successful graduate study in music, and (4) the GRE general test score (instructional code: 4859). Applicants whose primary language is not English are required to demonstrate proficiency in English for admission through the results of the TOEFL or IETS exam.

Applicants are expected to have good general knowledge of music history and music theory, competence in basic musicianship skills, including sight-singing, written and keyboard harmony, dictation, and basic keyboard facility (including sight-reading). Entering students will be given diagnostic tests in music theory prior to the beginning of classes and will be advised to remedy any evident deficiencies during the first year in residence by registering for the appropriate undergraduate courses or through other appropriate means. Credit earned in such courses cannot be counted toward fulfillment of any degree requirement.

General Degree Requirements

Course requirements may be fulfilled only by graduate courses (numbered 200 and higher) and upper-division undergraduate courses (numbered 100 and higher), and only by those courses in which a grade of B or higher has been earned.

All students except those in the ICIT emphasis must complete the graduate core curriculum in bibliography (MUSIC 200) and music analysis (MUSIC 201). All students except for those in Musicology must register for tutorial study in the major field (MUSIC 210, MUSIC 211, or MUSIC 212) during every quarter in residence. Students in the emphasis in Instrumental Performance must enroll in an approved large ensemble during every quarter in residence.

Students enrolled in the emphasis in Choral Conducting, Collaborative Piano, Musicology, Piano Performance, and Vocal Arts must fulfill a foreign language requirement, as described in the individual emphasis descriptions below. This requirement may be met either by attaining a passing score in the departmental examination or by earning a grade of B or higher in level 2A of an approved undergraduate language course.

All students except for those in Musicology must pass the Comprehensive Examination (normally taken during the fifth quarter in residence) and perform one or more public recitals. Details are found in the individual emphasis descriptions below. In lieu of a Comprehensive Examination students in Musicology will write a Master's Thesis.

The normative time to degree for students in the M.F.A. program is two years. Residence is required. The normative time to degree can be extended to three years only through a petition to the Chair of the Department. The maximum time to degree is three years. Students who do not complete the degree in three years will be dropped from the program.

Individual Emphasis Requirements

Choral Conducting

Languages: Reading knowledge of French, German, or Italian.

Course Work:

MUSIC 131	Post-Tonal Theory
MUSIC 158A- 158B- 158C	Diction and Diction and Diction [1]
MUSIC 200	Bibliography and Research
MUSIC 201	Topics in Analysis
MUSIC 210	Choral Conducting (every quarter in residence, maximum 24 units)
Select three seminars from the following:	
MUSIC 220	Seminar in Music History
MUSIC 230	Seminar in Contemporary Music
MUSIC 235	Critical Studies in Music
MUSIC 236	Seminar in Integrated Composition, Improvisation, and Technology
Twelve units of electives, selected with advisor.	
MUSIC 214	Graduate Recital

[1] Note: This requirement is waived for students who demonstrate competence in this area by passing a diagnostic exam, in which case these 6 units are taken as electives

Comprehensive Examination: This is a special field exam, related to (but not limited to) repertoire selected for the Graduate Recital. It is taken no later than March of the second year. The graduate committee sets the exam 24 hours in advance; the student makes an oral presentation and then fields the committee’s questions.

Collaborative Piano

Languages: Reading knowledge of French, German, Italian, or Spanish.

Course Work:

MUSIC 131	Post-Tonal Theory
MUSIC 156A- 156B- 156C	Song Literature and Song Literature and Song Literature

MUSIC 158A- 158B- 158C	Diction and Diction and Diction [1]
MUSIC 176	Chamber Ensembles (6 units)
MUSIC 200	Bibliography and Research
MUSIC 201	Topics in Analysis
MUSIC 211	Performance (every quarter in residence, maximum 24 units)
Select one seminar from the following:	
MUSIC 220	Seminar in Music History
MUSIC 230	Seminar in Contemporary Music
MUSIC 235	Critical Studies in Music
MUSIC 236	Seminar in Integrated Composition, Improvisation, and Technology
Two Graduate Recitals:	
MUSIC 214	Graduate Recital (one instrumental and one vocal)

1 Note: This requirement is waived for students who demonstrate competence in this area by passing a diagnostic exam, in which case these 6 units are taken as electives.

Comprehensive Examination: This is a special field exam, related to (but not limited to) repertoire selected for the Graduate Recitals. It is taken no later than March of the second year. The graduate committee sets the exam 24 hours in advance; the student makes an oral presentation and then fields the committee's questions.

Guitar/Lute Performance

Course Work:

MUSIC 131	Post-Tonal Theory
MUSIC 176	Chamber Ensembles (6 units)
MUSIC 189	Accompanying for Plucked Strings: Continuo and Changes (taken three times)
MUSIC 200	Bibliography and Research
MUSIC 201	Topics in Analysis
MUSIC 211	Performance (every quarter in residence, maximum of 24 units)
MUSIC 214	Graduate Recital [1]
MUSIC 240	Graduate Projects
Select two seminars from the following:	
MUSIC 220	Seminar in Music History
MUSIC 230	Seminar in Contemporary Music
MUSIC 235	Critical Studies in Music
MUSIC 236	Seminar in Integrated Composition, Improvisation, and Technology

1 Note: The recital is supported by a written essay, presented in advance of the Comprehensive Examination.

Comprehensive Examination: This is a special field exam, related to (but not limited to) repertoire selected for the Graduate Recital. It is taken no later than March of the second year. The graduate committee sets the exam 24 hours in advance; the student makes an oral presentation and then fields the committee's questions.

Instrumental Performance

Course Work:

MUSIC 131	Post-Tonal Theory
MUSIC 160	University Orchestra (taken every quarter in residence, maximum of 12 units)
or MUSIC 161	Wind Ensemble
MUSIC 176	Chamber Ensembles (6 units)
MUSIC 200	Bibliography and Research
MUSIC 201	Topics in Analysis

MUSIC 211	Performance (every quarter in residence, maximum of 24 units)
MUSIC 214	Graduate Recital
Select two seminars from the following:	
MUSIC 220	Seminar in Music History
MUSIC 230	Seminar in Contemporary Music
MUSIC 235	Critical Studies in Music
MUSIC 236	Seminar in Integrated Composition, Improvisation, and Technology

Comprehensive Examination: This is a special field exam, related to (but not limited to) repertoire selected for the Graduate Recital. It is taken no later than March of the second year. The graduate committee sets the exam 24 hours in advance; the student makes an oral presentation and then fields the committee's questions.

Integrated Composition, Improvisation, and Technology (ICIT)

Course Work:

MUSIC 209	Seminar in Creative Practices (every quarter of the first year in residence)
MUSIC 212	Composition (every quarter in residence after the first year, maximum of 12 units)
MUSIC 215	Music Technology (taken twice)
MUSIC 231	Improvisation
MUSIC 235	Critical Studies in Music
MUSIC 239	Thesis Colloquim (1 unit in the first year, 2 units in the second year, for a total of 3 units.)
Select three graduate-level seminars:	
Two of which must be selected from:	
MUSIC 230	Seminar in Contemporary Music
MUSIC 236	Seminar in Integrated Composition, Improvisation, and Technology
A third seminar must be approved by a faculty advisor.	

Comprehensive Examination: Preparation and public presentation of a capstone project of original music (concert of original works or comparable body of original recorded music), including full documentation (scores and recordings as applicable) and a supporting written essay. Successful oral defense of the capstone project (music and essay) before the faculty committee.

Musicology

Languages: Reading knowledge of French, German, Italian, or Spanish.

Course Work:

MUSIC 200	Bibliography and Research
MUSIC 201	Topics in Analysis
MUSIC 203	Music Thesis
MUSIC 235	Critical Studies in Music
Select three seminars from the following:	
MUSIC 220	Seminar in Music History
MUSIC 230	Seminar in Contemporary Music
Twelve units of electives, selected with advisor (upper-division or graduate, Music or non-Music).	

Thesis: All students must complete a thesis in English of approximately fifty pages on a topic approved by their graduate advisor, with appropriate bibliography, and with illustrative appendices, if warranted (e.g. musical examples, musical transcriptions, documents). All students must present the results of their research in a formal oral defense of 30 minutes before their committee and the entire Musicology faculty; after the presentation, they should be prepared to field questions from committee members and other Musicology faculty. Completion of thesis and oral defense take place during the six quarter of residence, no later than Week 8.

Piano Performance

Languages: Reading knowledge of French, German, Italian, or Spanish.

Course Work:

MUSIC 131	Post-Tonal Theory
MUSIC 176	Chamber Ensembles (6 units)
MUSIC 200	Bibliography and Research
MUSIC 201	Topics in Analysis
MUSIC 211	Performance (every quarter in residence, maximum of 24 units)
MUSIC 214	Graduate Recital (twice)
Select two seminars from the following:	
MUSIC 220	Seminar in Music History
MUSIC 230	Seminar in Contemporary Music
MUSIC 235	Critical Studies in Music
MUSIC 236	Seminar in Integrated Composition, Improvisation, and Technology
Four units of electives, selected with advisor (upper-division or graduate, Music or non-Music).	

Comprehensive Examination: This is a special field exam, related to (but not limited to) repertoire selected for the Graduate Recitals. It is taken no later than March of the second year. The graduate committee sets the exam 24 hours in advance; the student makes an oral presentation and then fields the committee's questions.

Vocal Arts

Languages: Reading knowledge of French, German, Italian, or Spanish.

Course Work:

MUSIC 131	Post-Tonal Theory
MUSIC 164	Opera Workshop (4 units)
MUSIC 200	Bibliography and Research
MUSIC 201	Topics in Analysis
MUSIC 211	Performance (every quarter in residence, maximum of 24 units)
MUSIC 214	Graduate Recital
Select two seminars from the following:	
MUSIC 220	Seminar in Music History
MUSIC 230	Seminar in Contemporary Music
MUSIC 235	Critical Studies in Music
MUSIC 236	Seminar in Integrated Composition, Improvisation, and Technology
Ten units of electives, selected with advisor (upper-division or graduate, Music or non-Music).	

Comprehensive Examination: This is a special field exam, related to (but not limited to) repertoire selected for the Graduate Recital. It is taken no later than March of the second year. The graduate committee sets the exam 24 hours in advance; the student makes an oral presentation and then fields the committee's questions.

Faculty

Kei Akagi, B.A. International Christian University, *UCI Chancellor's Professor of Music; Asian American Studies*

Amy M. Bauer, Ph.D. Yale University, *Associate Professor of Music*

Haroutune Bedelian, M.A. Royal Academy of Arts, *Professor of Music*

Lorna Griffitt Bedelian, D.M.A. Indiana University, *Senior Lecturer with Security of Employment of Music*

Frances L. Bennett, B.F.A. University of California, Irvine, *Lecturer of Music*

Anna J. Bosler, D.M.A. University of Southern California, *Lecturer of Music*

David L. Brodbeck, Ph.D. University of Pennsylvania, *The Robert and Marjorie Rawlins Chair in Music* and *Professor of Music* (Central European music of the 19th and early 20th centuries (especially Schubert, Schumann, Brahms, Dvorák, Bruckner, Mahler, Schoenberg), analysis and criticism, rock music)

Robin T. Buck, M.M. University of Southern California, *Professor of Music*

Ellie Choate, M.A. California State University, Long Beach, *Lecturer of Music*

Patricia C. Cloud, M.M. University of Southern California, *Lecturer of Music*

Jonathan D. Davis, D.M.A. Juilliard School, *Lecturer of Music*

Michael J. Dessen, Ph.D. University of California, San Diego, *Associate Professor of Music*

Theresa A. Dimond, D.M.A. University of Southern California, *Lecturer of Music*

John Christopher Dobrian, Ph.D. University of California, San Diego, *Professor of Music; Informatics* (electronic music, composition)

Nohema Fernandez, D.M.A. Stanford University, *Professor Emerita of Music*

Frederick W. Greene, B.M. University of Southern California, *Lecturer of Music*

Matthew Hare, D.M.A. University of Iowa, *Lecturer of Music*

Jason Harnell, *Lecturer of Music*

Robert Hickok, B.M. Yale University, *Professor Emeritus of Music*

Joseph B. Huszti, MM Northwestern University, *Professor Emeritus of Music*

Russell Knight, Ph.D. University of California, Santa Barbara, *Lecturer of Music*

Jerzy S. Kosmala, D.M. Indiana University, *Lecturer of Music*

Kevin McKeown, M.A. University of California, Los Angeles, *Lecturer of Music*

Nicole M. Mitchell, M.M. Northern Illinois University, *Professor of Music*

Elliott Moreau, M.M. University of Southern California, *Lecturer of Music*

Margaret K. Murata, Ph.D. University of Chicago, *Professor of Music*

Dariusz Oleszkiewicz, B.A. California Institute of the Arts, *Lecturer of Music*

Hossein Omoumi, Ph.D. University of Florence, *Maseeh Professor in Persian Performing Arts* and *Professor of Music*

Margaret C. Parkins, D.M.A. State University of New York at Stony Brook, *Lecturer of Music*

Gerald Pinter, B.A. University of North Texas, *Lecturer of Music*

Colleen A. Reardon, Ph.D. University of California, Los Angeles, *Professor of Music*

Bobby Rodriguez, D.M.A. University of California, Los Angeles, *Lecturer of Music*

John H. Schneiderman, M.F.A. University of California, Irvine, *Senior Lecturer with Security of Employment of Music*

Nina Scolnik, B.M. Oberlin College, *Senior Lecturer with Security of Employment of Music*

H. Colin Slim, Ph.D. Harvard University, *Professor Emeritus of Music*

David B. Stetson, B.M. University of Southern California, *Lecturer of Music*

Cecilia Sun, Ph.D. University of California, Los Angeles, *Assistant Professor of Music*

Darryl G. Taylor, D.M.A. University of Michigan, *Professor of Music; African American Studies*

Stephen E. Tucker, D.M.A. University of California, Los Angeles, *Associate Professor of Music*

Kojiro Umezaki, M.A. Dartmouth College, *Associate Professor of Music; Computer Science*

Amanda Jane Walker, M.F.A. University of California, Los Angeles, *Lecturer of Music*

David W. Washburn, M.A. New England Conservatory Music, *Lecturer of Music*

Courses

MUSIC 3. Introduction to Music. 4 Units.
Introduction to musical concepts and active listening skills. Students develop musical understanding through critical readings, selected repertoire, fundamental concepts related to rhythm, pitch, and genre. Students apply those concepts to music from a wide range of historical and cultural origins. Course may be offered online.

(IV)

MUSIC 4. Introduction to Opera. 4 Units.
Introduces students with no musical background to the dramatic and performance conventions of opera, and suggests ways of developing a critical stance vis-a-vis the social, political, gender-related and moral conflicts that are presented by composers and librettists.

(IV)

MUSIC 8. The Beatles and the Sixties. 4 Units.
Through a study of the music of the Beatles, students are introduced to selected broader historical and cultural themes (e.g., race and music, gender and music, music and the counterculture) while developing an understanding of the basic elements of music.

(IV)

MUSIC 9. Rock: The Early Years. 4 Units.
Surveys the social and cultural fabric of the post-World War II United States (from the late 1940s through the early 1970s) as seen through the prism of music - rock and roll music.

(IV)

MUSIC 10. Piano for Majors. 1 Unit.
For Music majors with little or no piano experience. Provides the necessary background for realizing keyboard exercises required in the theory and harmony courses, and develops skills to play and sight-read simple music from different periods.

Repeatability: May be taken for credit 3 times.

Restriction: Music and Music Performance majors only.

MUSIC 14A. European and American Music 1700 - Twentieth Century. 4 Units.
Survey of European and American music from the Baroque period through the twentieth century. Baroque and Classical music with adequate attention given to the Medieval and Renaissance periods. May be taken in any order.

(IV)

MUSIC 14B. European and American Music 1700 - Twentieth Century. 4 Units.
Survey of European and American music from the Baroque period through the 20th century. The nineteenth and twentieth centuries. May be taken in any order.

(IV)

MUSIC 14C. European and American Music 1700 - Twentieth Century. 4 Units.
Survey of European and American music from the Baroque period through the twentieth century. Selected topics in American music. May be taken in any order.

(IV)

MUSIC 15A. Musicianship I. 2 Units.
Interval and chord quality identification, melodic and harmonic dictation, tonal and chromatic sight-singing, and rhythmic reading and dictation.

Corequisite: MUSIC 16A.

Restriction: Music and Music Performance majors only.

MUSIC 15B. Musicianship II. 2 Units.
Interval and chord quality identification, melodic and harmonic dictation, tonal and chromatic sight-singing, and rhythmic reading and dictation.

Corequisite: MUSIC 16B.
Prerequisite: MUSIC 15A and MUSIC 16A. MUSIC 15A with a grade of C- or better. MUSIC 16A with a grade of C- or better.

Restriction: Music and Music Performance majors only.

MUSIC 15C. Musicianship III. 2 Units.
Interval and chord quality identification, melodic and harmonic dictation, tonal and chromatic sight-singing, and rhythmic reading and dictation.

Corequisite: MUSIC 16C.
Prerequisite: MUSIC 15B and MUSIC 16B. MUSIC 15B with a grade of C- or better. MUSIC 16B with a grade of C- or better.

Restriction: Prerequisite required and Music and Music Performance majors only.

MUSIC 16A. Music Theory. 4 Units.
Review of music fundamentals. Triad and seventh chords, musical texture, chord spacing, embellishing tones, and introduction to diatonic harmony. Part-writing and model composition with tonic, dominant seventh, and subdominant harmonies.

Corequisite: MUSIC 15A.

Restriction: Music and Music Performance majors only.

MUSIC 16B. Music Theory. 4 Units.
Introduction to phrase structure. Part-writing and harmonization with predominants, linear dominants, 6/4 embellishing chords, leading-tone and other diatonic seventh chords. Advanced meters and rhythmic-metric dissonance. Diatonic sequence. Introduction to tonicization and modulation through motion to V and III.

Corequisite: MUSIC 15B.
Prerequisite: MUSIC 15A and MUSIC 16A. MUSIC 15A with a grade of C- or better. MUSIC 16A with a grade of C- or better.

Restriction: Music and Music Performance majors only.

MUSIC 16C. Music Theory. 4 Units.
Tonicization and modulation to closely related keys. Simple binary and ternary forms. Voice-leading reductions and simple forms. Diatonic sequence with seventh chords. Introduction to chromatic harmony I: modal exchange and mixture chords, the Neapolitan and augmented sixth chords.

Corequisite: MUSIC 15C.
Prerequisite: MUSIC 15B and MUSIC 16B. MUSIC 15B with a grade of C- or better. MUSIC 16B with a grade of C- or better.

Restriction: Music and Music Performance majors only.

MUSIC 16D. Theory/Musicianship. 4 Units.
Extended homophonic and contrapuntal formal designs (continuous variations, rondo form, sonata form, invention, fugue). Embellishing chromatic chords, dominant prolongation, modulations to foreign keys, extended harmonies, chromatic sequence, chromatic voice-leading and symmetrical divisions of the octave.

Prerequisite: MUSIC 15C and MUSIC 16C. MUSIC 15C with a grade of C- or better. MUSIC 16C with a grade of C- or better.

Restriction: Music and Music Performance majors only.

MUSIC 21A. Keyboard Skills. 1 Unit.
Designed to develop the foundational skills of sight-reading, harmonization, transposition, improvisation, figured bass realization, and score reading.

Repeatability: May be taken for credit 6 times.

Restriction: Music and Music Performance majors only. Lower-division students only.

MUSIC 21B. Keyboard Skills. 1 Unit.
Designed to develop the foundational skills of sight-reading, harmonization, transposition, improvisation, figured bass realization, and score reading.

Repeatability: May be taken for credit 6 times.

Restriction: Music and Music Performance majors only. Lower-division students only.

MUSIC 21C. Keyboard Skills. 1 Unit.
Designed to develop the foundational skills of sight-reading, harmonization, transposition, improvisation, figured bass realization, and score reading.

Repeatability: May be taken for credit 6 times.

Restriction: Music and Music Performance majors only. Lower-division students only.

MUSIC 25. Music Fundamentals. 4 Units.
Basic concepts and materials. Major and minor scales, intervals between pitches, key signatures, elements of rhythm, diatonic chords in root position and inversion. Simple and compound meters. Formerly Music 25A.

MUSIC 40B. History of European Music: Josquin to Wagner. 4 Units.
An introduction to the analysis of musical styles and forms, and to the sources for constructing music history and reconstructing historical music, to J.S. Bach.

Prerequisite: MUSIC 16C. MUSIC 16C with a grade of C- or better.

Restriction: Music and Music Performance majors have first consideration for enrollment.

(IV, VIII)

MUSIC 40C. History of European Music: Josquin to Wagner. 4 Units.
An introduction to the analysis of musical styles and forms, and to the sources for constructing music history and reconstructing historical music, to Richard Wagner.

Prerequisite: MUSIC 40B. MUSIC 40B with a grade of C- or better. MUSIC 16D recommended.

Restriction: Music and Music Performance majors have first consideration for enrollment.

(IV, VIII)

MUSIC 40D. Twentieth-Century Music. 4 Units.
Survey of principal composers, movements, and compositional techniques of Western art music of the modern era.

Prerequisite: MUSIC 16C. MUSIC 16C with a grade of C- or better.

Restriction: Music and Music Performance majors have first consideration for enrollment.

(IV, VIII)

MUSIC 41. Major Composer. 4 Units.
Study of the works of an important composer with emphasis on their significance in historical and social contexts. Composers selected represent a wide variety of historical periods, nationalities, and stylistic orientations.

Repeatability: May be taken for credit 2 times as topics vary.

MUSIC 42. Music and Gender. 4 Units.
Explores various intersections between music and gender. Examines ways in which gender and sexuality have played a vital role in the creation, dissemination, and consumption of music ranging from medieval Christian mysticism to contemporary hip-hop artists.

(IV, VIII)

MUSIC 44. Classical Music in Society. 4 Units.
Examines some ways in which classical music has played an integral role in aspects of society. Studies pieces from different cultural, political, and historical contexts in order to understand how musical meaning is created and interpreted.

(IV, VIII)

MUSIC 45. History of Film Music. 4 Units.
Course provides an overview of film music history. Special emphasis will be placed on developing an analytic vocabulary for musical elements and cultivating an understanding of how music can function within a film. Materials fee.

(IV)

MUSIC 49A. Asian in Western Music. 4 Units.
Traces and critiques western musical representations of Far East culture and figures, reviewing the reception and significance of these works by present-day Asian consumers of western culture.

Prerequisite: Satisfactory completion of the lower-division writing requirement recommended.

(VIII)

MUSIC 51. Music Technology and Computers. 4 Units.
A study of the influence of technology on the musical culture and aesthetics from the twentieth century to the present, with particular emphasis on the role of the computer. Work includes lectures, readings, listenings, discussions, demonstrations, writing, and experimentation.

(IV)

MUSIC 65. Piano for Music Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times as topics vary.

Restriction: Music majors only.

MUSIC 66. Strings for Music Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times as topics vary.

Restriction: Music majors only.

MUSIC 67. Winds for Music Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times as topics vary.

Restriction: Music majors only.

MUSIC 68. Voice for Music Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times.

Restriction: Music majors only.

MUSIC 69. Percussion for Music Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times as topics vary.

Restriction: Music majors only.

MUSIC 70. Guitar, Lute, and Other Plucked Instruments for Music Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times.

Restriction: Music majors only.

MUSIC 78. History of Jazz. 4 Units.
Development of jazz from African and African American folk origins through blues, early jazz, swing, bebop, "cool" jazz, fusion, free jazz, and contemporary trends.

Overlaps with MUSIC 78A, MUSIC 78B.

(IV, VII)

MUSIC 82A. Pish Radif: Introduction to Classical Persian Music. 4 Units.
Survey of art music in Iran and the basic structures of classical Persian music. Students learn through vocal exercises how Persian music evolved and how it was influenced by Persian poetry. An interest in vocal music is strongly recommended. Mahur.

Repeatability: May be repeated for credit unlimited times.

MUSIC 82B. Pish Radif: Introduction to Classical Persian Music. 4 Units.
Survey of art music in Iran and the basic structures of classical Persian music. Students learn through vocal exercises how Persian music evolved and how it was influenced by Persian poetry. An interest in vocal music is strongly recommended. Homayun.

Repeatability: May be repeated for credit unlimited times.

MUSIC 82C. Pish Radif: Introduction to Classical Persian Music. 4 Units.
Survey of art music in Iran and the basic structures of classical Persian music. Students learn through vocal exercises how Persian music evolved and how it was influenced by Persian poetry. An interest in vocal music is strongly recommended. Shur.

Repeatability: May be repeated for credit unlimited times.

MUSIC 122A. Piano Literature. 2 Units.
Survey of stringed keyboard literature from the English Virginalists through twentieth-century composers. Historical, formal, and stylistic considerations of music presented. Performances by class participants and occasional outside guests.

Prerequisite: MUSIC 16A and MUSIC 16B and MUSIC 16C.

Restriction: Music and Music Performance majors only. Upper-division students only.

MUSIC 122B. Piano Literature. 2 Units.
Survey of stringed keyboard literature from the English Virginalists through twentieth-century composers. Historical, formal, and stylistic considerations of music presented. Performances by class participants and occasional outside guests.

Prerequisite: MUSIC 16A and MUSIC 16B and MUSIC 16C.

Restriction: Music and Music Performance majors only. Upper-division students only.

MUSIC 122C. Piano Literature. 2 Units.
Survey of stringed keyboard literature from the English Virginalists through twentieth-century composers. Historical, formal, and stylistic considerations of music presented. Performances by class participants and occasional outside guests.

Prerequisite: MUSIC 16A and MUSIC 16B and MUSIC 16C.

Restriction: Music and Music Performance majors only. Upper-division students only.

MUSIC 126. Piano Pedagogy. 2 Units.
The materials and methods of piano instruction are examined and evaluated.

Restriction: Music and Music Performance majors only. Upper-division students only.

MUSIC 131. Post-Tonal Theory. 4 Units.
Significant harmonic, rhythmic, and structural practices since 1900. Analysis and written work exploring free atonality and serialism; neo-tonal practices such as use of extended tertian harmonies, modalism, pandiatonicism, and non-tertian harmonies; structural principles such as aleatory, metric modulation and minimalism.

Prerequisite: MUSIC 16D.

Restriction: Music and Music Performance majors only.

MUSIC 132. Jazz Theory. 4 Units.
Study of jazz harmony and melody construction in improvisation. Covered topics include terminology, chord symbols, notation, voicings, and scales as commonly used in jazz and popular music. Issues regarding tonality and ramifications of the blue scale are also examined.

Prerequisite: MUSIC 16D.

Restriction: Music and Music Performance majors only.

MUSIC 136. Instrumentation. 4 Units.
Ranges and capabilities of modern orchestral instruments. Exercise in writing for various combinations of wind, string, and percussion instruments and for full orchestra.

Prerequisite: MUSIC 16C.

Restriction: Music and Music Performance majors only.

MUSIC 140. Studies in Medieval Music. 4 Units.
Topics in Medieval Music.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music majors and Music Performance majors only.

MUSIC 141. Studies in Renaissance Music. 4 Units.
Topics in Renaissance Music.

Prerequisite: MUSIC 40B.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music majors and Music Performance majors only.

MUSIC 142. Studies in Baroque Music. 4 Units.
Topics in Baroque Music.

Prerequisite: MUSIC 40B.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music majors and Music Performance majors only.

MUSIC 142W. Studies in Baroque Music . 4 Units.
Topics in Baroque Music.

Prerequisite: MUSIC 40B. Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music and Music Performance majors only.

(Ib)

MUSIC 143. Studies in Classical Music. 4 Units.
Topics in Classical Music.

Prerequisite: MUSIC 40C. Satisfactory completion of the lower-division writing requirement.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music majors and Music Performance majors only.

MUSIC 143W. Studies in Classical Music. 4 Units.
Topics in Classical Music.

Prerequisite: MUSIC 40C or equivalent. Satisfactory completion of the lower-division writing requirement.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music and Music Performance majors only.

(Ib)

MUSIC 144. Studies in Romantic Music. 4 Units.
Topics in Romantic Music.

Prerequisite: MUSIC 40C.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music majors and Music Performance majors only.

MUSIC 144W. Studies in Romantic Music. 4 Units.
Topics in Romantic Music.

Prerequisite: MUSIC 40C or equivalent.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music and Music Performance majors only.

(Ib)

MUSIC 145. Studies in Twentieth-Century Music. 4 Units.
Topics in Twentieth-Century Music.

Prerequisite: Satisfactory completion of the Lower-Division writing requirement.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music majors and Music Performance majors only. Upper-division majors only.

MUSIC 145W. Studies in Twentieth-Century Music. 4 Units.
Topics in Twentieth-Century Music.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music and Music Performance majors only. Upper-division only.

(Ib)

MUSIC 146. Studies in Jazz Music. 4 Units.
Topics in Jazz Music.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Music majors and Music Performance majors only.

MUSIC 147. Studies in Music Technology. 4 Units.
Specialized topics in electronic music, computer-aided music, and other aspects of music technology.

Repeatability: May be taken for credit 2 times as topics vary.

MUSIC 148. Studies in Ethnomusicology. 4 Units.
Topics in Ethnomusicology.

Repeatability: May be taken for credit 2 times.

Restriction: Music majors and Music Performance majors only.

MUSIC 149. Studies in Music History. 4 Units.
Specialized topics in musical genres; culture and social issues; performance practices; and interrelated arts.

Prerequisite: MUSIC 40B and MUSIC 40C and MUSIC 40D. Satisfactory completion of the lower-division writing requirement.

Repeatability: May be taken for credit 3 times as topics vary.

Restriction: Music majors and Music Performance majors only.

MUSIC 150. Composition. 4 Units.
Exercises and projects for diverse instrumental-vocal combinations; contemporary techniques and problems. Participation in the improvisation ensemble and working with electronic media.

Prerequisite: MUSIC 16C.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music and Music Performance majors only.

MUSIC 151. Computer Music Composition. 4 Units.
Exercises in the composition of music uniquely possible by computer, including digital signal processing, computer control of synthesizers and processors, and algorithmic composition. Demonstrations and musical analyses in class; considerable studio work outside class.

Prerequisite: MUSIC 51.

MUSIC 152. Interactive Arts Programming. 4 Units.
Study of artistic issues and programming techniques involved in the development of interactive computer art and music. Theoretical background, basic tenets of programming, and practical exercises in programming interactive computer multimedia art.

Prerequisite: MUSIC 151.

MUSIC 155. Analysis. 4 Units.
Methods of formal analysis applicable to all Western musical styles: additive, continuous, transformational, and hierarchic forms; rhythm, texture, and sonority as form and process.

Prerequisite: MUSIC 16D.

Restriction: Music and Music Performance majors only.

MUSIC 156A. Song Literature. 2 Units.
A survey of song literature. Designed as an overview of the song repertoire, German Lieder.

Restriction: Music and Music Performance majors only.

MUSIC 156B. Song Literature. 2 Units.
A survey of song literature. Designed as an overview of the song repertoire, French mélodie.

Restriction: Music and Music Performance majors only.

MUSIC 156C. Song Literature. 2 Units.
A survey of song literature. Designed as an overview of the song repertoire, National Schools.

Restriction: Music and Music Performance majors only.

MUSIC 157. Advanced Study in Composition. 4 Units.
Individual weekly lessons in composition.

Prerequisite: MUSIC 150.

Repeatability: May be taken for credit 6 times.

Restriction: Music and Music Performance majors only. Upper-division students only.

MUSIC 158A. Diction. 2 Units.
In-depth study of the International Phonetic Alphabet (IPA), including its transcription and pronunciation, and its application for singers. Introduction to IPA and Italian Diction.

Restriction: Music and Music Performance majors only.

MUSIC 158B. Diction. 2 Units.
In-depth study of the International Phonetic Alphabet (IPA), including its transcription and pronunciation, and its application for singers. German Diction.

Prerequisite: MUSIC 158A.

Restriction: Music and Music Performance majors only.

MUSIC 158C. Diction. 2 Units.
In-depth study of the International Phonetic Alphabet (IPA), including its transcription and pronunciation, and its application for singers. French Diction.

Prerequisite: MUSIC 158A and MUSIC 158B.

Restriction: Music and Music Performance majors only.

MUSIC 159. Vocal Pedagogy. 2 Units.
Survey about the physical structure of the singing mechanism, science and philosophy of studio instruction.

Restriction: Music and Music Performance majors only.

MUSIC 160. University Orchestra. 2 Units.
Study and performance of standard orchestral repertory and works by contemporary composers. Membership is open to all qualified students by audition only.

Prerequisite: Audition required.

Repeatability: May be repeated for credit unlimited times.

MUSIC 161. Wind Ensemble. 2 Units.
Study and performance of works written for varying combinations of wind and percussion instruments. Membership is open to all qualified students by audition only.

Prerequisite: Audition required.

Repeatability: May be repeated for credit unlimited times.

MUSIC 162. UNIVERSITY CHORUS. 2 Units.
Make-up of the ensembles varies and may include University Chorus, Chamber Choir, Madrigal Singers, Women's Chorus, and Reading Choir. Membership is open to all qualified students by audition only.

Prerequisite: Audition required.

Repeatability: May be repeated for credit unlimited times.

MUSIC 162L. Basic Voice Lab. 1 Unit.
Vocal technique and musicianship for selected singers in UCI's choral organizations.

Corequisite: MUSIC 162.

Repeatability: May be repeated for credit unlimited times.

Restriction: Not open to Music majors.

MUSIC 162P. University Chorus: Accompanying. 2 Units.
Keyboard accompanying for one of the UCI choral organizations, with individual coaching in sight reading, score reading, and other accompanying skills.

Repeatability: May be taken for credit 12 times.

MUSIC 164. Opera Workshop. 2-4 Units.
Preparation and performance of operatic repertoire, including arias, scenes, and fully staged operas, and/or stage training and role analysis.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music and Music Performance majors only.

MUSIC 164P. Opera Workshop: Accompanying. 2-4 Units.
Training in techniques and operatic repertory for keyboard players.

Repeatability: May be repeated for credit unlimited times.

MUSIC 165. Piano for Music Performace Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times.

Restriction: Music Performance majors only.

MUSIC 166. Strings for Music Performance Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times.

Restriction: Music Performance majors only.

MUSIC 166P. String Accompaniment. 2 Units.
Chamber ensemble experience with the solo string repertory for keyboard, participation in the weekly string master class, performance in public recitals.

Repeatability: May be taken for credit 3 times.

MUSIC 167. Winds for Music Performance Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times.

Restriction: Music Performance majors only.

MUSIC 168. Voice for Music Performance Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times.

Restriction: Music Performance majors only.

MUSIC 169. Percussion for Music Performance Majors. 4 Units.
Private weekly lessons. Materials fee.

Repeatability: May be taken for credit 6 times.

Restriction: Music Performance majors only.

MUSIC 170. Guitar, Lute, and Other Plucked Instruments for Music Performance Majors. 4 Units.
Private weekly lessons and a weekly master class/workshop for the discussion of solo repertory and performance practice, including special topics such as historical notational systems, traditional American guitar styles, and demonstrations of period plucked instruments. Materials fee.

Repeatability: May be taken for credit 6 times.

Restriction: Music Performance majors only.

MUSIC 171. Chamber Singers. 2 Units.
A select ensemble specializing in vocal chamber music from all periods. Frequent performances on and off campus. Membership is open to all singers by audition.

Repeatability: May be repeated for credit unlimited times.

MUSIC 172. Men in Blaque. 2 Units.
Men's chamber choir studying and performing music in original SATB and TTBB voicing. Gregorian chant, Renaissance motets and masses, part-songs from the Romantic era by Schubert and Schumann, folksongs, spirituals, jazz and contemporary literature comprises majority of repertoire.

Repeatability: May be taken for credit 12 times.

MUSIC 176. Chamber Ensembles . 2 Units.
Make-up of the ensembles varies and may include various Classical ensembles, Latin Jazz Ensemble, Small Jazz Combos, Percussion Ensemble, and Guitar Ensemble. Membership is open to all qualified students by audition only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music and Music Performance majors have first consideration for enrollment.

MUSIC 178. Jazz Orchestra. 2 Units.
Rehearsal and performance of literature written for large jazz ensemble with emphasis on methods and materials. Laboratory setting for new arrangers and/or composers of modern jazz pieces.

Repeatability: May be repeated for credit unlimited times.

MUSIC 180. Music Criticism . 4 Units.
Topics in Music Criticism.

Repeatability: Unlimited as topics vary.

Restriction: Music and Music Performance majors only.

MUSIC 180A. Music and Material Culture. 4 Units.
Examines the cultural value of secular music objects such as scores, musical instruments, and cassette tapes beyond the period of their use. "Biographies" of not-sounding musical objects trace the changing social contexts in which they survived.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

MUSIC 180AW. Music and Material Culture. 4 Units.
Examines the cultural value of secular music objects such as scores, musical instruments, and cassette tapes beyond the period of their use. "Biographies" of not-sounding musical objects trace the changing social contexts in which they survived.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

(Ib)

MUSIC 180W. Music Criticism . 4 Units.
Topics in Music Criticism.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Music and Music Performance majors only.

(Ib)

MUSIC 181. Improvisation. 4 Units.
Improvisation has been central to all music traditions. Course explores real-time music-making in a variety of non-notated contexts. Different improvisational styles are presented, including jazz, Asian improvisation, and experimental modern music. Emphasis on actual classroom performance.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music and Music Performance majors only.

MUSIC 182. Advanced Jazz Combo. 2 Units.
Small-group jazz ensemble and improvisational workshop. Range of music covered encompasses the full traditional jazz from improvised ragtime up through the most current avant-garde musical techniques.

Repeatability: May be repeated for credit unlimited times.

MUSIC 183A. Jazz Composition. 4 Units.
Performance and lecture course for writing and performing original jazz compositions. Emphasis is placed on composing as a way to create new improvisational frameworks. Cyclical forms, modal compositions, blues-oriented compositions, ballad writing.

Prerequisite: MUSIC 78 and MUSIC 132.

Restriction: Music and Music Performance majors only.

MUSIC 183B. Jazz Composition. 4 Units.
Performance and lecture course for writing and performing original jazz compositions. Emphasis is placed on composing as a way to create new improvisational frameworks. Non-functional harmony, contemporary forms, free-bop, and current trends.

Prerequisite: MUSIC 78 and MUSIC 132 and MUSIC 183A.

Restriction: Music and Music Performance majors only.

MUSIC 183C. Jazz Composition. 4 Units.
Performance and lecture course for writing and performing original jazz compositions. Emphasis is placed on composing as a way to create new improvisational frameworks. Study of modern tonal-center compositions, intervallic compositions, and alternate rhythms.

Prerequisite: MUSIC 78 and MUSIC 132 and MUSIC 183A and MUSIC 183B.

Restriction: Music and Music Performance majors only.

MUSIC 189. Accompanying for Plucked Strings: Continuo and Changes. 2 Units.
Students apply theory to their instruments as they learn the basics of pre-1800 continuo playing and post-1900 jazz charts. Includes discussions of appropriate repertory, treatment of harmonic progressions, and finer points of style and technique.

Prerequisite: MUSIC 16C.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music and Music Performance majors only.

MUSIC 191. Tutorial in Music. 1-4 Units.
Independent supplemental instruction related to student's area of study.

Repeatability: May be repeated for credit unlimited times.

MUSIC 193. Conducting. 4 Units.
Introduces students to the basic techniques employed in the practice of conducting and includes score study and development of leadership skills.

Prerequisite: MUSIC 16D and MUSIC 40B and MUSIC 40C.

Restriction: Music and Music Performance majors only.

MUSIC 195A. Senior Thesis. 2 Units.
With consultation in regularly scheduled meetings, students identify and study relevant texts and materials and prepare a prospectus for an original thesis.

Prerequisite: Senior standing in the Honors Program in Music and Culture.

Grading Option: In progress only.

Restriction: Music and Music Performance majors only.

MUSIC 195B. Senior Thesis. 2 Units.
Students submit an outline and preliminary drafts of section of their thesis to the instructor, on a schedule supervised by the instructor. The final version will address the instructor's comments and criticisms.

Prerequisite: MUSIC 195A.

Restriction: Music and Music Performance majors only.

MUSIC 197. Word and Music. 2 Units.
Performance class for advanced singers and pianists with emphasis on collaborative approach to vocal literature.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music and Music Performance majors only.

MUSIC 199. Independent Study. 2 Units.
Research, writing, or composition work, under the guidance of a faculty member.

Repeatability: May be taken for credit 2 times.

Restriction: Music and Music Performance majors only.

MUSIC 200. Bibliography and Research. 4 Units.
Required of all entering students. A systematic introduction to the bibliographical tools both in the general field of music and in the student's areas of specialization.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music graduate students only.

MUSIC 201. Topics in Analysis . 4 Units.
Seminar focusing on different analytical methods, modal, tonal and post-tonal, and their applications to repertories drawn from various historical periods through to the present day.

Prerequisite: Placement into MUSIC 201.

Repeatability: Unlimited as topics vary.

Restriction: M.F.A. students only.

MUSIC 203. Music Thesis . 4 Units.
Intensive work dedicated to researching and writing a Master's thesis under the supervision of a faculty advisor.

Prerequisite: MUSIC 200.

Repeatability: May be repeated for credit unlimited times.

Restriction: M.F.A. students in Musicology only.

MUSIC 209. Seminar in Creative Practices. 4 Units.
Core first-year seminar required for graduate students in the Integrated Composition, Improvisation, and Technology emphasis of the M.F.A. in Music. Composition and presentation of original student works, lecture, and discussion.

Repeatability: May be taken for credit 3 times.

Restriction: Music graduate students only.

MUSIC 210. Choral Conducting . 4 Units.
Intensive private instruction and study of the various choral literatures.

Repeatability: May be taken for credit 6 times.

Restriction: Music graduate students only.

MUSIC 211. Performance . 4 Units.
Contents vary according to the student's major instrument. Intensive private instruction and study of the various literatures.

Repeatability: May be taken for credit 6 times.

Restriction: Music graduate students only.

MUSIC 212. Composition. 4 Units.
Intensive work in composition geared to each student's level of competence.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music graduate students only.

MUSIC 213. Orchestral Conducting. 4 Units.
Intensive private instruction in instrumental conducting.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music graduate students only.

MUSIC 214. Graduate Recital.
Performance of public recital.

Repeatability: May be taken for credit 2 times.

Restriction: Music graduate students only.

MUSIC 215. Music Technology. 4 Units.
Studies in the history, literature, composition, and performance of electronic and computer music, including instruction in the theory and usage of prevalent music technology.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music graduate students only.

MUSIC 220. Seminar in Music History. 4 Units.
Topics in Music History.

Repeatability: Unlimited as topics vary.

Restriction: Music graduate students only.

MUSIC 230. Seminar in Contemporary Music. 4 Units.
Special seminar projects dealing with contemporary music with emphasis on analytical techniques and style criticism.

Repeatability: Unlimited as topics vary.

Restriction: Music graduate students only.

MUSIC 231. Improvisation. 4 Units.
Introduces the practice and history of improvisation in diverse fields of Western music since 1950. Performance projects and group critiques; weekly reading and listening assignments; participation in a class concert; and a research paper.

Restriction: Music graduate students only.

MUSIC 235. Critical Studies in Music. 4 Units.
A critical examination of Western music traditions, institutions, and aesthetics, employing new scholarship in music and new critical studies in other disciplines.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music graduate students only.

MUSIC 236. Seminar in Integrated Composition, Improvisation, and Technology. 4 Units.
Seminar studying new genres and topics that integrate composition, improvisation, new technologies, and non-classical cultures.

Repeatability: May be repeated for credit unlimited times.

Restriction: Music graduate students only.

MUSIC 239. Thesis Colloquim. 1-2 Units.
Second-year ICIT students present their thesis work-in-progress for discussion and criticism. Faculty and visiting artists/scholars also present their current work.

Repeatability: May be taken for credit 2 times.

Restriction: Music graduate students only.

MUSIC 240. Graduate Projects . 4 Units.
Substantial projects in performance, conducting, or composition (other than those specifically required for the degree), accompanied by a summary paper.

Repeatability: Unlimited as topics vary.

Restriction: Music graduate students only.

MUSIC 250. Directed Reading. 4 Units.
Individual research projects, resulting in the writing of a substantial paper pertaining to the principal area of concentration.

Repeatability: Unlimited as topics vary.

Restriction: Music graduate students only.

MUSIC 399. University Teaching. 1-4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Francisco J. Ayala School of Biological Sciences

Frank Laferla, **Hana and Francisco J. Ayala Dean**
5120 Natural Sciences II
http://www.bio.uci.edu/

Undergraduate Counseling: 949-824-5318
Graduate Programs:

- Department of Ecology and Evolutionary Biology: 949-824-4743
- Combined Graduate Program in Cellular and Molecular Biosciences (CMB): 949-824-8145
- Department of Neurobiology and Behavior: 949-824-8519

Overview

This is the ideal time to be studying biology. We are solving problems today whose solutions were unimaginable even a few years ago, and implications for our society, our health, and our environment are profound. The Francisco J. Ayala School of Biological Sciences is dedicated to providing students with a unique course of study that fosters a deep appreciation for the exciting facts and concepts in the field, an education that allows graduates to excel in their chosen careers.

The School has recently redesigned the curriculum to remain on the cutting edge of biological education. All first-year students are introduced to basic concepts in ecology and evolutionary biology, as well as cellular and molecular biology. The core set of courses in biology continues into the second year, featuring genetics, biochemistry, and molecular biology, followed in the third and fourth year by a choice of advanced courses in biology. Since biology is a laboratory discipline, students complete a series of laboratory courses in which they learn both the techniques and approaches needed to solve problems in biology.

Finally, the faculty expect that most students will engage in cutting-edge research in one of more than 250 laboratories and medical clinics in the Francisco J. Ayala School of Biological Sciences and the UCI School of Medicine. It is in these situations that faculty train students to think in a sophisticated way about real-world problems. There is also no feeling of excitement greater than finding out something about the world that no one has ever known before, a feeling afforded in biology only by participation in research. The Excellence in Research Program allows students to present their work and be recognized for their performance with a series of awards and publication of their reports in the School's online *Journal of Undergraduate Research.* The set of core classes that instructs students in the concepts of biology, the advanced classes that allow a deep understanding of specialized aspects of biology, the laboratory courses that convey the practical aspects of problem-solving in biology, and the research experiences that engage students in the real excitement in revealing new information about biology, come together to provide an extraordinary experience for students. The Honors Program in the Francisco J. Ayala School of Biological Sciences further enhances the educational experience for the best students.

Biology students have the option of specializing in areas of biology that best fit their interests, completing courses for degree programs in Biochemistry and Molecular Biology, Biology/Education, Developmental and Cell Biology, Ecology and Evolutionary Biology, Genetics, Microbiology and Immunology, or Neurobiology.

Those students who wish to receive a broader education in the area can opt to complete a major in Biological Sciences. Completion of any of these majors forms an excellent basis for application to either graduate or professional studies such as medical school, and graduates of the Francisco J. Ayala School of Biological Sciences are routinely accepted to the most prestigious programs in the country.

The quality of the faculty in the Francisco J. Ayala School of Biological Sciences has remained high while increasing steadily in number over the past few years, giving students a remarkable range of expertise in biology and with it, a large number of different advanced courses and research opportunities. In addition, their efforts have brought several high-impact research units to the campus, such as the Center for the Neurobiology of Learning and Memory, the Center for Virus Research, the Beckman Laser Institute, the Cancer Research Institute, the Developmental Biology Center, the Center for Immunology, the Institute for Memory Impairments and Neurological Disorders, the Macromolecular Structure Research Unit, the Organized Research Unit in Molecular and Mitochondrial Medicine and Genetics, the Institute for Genomics and Bioinformatics, and the Reeve-Irvine Research Center, all of which are accessible to undergraduates. The Francisco J. Ayala School of Biological Sciences also has close research and teaching collaborations with faculty in the Schools of Medicine, Physical Sciences, Social Ecology, and Social Sciences; the Donald Bren School of Information and Computer Sciences; and The Henry Samueli School of Engineering.

In addition to the regular University requirements for admission, students interested in the biological sciences should include in their high school curriculum, in addition to a course in biology, four years of mathematics, as well as courses in chemistry and physics, which are now an integral part of most contemporary biological work.

The School's professional counseling staff is always available for consultation to students regarding the many decisions in their academic program. They also are trained to provide guidance in the application process to both professional and graduate schools, a real advantage to the high proportion of students in the Francisco J. Ayala School of Biological Sciences who go on to pursue advanced degrees.

Opportunities are available at the graduate level to specialize in Developmental and Cell Biology, Ecology and Evolutionary Biology, Molecular Biology and Biochemistry, and Neurobiology and Behavior.

Degrees

Biochemistry and Molecular Biology	B.S.
Biological Sciences	B.S., M.S., Ph.D.
Biological Sciences and Educational Media Design	M.S.
Biology/Education	B.S.
Biotechnology Management*	M.S.
Developmental and Cell Biology	B.S.
Ecology and Evolutionary Biology	B.S.
Exercise Sciences	B.S.
Genetics	B.S.
Human Biology	B.S.
Microbiology and Immunology	B.S.
Neurobiology	B.S.

* Offered jointly with the The Henry Samueli School of Engineering and The Paul Merage School of Business.

Honors

Honors Program in the Francisco J. Ayala School of Biological Sciences

The Honors Program in the Francisco J. Ayala School of Biological Sciences provides an opportunity for outstanding majors in the School to pursue advanced work in independent research via participation in the Excellence in Biological Sciences Research Program and earn Honors in Biological Sciences upon graduation. Admission to the program is based on an application to participate in the Excellence in Biological Sciences Research program filed during the middle part of the fall quarter of the year of the student's participation. Additionally, students must have a minimum overall 3.5 grade point average and a minimum 3.5 grade point average in all required Biological Sciences courses. The Program requires enrollment in research (BIO SCI 199) including successful completion of BIO SCI H195 and the Excellence in Biological Sciences Research program.

Graduation with Honors

Of the graduating seniors, no more than 12 percent will receive Latin honors: approximately 1 percent *summa cum laude,* 3 percent *magna cum laude,* and 8 percent *cum laude.* The selection for these awards is based on spring quarter rank-ordered grade point averages. To be eligible for honors at graduation, the student must, by the end of spring quarter of the senior year, be officially declared a Biological Sciences major; submit an Application to Graduate by the end of winter quarter of the senior year; have completed at least 72 units in residence at a UC campus by the end of the spring quarter of the academic year in which they graduate; have all corrections to the academic record processed by the Registrar's Office by the end of spring quarter; if completing the Language Other Than English general education requirement with a language exemption test, pass the test by the end of spring quarter; and be able to verify completion of all course work by the end of the spring quarter of the senior year. Other important factors are considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext).

Excellence in Research Program

The Francisco J. Ayala School of Biological Sciences believes that successful participation in creative research is one of the highest academic goals its undergraduates can attain. Students enrolled in Undergraduate Research (BIO SCI 199) and who meet the eligibility requirements have an opportunity to present the results of their research endeavors to peers and faculty. Those students awarded with "Excellence in Research" will then have their papers published in the School's online *Journal of Undergraduate Research in the Biological Sciences.*

The program begins each fall with a mandatory instructional workshop and continues through spring with students completing a scientific paper, poster presentation, and scientific talk. Contact the Biological Sciences Student Affairs Office, room 1011 Biological Sciences III, or visit the Excellence in Research (http://www.bio.uci.edu/students/undergraduates/research/#s5) website for additional information.

Campuswide Honors Program

The Campuswide Honors Program is available to selected high-achieving students from all academic majors from their freshman through senior years. For more information contact the Campus-wide Honors Program, 1200 Student Services II; 949-824-5461; honors@uci.edu; or visit the Campuswide Honors Program (http://www.honors.uci.edu) website.

Dean's Honor List. The quarterly Dean's Honor List is composed of students who have received a 3.5 grade point average while carrying a minimum of 12 graded units.

Biological Sciences Honors, Scholarships, Prizes, and Awards

The following honors, scholarships, prizes, and awards are presented at the annual Biological Sciences Honors Convocation held in June.

Excellence in Research Award. Undergraduates who have successfully completed the requirements for this program are presented with Excellence in Research certificates.

Atwood Family Scholarship. The Atwood Family Scholarship is awarded to sophomore Biological Sciences majors who demonstrate outstanding achievement in both scholarship and service to the UCI community.

Robert H. Avnet Memorial Scholarship. The Robert H. Avnet Memorial Scholarship has been established to assist a student interested in becoming a physician. The student must be a Biological Sciences major and demonstrate financial need.

Carol Becker McGaugh Award. This award is given to a junior with outstanding research in the area of neurobiology of learning and memory.

Robert Ernst Prize for Excellence in Research in the Biological Sciences. This prize is awarded to a student for meritorious research conducted in the field of biology.

Robert Ernst Prize for Excellence in Student Research in Plant Biology. This prize is awarded to a student for meritorious research conducted in plant biology.

M. Marlene Godoy Award. This award is given to support a graduating senior in the Biological Sciences who is pre-medical or pre-dental. The recipient is one who is *actively* involved with philanthropic community service, University service, and in undergraduate research.

Dr. William F. Holcomb Scholarship. The intent of the Dr. William F. Holcomb Scholarship is to support biomedical or marine biological studies. The Scholarship is to be used to support continuing academic work over a specific period.

Leadership Scholars Program. This program was established by the Dean's Leadership Council for the Francisco J. Ayala School of Biological Sciences. The scholarship will support Biological Sciences majors who demonstrate academic and personal commitment to the School, University, and their local community.

Laurence J. Mehlman Prize. The Laurence J. Mehlman Prize is awarded to an undergraduate student in the Francisco J. Ayala School of Biological Sciences who has demonstrated outstanding achievement in both scholarship and service to the School.

Edward Mittelman Memorial Fund Scholarship. The Edward Mittelman Memorial Fund Scholarship is presented to an outstanding Biological Sciences student who will pursue a career in the medical field.

Edward A. Steinhaus Memorial Award. The Edward A. Steinhaus Memorial Award is given to outstanding Biological Sciences graduate student teaching assistants who demonstrate promise as future educators.

Joseph H. Stephens Award for Outstanding Research in Ecology and Conservation. This award is granted to a graduate student who has demonstrated outstanding research in ecology and conservation.

Joseph H. Stephens Award for Outstanding Research in Biochemistry and Molecular Biology. This award is granted to a graduate student who has demonstrated outstanding research in biochemistry and molecular biology.

Jayne Unzelman Scholarship. The Jayne Unzelman Scholarship is presented to an undergraduate student who has shown academic excellence and been of service to the Francisco J. Ayala School of Biological Sciences and/or the University, and to the community.

Special Programs and Courses

Biological Sciences 199

The (BIO SCI 199) Undergraduate Research Training Program provides students the opportunity to pursue independent research. Students conduct experimental laboratory, field, or clinical research as an apprentice scientist under the supervision of a professor in the Francisco J. Ayala School of Biological Sciences or the School of Medicine. BIO SCI 199 research students experience the challenge and excitement of the world of science. Students develop new scientific skills and knowledge while training with professors who are on the cutting edge of research and discovery in the biological and medical sciences. The research training may commence as early as the sophomore year or, in the case of exceptional students, in the freshman year.

To participate in this unique research training program, students must be in good academic standing, and completion of both BIO SCI 94 From Organisms to Ecosystems and BIO SCI 194S Safety and Ethics for Research are mandatory prior to enrollment. Students are encouraged to investigate the possibilities for research early to assure that all requirements and deadlines are met. It is recommended that students contact a faculty sponsor at least one quarter in advance for (BIO SCI 199) enrollment. Once a faculty sponsor is acquired, the student must submit the enrollment packet to the Biological Sciences Student Affairs Office, 1011 Biological Sciences III. At the end of each quarter a Summary Report is required.

Students cannot participate in research involving human blood, body fluids, or tissue, unless special approval is granted. The faculty sponsor must submit a request for exception to the Biological Sciences Student Affairs Office.

Students conducting research directly with patients or other human subjects must comply with special enrollment procedures and the additional safety training required at the clinical site. The (BIO SCI 199) Undergraduate Research Training Program standards, procedures, enrollment packets, and announcements are available at the Biological Sciences Undergraduate Research (http://www.bio.uci.edu/students/undergraduates/research) website.

The (BIO SCI 199) Undergraduate Research Training Program can provide experience that is beneficial for the future pursuit of graduate school. Information regarding research careers in the biological sciences is best obtained from a faculty research mentor.

Students should be aware that for any one quarter, a maximum of five units of independent study courses (BIO SCI 197, BIO SCI 198 or BIO SCI 199) may be taken within the Francisco J. Ayala School of Biological Sciences.

Minority Sciences Programs in Biological Sciences

The Minority Sciences Programs (MSP) in Biological Sciences is a UCI umbrella program that provides infrastructure and orchestration for the operation of minority research training grants supported by the National Institutes of Health (NIH) and other agencies. MSP seeks to increase the number of U.S. underrepresented groups in biomedical research careers. MSP participants benefit from early exposure, continuous research training, and faculty mentoring. Support is also provided through paid summer and year-round research internships, early research exposure, tutoring, academic advising, scientific writing, and participation at national conferences. Furthermore, MSP has established a campuswide, regional, national, and international network of committed faculty and resource programs to facilitate the transition from high school through community college, baccalaureate, and master's degrees to Ph.D. careers in biomedical research and related fields. Additional information is available from the MSP office, 1104 Biological Sciences III; (949) 824-2589; or visit the Minority Sciences (http://port.bio.uci.edu) website.

Biological Sciences Tutoring Program

The Tutoring Program provides free tutoring for most Biological Sciences courses and is available to all students in any major. Weekly small group tutoring sessions, reviews for midterms and finals, and a growing online database of worksheets and review materials are provided. In the Tutoring Program, UCI students tutor other UCI students. For the student tutor, this program provides opportunities to develop their teaching abilities, to meet and interact with faculty, and to perform a worthwhile and necessary service. Tutors also receive academic credit. For more information, contact the Biological Sciences Student Affairs Office in 1011 Biological Sciences III or visit the Bio Sci Peer Tutoring (http://www.eee.uci.edu/programs/biotutor) website.

UC Education Abroad Program

Upper-division students have the opportunity to experience a different culture while making progress toward degree objectives through the University's Education Abroad Program (UCEAP). UCEAP is an overseas study program which operates in cooperation with host universities and colleges throughout the world. Specifically, Biology majors should consider the UCEAP programs in the United Kingdom, Canada, Sweden, Australia, Denmark, and Costa Rica. Visit the Study Abroad Center (http://www.studyabroad.uci.edu) website for additional information.

Students may wish to participate in the UCEAP Tropical Biology Quarter which is for undergraduates with at least one year of introductory biology, one quarter of upper-division biology, and a serious interest in biological studies. The program includes lectures, field laboratories, and independent research, with an emphasis on direct field experience. Students also take a course in Spanish language and Latin American culture.

Master of Science with a Concentration in Biotechnology

The Francisco J. Ayala School of Biological Sciences offers a master's program with a concentration in Biotechnology designed to train students to enter the field of biotechnology as skilled laboratory practitioners. The upper-division course requirements for admission into the program are extensive. Students interested in applying for admission to the Biotechnology program should plan to complete the necessary courses during their junior and senior years. Click on the Graduate tab above for more information.

Special Research Resources

Special research resources include the Beckman Laser Institute and Medical Clinic, a research, training, and service facility in the area of laser microbeam technology; the School of Biological Sciences Biohazard (P-3) Facility, which provides laboratory facilities for working with biological agents or biological molecules such as recombinant DNA which would be hazardous when used in open laboratories; the Developmental Biology Center, devoted to analyzing the cellular and genetic mechanisms underlying growth, development, and regeneration; the Center for the Neurobiology of Learning and Memory, a research center for studies of the brain mechanisms underlying learning and memory; the Institute for Memory Impairments and Neurological Disorders; the Center for Virus Research, which includes the Viral Vector Design research group; the Conservation Biology Project; the Cancer Research Institute; the Center for Immunology; the Macromolecular Structure Research Unit; the UCI Arboretum, a botanical garden facility; the San Joaquin Marsh Reserve, which supports controlled marsh biota; the Burns Piñon Ridge Reserve, a high-desert habitat in San Bernardino County; and the UCI Ecological Preserve, which includes coastal hills on the campus, once under heavy grazing, but now returning to a more natural state. It is important to note that the Francisco J. Ayala School of Biological Sciences collaborates with the School of Medicine, thereby providing an opportunity for the sharing of both teaching and research activities. These collaborative efforts include the Institute for Genomics and Bioinformatics; the Reeve-Irvine Research Center; and the Bio-Imaging Interest Group.

Advising: Academic, Career, Health Sciences

1011 Biological Sciences III
http://www.bio.uci.edu/students/undergraduates/contact-us/

Academic Advising

The Biological Sciences Student Affairs Office coordinates the advising program and provides academic counseling as well as special services particularly in the area of preprofessional career counseling. Undergraduate Biological Sciences students should consult the Biological Sciences Student Affairs Office for information on academic requirements for the degree, career opportunities, the BIO SCI 199 Research Program, available tutoring for Biological Sciences courses, Biological Sciences student organizations, and scholarship information. Students can also come to the Biological Sciences Student Affairs Office to change their major, apply for graduation, or for any other help they might need related to their academic career at UCI.

Peer Academic Advisors. The Peer Academic Advisors are upper-division Biological Sciences majors who bring with them valuable academic and social experiences. Their functions include counseling students in matters of major selection, program planning, petitioning, tutoring, learning skills problems, and participation in co-curricular and extracurricular activities.

The Peer Advisors are located in the Biological Sciences Student Affairs Office. Office hours are posted at the beginning of each quarter.

Career Advising

Information on graduate and professional schools in the health sciences can be obtained from the Biological Sciences Student Affairs Office. The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center section for additional information.

Areas of opportunity open to those with a Bachelor of Science degree include laboratory technology, publishing, technical editing, pharmaceutical sales, and training programs in county, state, and federal agencies. The bachelor's degree is necessary to pursue studies leading to the M.S. and Ph.D. degrees.

The B.S. degree, plus short training periods, may prepare students for employment in education, medical technology (usually one year), allied health positions, and various other areas.

Education (community colleges, state colleges, or private schools), medical illustration, and public health (which includes hospital administration, biostatistics, epidemiology, environmental health sciences, social work, public health education, maternal and child health, and infectious and tropical diseases) are fields in which opportunities are available upon completion of a master's program.

The Ph.D. degree may lead to research in many areas, among them biochemistry, biometeorology, botany, cytology, ecology, fishery biology, genetics, home economics, microbiology, molecular biology, pathology, physiology, psychobiology, public health, range management, soil conservation, and zoology.

Other areas where advanced degrees are necessary include medicine, dentistry, law, optometry, podiatry, osteopathy, physical therapy, and veterinary medicine.

Health Sciences Advising

Advising for careers in the health sciences is a specialty of the Biological Sciences Student Affairs Office. Students desiring to enter the health sciences should have their programs checked in the Office and should plan to enroll in BIO SCI 3A. Admissions tests for medical, dental, pharmacy, and graduate schools should be taken in the spring, a year and one-half before the student plans to enter.

Leaders in nearly all health professional schools recommend that students preparing to seek admission to their schools plan to obtain a bachelor's degree. Students who plan to enter a school of dentistry, medicine, or other areas of the health sciences may receive the required preprofessional training at UCI. This preprofessional training may be accomplished by (1) completing the major in Biological Sciences or (2) majoring in any school or department *and* fulfilling concurrently the specific course requirements of the dental, medical, or other professional school the student expects to attend.

Students interested in the health sciences should choose electives in the social sciences, possibly a foreign language, physical chemistry, or other specific courses required or recommended by graduate schools.

Student Participation

A wide variety of student associations, clubs, and groups provide opportunities for Francisco J. Ayala School of Biological Sciences students to participate in different types of activities and events. The groups are wide ranging and include nationally recognized honors societies such as Alpha Epsilon Delta, volunteer service organizations such as the Flying Sams, specialized groups such as the UCI Sports Medicine Club, and more. Detailed information about the numerous options is available at Biological Sciences Undergraduate Careers and Student Organizations (http://www.bio.uci.edu/students/undergraduates/careers) website.

Undergraduate Programs

The following majors are offered:

- Biological Sciences (p. 267)
- Biology/Education (p. 270)
- Biochemistry and Molecular Biology (p. 273)
- Developmental and Cell Biology (p. 275)
- Ecology and Evolutionary Biology (p. 277)
- Exercise Sciences (p. 279)
- Genetics (p. 280)
- Human Biology (p. 282)
- Microbiology and Immunology (p. 284)
- Neurobiology (p. 287)

Admission to the Major in Biological Sciences

In the event that the number of students who elect Biological Sciences as a major exceeds the number of positions available, applicants may be subject to screening beyond minimum University of California admissions requirements.

Freshmen: Preference will be given to those who rank the highest using the selection criteria as stated in the Undergraduate Admissions (p. 52) section of this *Catalogue.*

Transfer students: Junior-level applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission. All applicants must complete one year of general chemistry with laboratory with grades of C or better; one year of organic chemistry with grades of C or better; one year of biology courses equivalent to BIO SCI 93, BIO SCI 94 at UCI with a grade of C or better in each course; and have a cumulative GPA of 3.0 or higher.

No student may enter as a double major, but Biological Sciences students interested in other areas may apply to become double majors after the first quarter, if the second school or program approves. A strong academic performance in the second area is requisite for acceptance as a double major.

Change of Major

Students who wish to declare any major within the Francisco J. Ayala School of Biological Sciences should contact the Biological Sciences Student Affairs Office in 1011 Biological Sciences III for information about change-of-major requirements, procedures, and policies. Information can also be found at UC Irvine Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Change of Major requests are accepted and reviewed by the School throughout the year.

Requirements for the Bachelor's Degree

All School of Biological Sciences students must complete the following requirements.

All students must meet the University Requirements (p. 71).

All students must meet the School Requirements, as shown below:

Complete:	
BIO SCI 2A	Freshman Seminar
BIO SCI 194S	Safety and Ethics for Research
Biological Sciences Core:	
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
BIO SCI 100	Scientific Writing
Select one of the following General Chemistry sequences:	
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
and accompanying labs:	

CHEM 1LC- 1LD	General Chemistry Laboratory and General Chemistry Laboratory
or	
CHEM H2A- H2B- H2C	Honors General Chemistry and Honors General Chemistry and Honors General Chemistry
and accompanying labs:	
CHEM H2LA- H2LB- H2LC	Honors General Chemistry Laboratory and Honors General Chemistry Laboratory and Honors General Chemistry Laboratory
Select one of the following Organic Chemistry sequences:	
CHEM 51A- 51B- 51C	Organic Chemistry and Organic Chemistry and Organic Chemistry
and accompanying labs:	
CHEM 51LB- 51LC	Organic Chemistry Laboratory and Organic Chemistry Laboratory
or	
CHEM H52A- H52B- H52C	Honors Organic Chemistry and Honors Organic Chemistry and Honors Organic Chemistry
and accompanying labs:	
CHEM H52LA- H52LB	Honors Organic Chemistry Laboratory and Honors Organic Chemistry Laboratory
Complete:	
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
Select one of the following:	
STATS 7	Basic Statistics
STATS 8	Introduction to Biological Statistics
MATH 2D	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
Select one of the following Physics Series:	
Series A	
PHYSICS 3A- 3B- 3C	Basic Physics and Basic Physics and Basic Physics
PHYSICS 3LB- 3LC	Basic Physics Laboratory and Basic Physics Laboratory
Series B	
PHYSICS 7C- 7D- 7E	Classical Physics and Classical Physics and Classical Physics
PHYSICS 7LC- 7LD	Classical Physics Laboratory and Classical Physics Laboratory

Prerequisites for all Biological Sciences Core courses are rigorously enforced. Students must have a 2.0 cumulative grade point average in the Biological Sciences Core Curriculum, four upper-division elective courses, and three upper-division laboratories.

Upper-Division Writing Requirement

Students in the Francisco J. Ayala School of Biological Sciences have the option to satisfy the upper-division writing requirement by completing BIO SCI 100 with a grade of Pass, followed by the completion of three upper-division laboratories selected from the following:

BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI E106L	Habitats and Organisms
BIO SCI E112L	Physiology Laboratory
BIO SCI E115L	Evolution Laboratory
BIO SCI E131L	Image Analysis in Biological Research

BIO SCI E161L	Biology of Birds Lab
BIO SCI E172L	Plant Systematics Laboratory
BIO SCI E179L	Field Freshwater Ecology
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
BIO SCI N113L	Neurobiology Laboratory

Students must earn a grade of C or better in each of the three laboratories selected. Completion of the Excellence in Research in Biological Sciences program may count as one of the three-upper division labs.

School Residence Requirement

After matriculation, all courses required for the major must be successfully completed at UCI. Students must be a major in the Francisco J. Ayala School of Biological Sciences for the 3 academic quarters (excluding summer session) immediately preceding degree certification.The Francisco J. Ayala School of Biological Sciences strictly enforces the UCI residence requirement. At least 36 of the final 45 units completed by a student for the bachelor's degree must be earned in residence at the UCI campus. (The School considers courses taken in the UC Education Abroad Program to be in-residence courses.)

Undergraduate Major in Biological Sciences

The Biological Sciences major presents a unified, in-depth study of modern biology. The Biological Sciences Core is a five-quarter series of courses ranging from ecology and evolutionary biology, to genetics, biochemistry, and molecular biology. Important laboratory techniques and methodology are presented in upper-division laboratories. Advanced elective courses provide an opportunity to continue to diversify students' exposure to the biological sciences or to gain a much more in-depth study of a particular area of the biological sciences.

NOTE: Biological Sciences majors who successfully complete their second year of study may elect to apply for a change of major to one of the following: Biochemistry and Molecular Biology, Developmental and Cell Biology, Genetics, Microbiology and Immunology, or Neurobiology. Students may apply directly to the Biology/Education major or the Ecology and Evolutionary Biology major when they apply for admission to UCI. Contact the Biological Sciences Student Affairs Office for more information.

Requirements for the B.S. Degree in Biological Sciences

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

Major Requirements

A. Required Major Courses:	
Select three of the following:	
BIO SCI D103	Cell Biology
BIO SCI D104	Developmental Biology
BIO SCI D105	Cell, Developmental, and Molecular Biology of Plants
BIO SCI E106	Processes in Ecology and Evolution
BIO SCI E109	Human Physiology
BIO SCI N110	Neurobiology and Behavior
B. Upper-Division Laboratories:	
Select three of the following:	
BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI E106L	Habitats and Organisms
BIO SCI E112L	Physiology Laboratory
BIO SCI E115L	Evolution Laboratory
BIO SCI E131L	Image Analysis in Biological Research
BIO SCI E161L	Biology of Birds Lab
BIO SCI E166L	Field Biology
BIO SCI E172L	Plant Systematics Laboratory

BIO SCI E179L	Field Freshwater Ecology
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
BIO SCI N113L	Neurobiology Laboratory
One laboratory can be satisfied with completion of Excellence in Research in the Biological Sciences.	
C. Upper-Division Biology Electives:	
Select four upper-division, four-unit courses from the following:	
BIO SCI D103–D190, E106–E190, M114–M190, N110–N190 [1]	
PHRMSCI 170A	Molecular Pharmacology I
PHRMSCI 170B	Molecular Pharmacology II
PHRMSCI 171	Physical Biochemistry
PHRMSCI 173	Pharmacotherapy
PHRMSCI 174	Biopharmaceutics and Nanomedicine
PHRMSCI 177	Medicinal Chemistry
The following courses can be used to partially satisfy the Upper-Division Biology Elective Requirement:	
CHEM 131A- 131B- 131C	Quantum Principles and Molecular Structure and Elementary Statistical Mechanics and Thermodynamics and Chemical Dynamics
or	
PHYSICS 147A- 147B	Principles of Imaging and Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging
Additionally, Psychology/Biological Sciences double majors may also use PSYCH 112A-PSYCH 112B-PSYCH 112C to partially satisfy the Upper-Division Biology Elective Requirement.	
NOTE: Double majors within the School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.	

[1] BIO SCI D103, BIO SCI D104, BIO SCI D105, BIO SCI E106, BIO SCI E109, BIO SCI N110 may not be used to satisfy more than one requirement.

Concentration in Biological Sciences Education

The optional concentration in Biological Sciences Education requires eight courses:

BIO SCI 14	California Teach 1: Introduction to Science and Mathematics Teaching
BIO SCI 101	California Teach 2: Middle School Science and Mathematics Teaching
BIO SCI 102	California Teach 3: High School Science and Mathematics Teaching
EARTHSS 1	Introduction to Earth System Science
EARTHSS 7	Physical Geology
PHYSICS 20A	Introduction to Astronomy
PHYSICS 20B	Cosmology: Man's Place in the Universe
Select one of the following:	
EDUC 108	Adolescent Development and Education
EDUC 124	Multicultural Education in K-12 Schools
EDUC 128	Exceptional Learners
EDUC 131	Educational Technology
EDUC 173	Cognition and Learning in Educational Settings

The requirements for a general Biological Sciences B.S. degree for students in this concentration will be reduced by one upper-division laboratory course (major requirement B) and two upper-division biology electives (major requirement C). Students pursuing other majors within the Francisco

J. Ayala School of Biological Sciences will need specific departmental approval for the reduction of degree requirements when completing this concentration.

Planning a Program of Study

Since biological sciences courses are built upon a base of the physical sciences, it is very important for students to take their required physical sciences early, particularly general and organic chemistry. Students who have not completed high school chemistry are well advised to complete a preparatory chemistry course before entering UCI. The academic program shown below is only a suggested program. Students should consult the Biological Sciences Student Affairs Office for individual academic planning.

Freshmen will normally take HUMAN 1A and HUMAN 1ASor lower-division writing courses, CHEM 1A, BIO SCI 93, and a freshman seminar (BIO SCI 2A) during the fall quarter. Students will then continue with BIO SCI 94, complete their general chemistry requirement, and continue with Humanities or lower-division writing during the remaining winter and spring quarters.

Sophomores begin organic chemistry (CHEM 51A or CHEM H52A) and continue the Biological Sciences Core with BIO SCI 97, BIO SCI 93, BIO SCI 94. Sophomores often begin taking courses in other disciplines to meet the UCI general education requirement and fulfill their mathematics requirement if they have not done so as freshmen.

During their junior year, most majors continue with the Biological Sciences electives and take physics. Students who intend to double major in Chemistry will be required to take PHYSICS 7C-PHYSICS 7D-PHYSICS 7E in place of PHYSICS 3A-PHYSICS 3B-PHYSICS 3C. Juniors may complete their general education requirements and usually start their research and their upper-division biology laboratory courses.

Finally, during their senior year, students continue their research and complete their remaining major requirements.

Students in the Biological Sciences major are required to make progress toward their degree, and their progress will be monitored. If normal academic progress toward the degree in Biological Sciences is not being met, students will be subject to probation.

Sample Program — Biological Sciences

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	CHEM 1C- 1LC
CHEM 1A	CHEM 1B	HUMAN 1C
HUMAN 1A[1]	HUMAN 1B	HUMAN 1CS
HUMAN 1AS[1]	HUMAN 1BS	MATH 2A
BIO SCI 2A		
Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A[2]	CHEM 51B- 51LB	CHEM 51C- 51LC
CHEM 1LD	Gen. Ed.	STATS 7, 8, MATH 2D, or MATH 3A
MATH 2B		
BIO SCI 194S		
Junior		
Fall	**Winter**	**Spring**
Required Major course	Required Major course	Required Major course
Physics	Physics	Physics
Elective/Research	Elective/Research	Bio. Sci. elective
BIO SCI 100		Elective/Research
Senior		
Fall	**Winter**	**Spring**
Bio. Sci. elective	Bio. Sci. elective	Bio. Sci. elective
Bio. Sci. U-D Lab	Bio. Sci. U-D Lab	Bio. Sci. U-D Lab
Elective	Research	Research
	Electives	Electives

1 Students have the option of taking HUMAN 1A and HUMAN 1AS or lower-division writing courses.

2 CHEM H52A-CHEM H52B-CHEM H52C, CHEM H52LA-CHEM H52LB may be taken instead of CHEM 51A-CHEM 51B-CHEM 51C, CHEM 51LB-CHEM 51LC.

Undergraduate Major in Biology/Education

Earning a Bachelor's Degree in Biology with a Teaching Credential

Biological Sciences students who are interested in pursuing a teaching career should consider the UCI Cal Teach Science and Mathematics Program. This program offers Biology/Education majors the opportunity to earn their bachelor's degree concurrently with a California Preliminary Single Subject Teaching Credential. Individuals who hold this credential are authorized to teach biology and general science in a middle school or high school.

Students complete the degree requirements for this major, which include:

BIO SCI 14	California Teach 1: Introduction to Science and Mathematics Teaching
BIO SCI 101	California Teach 2: Middle School Science and Mathematics Teaching
BIO SCI 108	Research Methods
EDUC 55	Knowing and Learning in Mathematics and Science
EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II
EDUC 148	Complex Pedagogical Design
EDUC 158	Student Teaching Mathematics and Science in Middle/High School (two quarters)
LPS 60	The Making of Modern Science

Beyond course work, some additional requirements for teacher certification are described below. With careful, early planning, it is possible for students to complete their bachelor's degree and teacher certification in four years. This is a more time-efficient and cost-effective route than the traditional five-year teacher preparation model, which usually involves a full academic year of teacher education courses and clinical teaching experience after completion of a bachelor's degree.

After the Francisco J. Ayala School of Biological Sciences verifies the completion of all requirements for the bachelor's degree, students are awarded their degree from UC Irvine. By contrast, the Preliminary Single Subject Teaching Credential is awarded by the California Commission on Teacher Credentialing (CTC) upon completion of a bachelor's degree and the state-approved UCI teacher education program, which combines course work, student teaching, and a teaching performance assessment. The UCI School of Education must verify completion of all requirements for the teaching credential and then recommend that the credential be awarded to a candidate by the CTC.

Additional Requirements for Teacher Certification. In addition to the required course work for a California Preliminary Single Subject Teaching Credential, some additional requirements must be satisfied:

1. The Francisco J. Ayala School of Biological Sciences requires a *cumulative* GPA of 2.0 (C) to graduate with the bachelor's degree.

BIO SCI 101	California Teach 2: Middle School Science and Mathematics Teaching
EDUC 55	Knowing and Learning in Mathematics and Science
EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II
EDUC 148	Complex Pedagogical Design
EDUC 158	Student Teaching Mathematics and Science in Middle/High School

   a. However, students must earn a grade of *C or better* in the following courses in order to be recommended for the Preliminary Single Subject Credential:
   b. In the final phase of teaching preparation, students enrolled in EDUC 158 gain teaching experience as a "student teacher" at a local middle school or high school, while also attending a weekly student teaching seminar at UCI. Each student teacher is paired with a highly qualified science teacher who acts as a mentor while the student teacher gradually takes on full responsibility for daily lesson planning, instruction, and assessment. Cal Teach program instructors select the mentor teachers and match them with student teachers. During the winter and spring quarters when students are enrolled in EDUC 158, they should expect to spend a minimum of four hours per day (typically mornings), five days per week, in their student teaching assignment at a middle school or high school.

2. The following must be completed and verified prior to the start of student teaching in EDUC 158:

EARTHSS 1	Introduction to Earth System Science
EARTHSS 7	Physical Geology
PHYSICS 20A	Introduction to Astronomy

BIO SCI 101	California Teach 2: Middle School Science and Mathematics Teaching
EDUC 143AW	Classroom Interactions I
EDUC 148	Complex Pedagogical Design

a. Pass the California Basic Education Skills Test (CBEST), a basic mathematics and literacy skills test. For more information, see http://www.ctcexams.nesinc.com/test_info_CBEST.asp.
b. Pass the California Subject Exam for Teachers (CSET) in science: biology/life science. Although secondary teachers are only required to pass the CSET exam in one discipline, those who pass the CSET exam in more than one disciplinary field (e.g. biology/life science and chemistry) can be authorized to teach classes in each of those disciplines. For more information about the CSET exam, see http://www.ctcexams.nesinc.com/tests.asp.
c. Secondary school science teachers in California are expected to have a broad range of general science knowledge in addition to their discipline of specialization, because their Single Subject Teaching Credential in one of the sciences also authorizes them to teach classes in general or integrated science. The general science subtests of the CSET exam cover foundational topics in astronomy, geodynamics, Earth resources, ecology, genetics and evolution, molecular biology and biochemistry, cellular and organismal biology, waves, forces and motion, electricity and magnetism, heat transfer and thermodynamics, and structure and properties of matter. Although students can prepare for the CSET exam's general science subtests through independent study, Biological Sciences students can also prepare by taking lower-division courses that cover the content. Here are some suggested courses for Biology/Education majors:
d. Obtain a Certificate of Clearance from the State of California.
e. Obtain a TB test with negative results.
f. Demonstrate readiness for student teaching responsibilities as evidenced in course work and satisfactory observations of a candidate during field experiences in:

3. The following must be completed and verified before the School of Education is able to recommend an individual for the Preliminary Single Subject Credential:
   a. Pass a state-approved teacher performance assessment, which is completed concurrently with student teaching in EDUC 158.
   b. Complete a college-level course or pass an examination on the U.S. Constitution. POL SCI 21A satisfies this requirement. Contact the UCI School of Education Student Affairs Office for information about the exam.
   c. Obtain a CPR certificate in adult, child, or infant training.

Declaring Intention to Complete the Biology/Education Major and Teacher Certification. Prospective teachers who want to complete their degree and a teaching credential in four years are encouraged to start planning early by reviewing the sample program for the Biology/Education major, and consulting with an academic counselor. Interested students are encouraged to get started on the suggested first- and second-year credentialing course work, including BIO SCI 14 and BIO SCI 101, and can do so without officially declaring their intention to complete the credential. However, students must declare their intention to complete requirements for the Biology/Education major and requirements for the Preliminary Single Subject Teaching Credential prior to enrolling in EDUC 55, which they would typically take in fall of their third year. Forms for declaring an intention to complete the teaching credential are available in the Biological Sciences Student Affairs Office or in the Cal Teach Science and Mathematics Resource and Advising Center (137 Biological Sciences Administration).

Requirements for the B.S. Degree in Biology/Education

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

School requirement variation: BIO SCI 100, CHEM 51C, and CHEM 51LC are not required of Biology/Education majors.

Major Requirements

A. Required Major Courses:	
Select three of the following:	
BIO SCI D103	Cell Biology
BIO SCI D104	Developmental Biology
BIO SCI D105	Cell, Developmental, and Molecular Biology of Plants
BIO SCI E106	Processes in Ecology and Evolution
BIO SCI E109	Human Physiology
BIO SCI N110	Neurobiology and Behavior
B. Upper-Division Laboratories:	
Select two of the following:	
BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI E106L	Habitats and Organisms
BIO SCI E112L	Physiology Laboratory

BIO SCI E115L	Evolution Laboratory
BIO SCI E131L	Image Analysis in Biological Research
BIO SCI E161L	Biology of Birds Lab
BIO SCI E166L	Field Biology
BIO SCI E172L	Plant Systematics Laboratory
BIO SCI E179L	Field Freshwater Ecology
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
BIO SCI N113L	Neurobiology Laboratory
One laboratory can be satisfied with completion of Excellence in Research in the Biological Sciences.	
C. Upper-Division Biology Electives:	
Select two, four-unit courses from the following:	
BIO SCI D103–D190, E106–E190, M114–M190, N110–N190 [1]	
PHRMSCI 170A	Molecular Pharmacology I
PHRMSCI 170B	Molecular Pharmacology II
PHRMSCI 171	Physical Biochemistry
PHRMSCI 173	Pharmacotherapy
PHRMSCI 174	Biopharmaceutics and Nanomedicine
CHEM 177	Medicinal Chemistry
The following courses can be used to partially satisfy the Upper-Division Biology Elective Requirement:	
CHEM 131A- 131B- 131C	Quantum Principles and Molecular Structure and Elementary Statistical Mechanics and Thermodynamics and Chemical Dynamics
or	
PHYSICS 147A- 147B	Principles of Imaging and Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging
Additionally, Psychology/Biological Sciences double majors may also use PSYCH 112A-PSYCH 112B-PSYCH 112C to partially satisfy the Upper-Division Biology Elective Requirement.	
D. Science Teaching Courses:	
BIO SCI 14	California Teach 1: Introduction to Science and Mathematics Teaching
BIO SCI 101	California Teach 2: Middle School Science and Mathematics Teaching
BIO SCI 108	Research Methods
EDUC 55	Knowing and Learning in Mathematics and Science
EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II
EDUC 148	Complex Pedagogical Design
EDUC 158	Student Teaching Mathematics and Science in Middle/High School (two quarters)
LPS/HISTORY 60	The Making of Modern Science

[1] BIO SCI D103, BIO SCI D104, BIO SCI D105, BIO SCI E106, BIO SCI E109, BIO SCI N110 may not be used to satisfy more than one requirement.

NOTE: Double majors within the Francisco J. Ayala School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

Sample Program — Biology/Education

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	CHEM 1C- 1LC
CHEM 1A	CHEM 1B	Writing/General Ed.
WRITING 39A- 39B	WRITING 39B- 39C	MATH 2A
BIO SCI 14		
Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A	CHEM 51B- 51LB	LPS 60 or HISTORY 60
BIO SCI 101	BIO SCI 108	MATH 2B
CHEM 1LD		
Junior		
Fall	**Winter**	**Spring**
Bio Required Major course	Bio Required Major course	Bio Required Major course
PHYSICS 3A	PHYSICS 3B- 3LB	PHYSICS 3C- 3LC
EDUC 55	EDUC 143AW	EDUC 148
STATS 8	General Ed.	
Senior		
Fall	**Winter**	**Spring**
Bio. Sci. U-D elective	Bio. Sci. U-D elective	Bio. Sci. U-D lab
Bio. Sci. U-D lab	EDUC 158	EDUC 158
EDUC 143BW	EDUC 109	General Ed.
General Ed.	General Ed.	

Undergraduate Major in Biochemistry and Molecular Biology

Few areas of Biological Sciences remain that are not impacted by studies at the chemical and molecular level. The major in Biochemistry and Molecular Biology is designed to provide a comprehensive background in this modern, conceptual understanding of biology. Students who wish to begin in-depth study of the molecular basis in any of a variety of fields, including development, gene expression, immunology, pathogenesis, disease, virology, and evolution, can do so through this major. This program will be especially attractive to those students who intend to pursue an advanced degree in biological or medical sciences.

The Biochemistry and Molecular Biology major is based upon required courses in Advanced Biochemistry and Advanced Molecular Biology (BIO SCI M114 and BIO SCI M116). These courses, together with a wide variety of elective course offerings, provide majors the choice to either explore the breadth of the field or follow a more in-depth study of any of its subdisciplines. For students interested in the interface between biology and chemistry, this program articulates well with a second major in Chemistry.

The program of study emphasizes laboratory experience and its integration with basic theory. This is accomplished in three ways: first, through coordination between the advanced courses in Biochemistry (BIO SCI M114) and Molecular Biology (BIO SCI M116), and laboratory courses in Biochemistry (BIO SCI M114L) and Molecular Biology (BIO SCI M114L) which provide students with the basic laboratory skills and an appreciation for the experimental foundations of the field; second, through advanced laboratories in Immunology (BIO SCI M121L) and Virology (BIO SCI M127L) which provide students with the opportunity to develop cutting edge research skills; and third, by emphasizing independent research sponsored by a participating faculty member. The program encourages the research interests of students in subdisciplines other than immunology or virology by offering the opportunity to substitute one year of independent research for the advanced laboratory.

The major in Biochemistry and Molecular Biology is designed to provide students with the appropriate tools and training to successfully pursue graduate degrees that emphasize basic scientific research, including Ph.D. and M.S. training as well as combined M.D./Ph.D. programs. In addition, and particularly with the explosive growth in biotechnology and its significant influence in everyday life, graduates could use their backgrounds very effectively to pursue careers in business, education, law, and public affairs.

Requirements for the B.S. Degree in Biochemistry and Molecular Biology

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

Major Requirements

A. Required Major Courses:	
BIO SCI M114	Advanced Biochemistry
BIO SCI M116	Advanced Molecular Biology
B. Upper-Division Laboratories:	

BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
Select one of the following:	
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
BIO SCI 199 Study in Biological Science Research (Approved by the Biochemistry and Molecular Biology Faculty Board.)	
C. Upper-Division Biology Electives:	
Select three of the following:	
BIO SCI M120–M189	
Select one of the following:	
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI D145	Genomics, Development, and Medicine
BIO SCI M120–M190	
CHEM 128	Introduction to Chemical Biology
CHEM 131A	Quantum Principles
CHEM 131B	Molecular Structure and Elementary Statistical Mechanics
CHEM 131C	Thermodynamics and Chemical Dynamics
PHRMSCI 170A	Molecular Pharmacology I
PHRMSCI 171	Physical Biochemistry
Select two four-unit courses from the following:	
BIO SCI D103–D189, E106–E189, M120–M190, N110–N189	
CHEM 128	Introduction to Chemical Biology
CHEM 131A	Quantum Principles
CHEM 131B	Molecular Structure and Elementary Statistical Mechanics
CHEM 131C	Thermodynamics and Chemical Dynamics
PHRMSCI 170A	Molecular Pharmacology I
PHRMSCI 171	Physical Biochemistry
No course may be used to satisfy more than one requirement.	

Application Process to Declare the Major: The major in Biochemistry and Molecular Biology is open to junior- and senior-level students only. Applications to declare the major can be made at any time, but typically in the spring of the sophomore year. Review of applications submitted at that time and selection to the major by the Biochemistry and Molecular Biology Faculty Board is completed during the summer. Information can also be found at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Double majors within the Francisco J. Ayala School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

Sample Program — Biochemistry and Molecular Biology

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	CHEM 1C- 1LC
CHEM 1A	CHEM 1B	HUMAN 1C
HUMAN 1A[1]	HUMAN 1B	HUMAN 1CS
HUMAN 1AS[1]	HUMAN 1BS	MATH 2A
BIO SCI 2A		
Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A[2]	CHEM 51B- 51LB	CHEM 51C- 51LC
CHEM 1LD	General Ed.	STATS 7, 8, MATH 2D, or MATH 3A
MATH 2B		
BIO SCI 194S		
Junior		
Fall	**Winter**	**Spring**
BIO SCI M114L	BIO SCI M114	BIO SCI M116

Biochem./Mol. elective	Biochem./Mol. elective	Biochem./Mol. elective
Bio. Sci. U-D lab/research	Bio. Sci. U-D lab/research	PHYSICS 3C- 3LC
BIO SCI 100	PHYSICS 3B- 3LB	
PHYSICS 3A		
Senior		
Fall	**Winter**	**Spring**
Biochem./Mol. elective	Bio. Sci. elective or lab	Bio. Sci. elective
BIO SCI M116L	Research/Elective	BIO SCI M121L- M124L (or research)
Research/Elective	General Ed./Elective	Research/Elective
General Ed./Elective		General Ed./Elective

1 Students have the option of taking HUMAN 1A and HUMAN 1AS or lower-division writing courses.

2 CHEM H52A-CHEM H52B-CHEM H52C, CHEM H52LA-CHEM H52LB may be taken instead of CHEM 51A-CHEM 51B-CHEM 51C, CHEM 51LB-CHEM 51LC.

Undergraduate Major in Developmental and Cell Biology

The Developmental and Cell Biology major is intended to provide students with intensive training in cutting edge approaches to understanding the structure and function of cells and how they interact to produce a complex organism, starting with a fertilized egg. The focus of the B.S. in Developmental and Cell Biology is to provide students with intensive training aimed at preparing them for graduate programs in modern Developmental and Cell Biology or other biomedical sciences. In-depth training in the molecular basis of cell and developmental biology will be coupled with integrating knowledge obtained from the recent explosive advances in genomic technology to provide a strong working understanding of how to approach problems in basic research.

The major has distinctive features. The first is a reduction in the number of required courses, allowing students the opportunity to focus more deeply on training in Developmental and Cell Biology. The second is the implementation of a new course in Genomic and Proteomic analysis that is closely tied to problems in genetics, developmental, and cell biology. Understanding the connections among these disciplines and how to apply the appropriate tools for defining and answering fundamental questions in biomedical research is a critical tool for success in research. Another distinctive feature of the major is the opportunity to replace two upper-division laboratory courses with mentored BIO SCI 199 individual research in faculty laboratories. This offers students the opportunity to apply the tools they have acquired during formal course work to current problems at the frontiers of research. Lastly, students majoring in Developmental and Cell Biology have faculty advisors with whom they meet at least quarterly. The faculty advisors help students plan their curriculum, select appropriate 199 projects and sponsoring labs, and as a group grant petitions and certify the degree. The combination of new upper-division courses, more flexibility in the curriculum, the option for mentored research, and close interaction with faculty advisors will help the Developmental and Cell Biology majors to develop an appreciation of the nature of research and establish a strong foundation for future success in graduate or professional schools.

Requirements for the B.S. Degree in Developmental and Cell Biology

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

Major Requirements

A. Required Major Courses:	
BIO SCI D103	Cell Biology
BIO SCI D104	Developmental Biology
BIO SCI D114	Developmental and Cell Biology Majors Seminar
BIO SCI D145	Genomics, Development, and Medicine
B. Upper-Division Laboratories:	
BIO SCI D111L	Developmental and Cell Biology Laboratory
and select two of the following: [1]	
BIO SCI E106L	Habitats and Organisms
BIO SCI E112L	Physiology Laboratory
BIO SCI E115L	Evolution Laboratory
BIO SCI E131L	Image Analysis in Biological Research
BIO SCI E161L	Biology of Birds Lab
BIO SCI E166L	Field Biology
BIO SCI E172L	Plant Systematics Laboratory
BIO SCI E179L	Field Freshwater Ecology
BIO SCI M114L	Biochemistry Laboratory

BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
BIO SCI N113L	Neurobiology Laboratory
C. Upper-Division Biology Electives:	
Select one of the following:	
BIO SCI D136	Human Anatomy
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI D148	Development and Disease
and select one of the following:	
BIO SCI D121	Stem Cell Biology
BIO SCI D135	Cell Biology of Human Disease
BIO SCI D190	Topics in Developmental and Cell Biology
BIO SCI M120	Signal Transduction in Mammalian Cells
BIO SCI M144	Cell Organelles and Membranes
and select three of the following:	
BIO SCI D105	Cell, Developmental, and Molecular Biology of Plants
BIO SCI D129	Biotechnology and Plant Breeding
BIO SCI D130	Photomedicine
BIO SCI D132	Introduction to Personalized Medicine
BIO SCI D133	Advances in Regenerative Medicine
BIO SCI D136	Human Anatomy
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI D148	Development and Disease
BIO SCI E109	Human Physiology
BIO SCI E157	Comparative Vertebrate Anatomy
BIO SCI M114	Advanced Biochemistry
BIO SCI M116	Advanced Molecular Biology
BIO SCI M125	Molecular Biology of Cancer
BIO SCI M137	Microbial Genetics
BIO SCI M143	Human Parasitology
BIO SCI M144	Cell Organelles and Membranes
BIO SCI N110	Neurobiology and Behavior
BIO SCI N151	Neurobiology of Aging
BIO SCI N153	Neuropharmacology
BIO SCI N154	Molecular Neurobiology

1 Students may petition to substitute Excellence in Research (BIO SCI 199) for two upper-division laboratories (other than BIO SCI D111L); 199 research is strongly encouraged. The 199 laboratory must be approved by the Department, and Excellence in Research must be successfully completed. Final approval is given by the Department.

Application Process to Declare the Major: The major in Developmental and Cell Biology is open to junior- and senior-level students only. Applications to declare the major can be made at any time. Information can also be found at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Double majors within the Francisco J. Ayala School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

Sample Program — Developmental and Cell Biology

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	CHEM 1C- 1LC
CHEM 1A	CHEM 1B	HUMAN 1C

HUMAN 1A[1]	HUMAN 1B	HUMAN 1CS
HUMAN 1AS[1]	HUMAN 1BS	BIO SCI 194S
BIO SCI 2A		
Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A[2]	CHEM 51B- 51LB	CHEM 51C- 51LC
MATH 2A	MATH 2B	MATH 2D, 3A, STATS 7, or STATS 8
CHEM 1LD		
Junior		
Fall	**Winter**	**Spring**
BIO SCI D103	BIO SCI D104	BIO SCI D111L
PHYSICS 3A	PHYSICS 3B- 3LB	PHYSICS 3C- 3LC
BIO SCI 100	BIO SCI D145	BIO SCI D114
General Ed.		General Ed.
Senior		
Fall	**Winter**	**Spring**
BIO SCI 199 or U-D LAB	BIO SCI 199 or U-D LAB	U-D Lab or Bio. Sci. elective
U-D Bio. Sci. elective	U-D Bio. Sci. elective	U-D Bio. Sci. elective
U-D Bio. Sci. elective	BIO SCI 199 or General Ed.	BIO SCI 199 or General Ed.
		General Ed.

1 Students have the option of taking HUMAN 1A and HUMAN 1AS or lower-division writing courses.

2 CHEM H52A-CHEM H52B-CHEM H52C, CHEM H52LA-CHEM H52LB may be taken instead of CHEM 51A-CHEM 51B-CHEM 51C, CHEM 51LB-CHEM 51LC.

Undergraduate Major in Ecology and Evolutionary Biology

In the twenty-first century, biologists in fields ranging from medicine to global change biology increasingly incorporate ecological and evolutionary ideas in their research. The major in Ecology and Evolutionary Biology encourages students to understand and appreciate important linkages between biological disciplines. The major is very broad, including components of evolutionary biology, ecology, and physiology. Faculty interests are also broad and include the evolution of aging, conservation biology, restoration ecology, biogeography, plant and animal population and community ecology, the evolution of infectious disease, evolutionary physiology, behavioral ecology, host-disease interactions, evolutionary genetics, genetics of invasive species, and plant population biology. Following graduation, students will be especially well prepared to enter graduate programs in either ecology or evolution for advanced study. The major also provides the foundation to pursue careers in governmental and non-governmental environmental organizations, as well as professional schools. The Department considers undergraduate experience in research an integral component of a scientific education, and majors are encouraged to participate in BIO SCI 199, in which they will be mentored by an individual faculty member within the Department.

Requirements for the B.S. Degree in Ecology and Evolutionary Biology

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

Major Requirements

A. Required Major Courses:	
BIO SCI E106	Processes in Ecology and Evolution
BIO SCI E107	Seminar in Ecology and Evolutionary Biology
STATS 8	Introduction to Biological Statistics
B. Upper-Division Laboratories:	
BIO SCI E115L	Evolution Laboratory
BIO SCI E166L	Field Biology
and select one of the following:	
BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI E106L	Habitats and Organisms
BIO SCI E112L	Physiology Laboratory
BIO SCI E131L	Image Analysis in Biological Research
BIO SCI E161L	Biology of Birds Lab
BIO SCI E172L	Plant Systematics Laboratory

BIO SCI E179L	Field Freshwater Ecology
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
BIO SCI N113L	Neurobiology Laboratory
One laboratory can be satisfied with completion of Excellence in Research in the Biological Sciences.	
C. Upper-Division Biology Electives:	
Select one of the following:	
BIO SCI D103	Cell Biology
BIO SCI D104	Developmental Biology
BIO SCI D105	Cell, Developmental, and Molecular Biology of Plants
BIO SCI E109	Human Physiology
BIO SCI N110	Neurobiology and Behavior
and select three four-unit courses from the following:	
BIO SCI E118–E190. BIO SCI 199 Research is strongly encouraged.	

Double majors within the Francisco J. Ayala School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

Sample Program — Ecology and Evolutionary Biology

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	BIO SCI E106[2]
CHEM 1A	CHEM 1B	CHEM 1C- 1LC
HUMAN 1A[1]	HUMAN 1B	HUMAN 1C
HUMAN 1AS[1]	HUMAN 1BS	HUMAN 1CS
BIO SCI 2A		
Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A[3]	CHEM 51B- 51LB	CHEM 51C- 51LC
MATH 2A	MATH 2B	STATS 8
CHEM 1LD		
BIO SCI 194S		
Junior		
Fall	**Winter**	**Spring**
BIO SCI E107	U-D Bio. Sci. elective	BIO SCI E115L
PHYSICS 3A	PHYSICS 3B- 3LB	PHYSICS 3C- 3LC
Bio. Sci. research	Bio. Sci. research	U-D Bio. Sci. elective
General Ed.	BIO SCI 100	Bio. Sci. research
Senior		
Fall	**Winter**	**Spring**
BIO SCI E166L	U-D Bio. Sci. elective	U-D Bio. Sci. elective
U-D Lab	Bio. Sci. research	General Ed.
Bio. Sci. research	General Ed.	Bio. Sci. research
Elective		

1 Students have the option of taking HUMAN 1A and HUMAN 1AS or lower-division writing courses.

2 BIO SCI E106 is offered in all three quarters, is a prerequisite for many upper-division courses and may be taken at any time after completion of BIO SCI 94.

3 CHEM H52A-CHEM H52B-CHEM H52C, CHEM H52LA-CHEM H52LB may be taken instead of CHEM 51A-CHEM 51B-CHEM 51C, CHEM 51LB-CHEM 51LC.

Undergraduate Major in Exercise Sciences

Virtually every organism is dependent on movement (both intracellular and extracellular) in one form or another. With respect to humans, physical activity imposes unique stresses on a broad spectrum of cell types, tissues, and organ systems. In so doing, physical activity plays a key role in shaping fundamental biological processes necessary for maintaining health and preventing disease. While both human and nonhuman species exhibit many common biological phenomenon, there are also many unique aspects of their physiology. This major will also highlight some of the unique physiological traits of nonhuman species and how such unique phenomenon may provide important insights into human health. Upper-division courses in this major are designed to integrate fundamental principles of biology, chemistry, and physics into a coherent understanding of how physical activity/inactivity impacts human health under healthy and diseased states.

Requirements for the B.S. Degree in Exercise Sciences

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

Major Requirements

A. Required Major Courses:	
BIO SCI D103	Cell Biology
BIO SCI E109	Human Physiology
BIO SCI E117A- E117B- E117C	Exercise Sciences Seminar and Exercise Sciences Seminar and Exercise Sciences Seminar
BIO SCI E136	The Physiology of Human Nutrition
BIO SCI E155	Physiology in Extreme Environments
BIO SCI E170	Mechanical Physiology
BIO SCI E183	Exercise Physiology
BIO SCI N110	Neurobiology and Behavior
B. Upper-Division Laboratories:	
BIO SCI E112L	Physiology Laboratory
BIO SCI M116L	Molecular Biology Laboratory
and either	
BIO SCI N113L	Neurobiology Laboratory
or BIO SCI M114L	Biochemistry Laboratory

Application Process to Declare the Major: The major in Exercise Sciences is open to junior- and senior-level students only. Applications to declare the major can be submitted during the spring of the sophomore year. Review of applications submitted at that time and selection to the major by the Exercise Science Faculty Board is completed at the end of the sophomore year. Information can also be found at UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Double majors within the School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

Sample Program — Exercise Sciences

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	MATH 2A
CHEM 1A	CHEM 1B	CHEM 1C- 1LC
HUMAN 1A	HUMAN 1B	HUMAN 1C
HUMAN 1AS[1]	HUMAN 1BS	HUMAN 1CS
BIO SCI 2A		
Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A	CHEM 51B- 51LB	CHEM 51C- 51LC
CHEM 1LD	General Education	STATS 7 or 8
MATH 2B		General Education
BIO SCI 194S		

Junior		
Fall	**Winter**	**Spring**
BIO SCI D103	BIO SCI E183	BIO SCI N110
PHYSICS 3A	PHYSICS 3B- 3LB	BIO SCI E170
BIO SCI E109	BIO SCI E112L	PHYSICS 3C- 3LC
BIO SCI 100		BIO SCI 199
Senior		
Fall	**Winter**	**Spring**
BIO SCI E155	BIO SCI E136	BIO SCI M114L or N113L
BIO SCI M116L	General Education	General Education
BIO SCI 199	BIO SCI 199	BIO SCI 199
BIO SCI E117A	BIO SCI E117B	BIO SCI E117C

[1] Students have the option of taking HUMAN 1A and HUMAN 1AS or lower-division writing courses.

Undergraduate Major in Genetics

Genetics pervades every aspect of modern society, from newspaper articles to talk shows, from discussions on health care to discussions on cloning. With the sequencing of the human genome, it is more important than ever for biology students to have a broad background in the study of heredity and evolution. The Genetics major is designed to benefit motivated undergraduates who have a particular interest in learning about developmental genetics, evolutionary genetics, and molecular genetics and to allow them to explore how our knowledge of genetic mechanisms contributes to our understanding of human development and disease. The Genetics major will accommodate students interested in the study of inheritance either as a basic discipline or in terms of its applied aspects in biotechnology, medicine, and agriculture, but will be especially attractive to those students desiring focused study and preparation for graduate training.

Genetics majors begin their study in the junior year with two Genetics courses (BIO SCI M137 and BIO SCI D137) and a Genomics and Proteomics course (BIO SCI D145). This series of courses is designed to give students an understanding of genetic mechanisms and teach them how to define and answer fundamental questions in biomedical research. Additionally, students choose at least two electives that deal with topics such as the molecular biology of cancer, human genetic diseases, developmental genetics, and the genetics of aging. Finally, Genetics majors are encouraged to explore laboratory research by enrolling in BIO SCI 199. Laboratory research not only expands a student's technical skills, but is also designed to allow faculty members to mentor Genetics majors. All students majoring in Genetics have a faculty advisor with whom they meet at least quarterly. The faculty advisor helps students plan their curriculum and select appropriate Biological Sciences 199 research projects. Genetics majors also have an opportunity to meet with other Genetics majors on a regular basis and participate in research talks.

The Genetics major provides graduates with advanced training in the skills necessary to pursue graduate degrees in biomedical research. These include Ph.D. graduate programs, teacher-training programs, medical school, and veterinary school. Genetics graduates may also use their backgrounds effectively in planning careers in law, business, education, and public affairs.

Requirements for the B.S. Degree in Genetics

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

Major Requirements

A. Required Major Courses:	
BIO SCI D103	Cell Biology
BIO SCI D104	Developmental Biology
BIO SCI D113	Genetics Majors Seminar
BIO SCI D132	Introduction to Personalized Medicine
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI D145	Genomics, Development, and Medicine
BIO SCI M137	Microbial Genetics
B. Upper-Division Laboratories:	
Select three of the following: [1]	
BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI E106L	Habitats and Organisms
BIO SCI E112L	Physiology Laboratory
BIO SCI E115L	Evolution Laboratory
BIO SCI E131L	Image Analysis in Biological Research
BIO SCI E161L	Biology of Birds Lab

BIO SCI E166L	Field Biology
BIO SCI E172L	Plant Systematics Laboratory
BIO SCI E179L	Field Freshwater Ecology
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
BIO SCI N113L	Neurobiology Laboratory
C. Upper-Division Biology Electives:	
Select two of the following:	
BIO SCI D105	Cell, Developmental, and Molecular Biology of Plants
BIO SCI D121	Stem Cell Biology
BIO SCI D129	Biotechnology and Plant Breeding
BIO SCI D130	Photomedicine
BIO SCI D133	Advances in Regenerative Medicine
BIO SCI D135	Cell Biology of Human Disease
BIO SCI D136	Human Anatomy
BIO SCI D148	Development and Disease
BIO SCI D170	Applied Human Anatomy
BIO SCI D190	Topics in Developmental and Cell Biology
BIO SCI E109	Human Physiology
BIO SCI E137	Genetics of Complex Traits
BIO SCI E153	Functional and Structural Evolutionary Genomics
BIO SCI M114	Advanced Biochemistry
BIO SCI M116	Advanced Molecular Biology
BIO SCI M120	Signal Transduction in Mammalian Cells
BIO SCI M125	Molecular Biology of Cancer
BIO SCI M143	Human Parasitology
BIO SCI M144	Cell Organelles and Membranes
BIO SCI N110	Neurobiology and Behavior
BIO SCI N151	Neurobiology of Aging
BIO SCI N154	Molecular Neurobiology

1 Students may petition to substitute Excellence in Research (Bio Sci 199) for two upper-division laboratories; 199 research is strongly encouraged. The 199 laboratory must be approved by the Department, and Excellence in Research must be successfully completed. Final approval is given by the Department.

Application Process to Declare the Major: The major in Genetics is open to junior- and senior-level students only. Applications to declare the major can be made at any time. Information can also be found at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Double majors within the Francisco J. Ayala School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

Sample Program — Genetics

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	CHEM 1C- 1LC
CHEM 1A	CHEM 1B	HUMAN 1C
HUMAN 1A[1]	HUMAN 1B	HUMAN 1CS
HUMAN 1AS[1]	HUMAN 1BS	BIO SCI 194S
BIO SCI 2A		

Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A[2]	CHEM 51B- 51LB	CHEM 51C- 51LC
MATH 2A	MATH 2B	MATH 2D, 3A, STATS 7, or STATS 8
CHEM 1LD		
Junior		
Fall	**Winter**	**Spring**
BIO SCI D103	BIO SCI D104	U-D Lab or BIO SCI 199
PHYSICS 3A	PHYSICS 3B- 3LB	PHYSICS 3C- 3LC
BIO SCI D137	BIO SCI M137	General Ed.
BIO SCI 100	BIO SCI D113	
General Ed.	General Ed.	
Senior		
Fall	**Winter**	**Spring**
U-D Lab or BIO SCI 199	U-D Lab or BIO SCI 199	U-D Bio. Sci. elective
U-D Bio. Sci. elective	BIO SCI D145	General Ed.
General Ed.	General Ed.	General Ed.

1 Students have the option of taking HUMAN 1A and HUMAN 1ASor lower-division writing courses.

2 CHEM H52A-CHEM H52B-CHEM H52C, CHEM H52LA-CHEM H52LB may be taken instead of CHEM 51A-CHEM 51B-CHEM 51C, CHEM 51LB-CHEM 51LC.

Undergraduate Major in Human Biology

Understanding normal and disordered human function both require a broad integration of human physiology, behavior, and culture that is provided in this major. Students in this major will receive a unified, in-depth study of modern biology that includes ecology, evolutionary biology, genetics, biochemistry, molecular biology, cell biology, human physiology, neurobiology, and behavior. In addition, the skills and concepts needed to pursue this field are presented in upper-division laboratories. Advanced elective courses provide an opportunity to diversify exposure to the biological sciences. Additional courses in the humanities and social sciences focus on the relevance of these areas to the human condition. Given the focus on human biology, this major will serve as an ideal preparation for the health science professions.

Requirements for the B.S. Degree in Human Biology

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

Major Requirements

A. Required Major Courses:	
BIO SCI D103	Cell Biology
BIO SCI E109	Human Physiology
BIO SCI N110	Neurobiology and Behavior
BIO SCI N120	Human Biology
B. Upper-Division Laboratories:	
Select three of the following:	
BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI E106L	Habitats and Organisms
BIO SCI E112L	Physiology Laboratory
BIO SCI E115L	Evolution Laboratory
BIO SCI E131L	Image Analysis in Biological Research
BIO SCI E161L	Biology of Birds Lab
BIO SCI E166L	Field Biology
BIO SCI E172L	Plant Systematics Laboratory
BIO SCI E179L	Field Freshwater Ecology
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121L	Advanced Immunology Laboratory

BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
BIO SCI N113L	Neurobiology Laboratory
One laboratory can be satisfied with completion of Excellence in Research in the Biological Sciences.	
C. Upper-Division Biology Electives:	
Select four upper-division, four-unit courses from the following:	
Biological Sciences D103-D190, E106-E190, M114-M190, N110-N190 [2]	
PHRMSCI 170A	Molecular Pharmacology I
PHRMSCI 170B	Molecular Pharmacology II
PHRMSCI 171	Physical Biochemistry
PHRMSCI 173	Pharmacotherapy
PHRMSCI 174	Biopharmaceutics and Nanomedicine
PHRMSCI 177	Medicinal Chemistry
The following courses can be used to partially satisfy the Upper-Division Biology Elective Requirement:	
CHEM 131A- 131B- 131C	Quantum Principles and Molecular Structure and Elementary Statistical Mechanics and Thermodynamics and Chemical Dynamics
or	
PHYSICS 147A- 147B	Principles of Imaging and Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging
Additionally, Psychology/Biological Sciences double majors may also use PSYCH 112A-PSYCH 112B-PSYCH 112C to partially satisfy the Upper-Division Biology Elective Requirement.	
D. Behavioral Science Courses (choose 1 option):	
Option 1	
ANTHRO 2A	Introduction to Sociocultural Anthropology
PSYCH 7A	Introduction to Psychology
SOCIOL 1	Introduction to Sociology
Option 2	
SOC SCI H1E- H1F- H1G	Honors: Critical Issues on the Social Sciences and Honors: Critical Issues on the Social Sciences and Honors: Critical Issues on the Social Sciences
E. HUMAN 1A-HUMAN 1AS-HUMAN 1B-HUMAN 1BS-HUMAN 1C-HUMAN 1CS.	
F. BIO SCI 3A.	

1 One laboratory can be satisfied with completion of Excellence in Research in the Biological Sciences.

2 BIO SCI D103, BIO SCI D104, BIO SCI D105, BIO SCI E106, BIO SCI E109, BIO SCI N110 may not be used to satisfy more than one requirement.

Application Process to Declare the Major: The major in Human Biology is open to junior- and senior-level students only. Applications to declare the major can be made at any time, but typically in the spring of the sophomore year. Review of applications submitted at that time and selection to the major by the Human Biology Faculty Board is completed during the summer. Information can also be found at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Double majors within the School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

Sample Program — Human Biology

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	MATH 2A
CHEM 1A	CHEM 1B	CHEM 1C- 1LC
HUMAN 1A	HUMAN 1B	HUMAN 1C
HUMAN 1AS	HUMAN 1BS	HUMAN 1CS
BIO SCI 2A		

Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A	CHEM 51B- 51LB	CHEM 51C- 51LC
CHEM 51LD	PSYCH 7A	STATS 7 or 8
MATH 2B		
BIO SCI 194S		
Junior		
Fall	**Winter**	**Spring**
BIO SCI D103	BIO SCI 3A	BIO SCI N110
PHYSICS 3A	BIO SCI E109	PHYSICS 3C
BIO SCI 100	PHYSICS 3B	ANTHRO 2A
BIO SCI N120	SOCIOL 1	Research
	Research	
Senior		
Fall	**Winter**	**Spring**
Bio Sci Elective	Bio Sci Elective	Bio Sci Elective
Bio Sci Lab	Bio Sci Lab	Bio Sci Lab
BIO SCI 199	BIO SCI 199	BIO SCI 199
Bio Sci Elective		

Undergraduate Major in Microbiology and Immunology

Microbiology and immunology are well-established disciplines within the life sciences. Microbiology addresses the biology of bacteria, viruses, and unicellular eukaryotes such as fungi and protozoa. Studies of microorganisms reveal basic information about processes in evolution, genetics, biochemistry, molecular biology, cell biology, structural biology, and ecology. Many bacteria, viruses, and protozoa cause disease in plants and animals. Hence, major areas of medicine and public health focus on these microorganisms.

Immunology encompasses efforts to understand how multicellular organisms have evolved to survive a variety of challenges to health and survival, including threats by pathogens and cancer cells. Basic questions of how immunity functions are entwined with a fundamental understanding of the consequences of microbial infection. Immunology also refers to the study of autoimmunity, the attack of the host by its own immune system.

The study of viruses (virology) is an important branch of microbiology that has contributed to our understanding of most of the fundamental processes in eukaryotic molecular biology, including the discovery of oncogenes. Viruses provide an excellent tool for the study of disease, cancer, and mechanisms of gene control. With the growing threat of emerging diseases and the potential for viral-based biological weapons, the study of virology was recently intensified and gained new perspectives.

The major has been designed to span the interconnected disciplines of Microbiology and Immunology, and because the scope of the disciplines is considerable, students have the opportunity to specialize within the major in one of three areas: microbiology, immunology, or virology. The curricula overlap considerably, but there are unique courses for each specialty. Students opting for the microbiology specialization can select from courses focused on prokaryotes (bacteria) or eukaryotes (parasites).

The major is designed primarily for students who are serious about pursuing careers in microbiology and immunology and is intended to provide its graduates with the appropriate tools and training to successfully pursue professional and graduate degrees emphasizing these disciplines. These include Ph.D., M.D., and combined M.D./Ph.D. programs. Majoring in Microbiology and Immunology will also provide resources for serious students wishing to use a solid background in these disciplines for career goals in business, law, public and environmental policy, education, and other pursuits.

Requirements for the B.S. Degree in Microbiology and Immunology

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

Major Requirements for the General Track in Microbiology and Immunology

Major Requirements for the General Track in Microbiology and Immunology	
A. Required Major Courses:	
BIO SCI M121	Immunology with Hematology
BIO SCI M122	General Microbiology
BIO SCI M124A	Virology
B. Upper-Division Laboratories:	
BIO SCI M116L	Molecular Biology Laboratory
and either	
BIO SCI M118L	Experimental Microbiology Laboratory

or BIO SCI M127L	Virology and Immunology Laboratory
C. Upper-Division Biology Electives:	
Select six of the following:	
Recommended:	
BIO SCI E124	Infectious Disease Dynamics
BIO SCI E176	Evolution of Infectious Disease
BIO SCI M119	Advanced Topics in Immunology
BIO SCI M120	Signal Transduction in Mammalian Cells
BIO SCI M124B	Viral Pathogenesis and Immunity
BIO SCI M125	Molecular Biology of Cancer
BIO SCI M137	Microbial Genetics
BIO SCI M143	Human Parasitology
MOL BIO 205	Molecular Virology
or from Alternatives:	
BIO SCI D103	Cell Biology
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI M114	Advanced Biochemistry
BIO SCI M116	Advanced Molecular Biology
BIO SCI M144	Cell Organelles and Membranes
Requirements for the Specialization in Immunology	
A. Required Major Courses:	
BIO SCI M121	Immunology with Hematology
BIO SCI M122	General Microbiology
BIO SCI M124A	Virology
B. Upper-Division Laboratories:	
BIO SCI M116L- M127L	Molecular Biology Laboratory and Virology and Immunology Laboratory
C. Upper-Division Biology Electives:	
Select six of the following:	
Recommended:	
BIO SCI M119	Advanced Topics in Immunology
BIO SCI M120	Signal Transduction in Mammalian Cells
BIO SCI M124B	Viral Pathogenesis and Immunity
BIO SCI M125	Molecular Biology of Cancer
or from Alternatives:	
BIO SCI D103	Cell Biology
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI M114	Advanced Biochemistry
BIO SCI M116	Advanced Molecular Biology
BIO SCI M137	Microbial Genetics
BIO SCI M144	Cell Organelles and Membranes
Requirements for the Specialization in Microbiology	
A. Required Major Courses:	
BIO SCI M121	Immunology with Hematology
BIO SCI M122	General Microbiology
BIO SCI M124A	Virology
B. Upper-Division Laboratories:	
BIO SCI M116L- M118L	Molecular Biology Laboratory and Experimental Microbiology Laboratory
C. Upper-Division Biology Electives:	
Select six of the following:	
Recommended:	

BIO SCI E124	Infectious Disease Dynamics
BIO SCI E176	Evolution of Infectious Disease
BIO SCI M137	Microbial Genetics
BIO SCI M143	Human Parasitology
or from Alternatives:	
BIO SCI D103	Cell Biology
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI M114	Advanced Biochemistry
BIO SCI M116	Advanced Molecular Biology
BIO SCI M144	Cell Organelles and Membranes
Requirements for the Specialization in Virology	
A. Required Major Courses:	
BIO SCI M121	Immunology with Hematology
BIO SCI M122	General Microbiology
BIO SCI M124A	Virology
B. Upper-Division Laboratories:	
BIO SCI M116L- M127L	Molecular Biology Laboratory and Virology and Immunology Laboratory
C. Upper-Division Biology Electives:	
Select six of the following:	
Recommended:	
BIO SCI E124	Infectious Disease Dynamics
BIO SCI M120	Signal Transduction in Mammalian Cells
BIO SCI M124B	Viral Pathogenesis and Immunity
BIO SCI M125	Molecular Biology of Cancer
or MOL BIO 205	Molecular Virology
or from Alternatives:	
BIO SCI D103	Cell Biology
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI M114	Advanced Biochemistry
BIO SCI M116	Advanced Molecular Biology
BIO SCI M137	Microbial Genetics
BIO SCI M144	Cell Organelles and Membranes

NOTE: Within the Microbiology and Immunology major, only one specialization can be awarded.

Application Process to Declare the Major: The major in Microbiology and Immunology is open to junior- and senior-level students only. Applications to declare the major can be made at any time, but typically in the spring of the sophomore year. Review of applications submitted at that time and selection to the major by the Microbiology and Immunology Faculty Board is completed during the summer. Information can also be found at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Double majors within the Francisco J. Ayala School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

Honors Program

The Microbiology and Immunology Honors Program is available to high-achieving majors. The honors designation can be achieved by exceptional performance in research (Excellence in Research) and exceptional scholarship in the required and elective courses (3.5 GPA), and is noted on the transcript. The specific details of this achievement are to be submitted and approved by the major coordinator and the faculty oversight committee. The honors selection process occurs after winter quarter each year. Microbiology and Immunology students must enroll in BIO SCI H195 to complete the requirements for the Excellence in Research Honors program.

Sample Program — Microbiology and Immunology

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	CHEM 1C- 1LC
CHEM 1A	CHEM 1B	General Ed.
General Ed.	General Ed.	General Ed.
General Ed.	General Ed.	

BIO SCI 2A		
Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A[1]	CHEM 51B- 51LB	CHEM 51C- 51LC
CHEM 1LD	General Ed.	General Ed.
MATH 2A	MATH 2B	MATH 2D, 3A, STATS 7, or STATS 8
BIO SCI 194S		
Junior		
Fall	**Winter**	**Spring**
PHYSICS 3A	PHYSICS 3B- 3LB	PHYSICS 3C- 3LC
BIO SCI M124A	BIO SCI M121	BIO SCI M122
BIO SCI M116L	GE or U-D Lab	GE or U-D Lab
BIO SCI 100	BIO SCI 199	BIO SCI 199
BIO SCI 199		
Senior		
Fall	**Winter**	**Spring**
U-D Biology Elective	U-D Biology Elective	U-D Biology Elective
U-D Biology Elective	U-D Biology Elective	U-D Biology Elective
BIO SCI 199	BIO SCI 199	BIO SCI 199

1 CHEM H52A-CHEM H52B-CHEM H52C, CHEM H52LA-CHEM H52LB may be taken instead of CHEM 51A-CHEM 51B-CHEM 51C, CHEM 51LB-CHEM 51LC.

Undergraduate Major in Neurobiology

The Neurobiology major is designed to teach students how neurobiologists apply cellular, molecular, systems, and behavioral analyses in understanding how the nervous system works. The hallmark of the major is a year-long, in-depth exploration of the intellectual tools used to create, advance, and disseminate knowledge about the nervous system. Through neurobiology satellite courses, students acquire advanced factual knowledge about neurobiology. In addition, Neurobiology majors may choose to participate in research through BIO SCI 199, where they will learn technical skills and receive mentoring from faculty members.

Students completing the Neurobiology major will be well qualified for admission to graduate or professional schools in preparation for careers in biological research, medicine, dentistry, veterinary medicine, nursing, and other related fields. Even without additional education, they will be competitive for positions in the pharmaceutical industry, the health care delivery industry, or in medically or biologically related technologies. The major also provides valuable preparation for students interested in entering other disciplines that increasingly interface with biology and biotechnology, such as law, business administration, and government policy. Additionally, the major provides excellent preparation for students who wish to become high school science teachers.

Requirements for the B.S. Degree in Neurobiology

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 265)**.**

Major Requirements

A. Upper-Division Core:	
BIO SCI N110	Neurobiology and Behavior
and select two of the following:	
BIO SCI D103	Cell Biology
BIO SCI D104	Developmental Biology
BIO SCI E106	Processes in Ecology and Evolution
BIO SCI E109	Human Physiology
B. Required Major Courses:	
BIO SCI N112A- N112B- N112C	Neuroscience: Fundamental Concepts and Current Applications and Neuroscience: Fundamental Concepts and Current Applications and Neuroscience: Fundamental Concepts and Current Applications
C. Upper-Division Laboratories:	
BIO SCI N113L	Neurobiology Laboratory
and select two of the following:	
BIO SCI D111L	Developmental and Cell Biology Laboratory

BIO SCI E106L	Habitats and Organisms
BIO SCI E112L	Physiology Laboratory
BIO SCI E115L	Evolution Laboratory
BIO SCI E131L	Image Analysis in Biological Research
BIO SCI E161L	Biology of Birds Lab
BIO SCI E166L	Field Biology
BIO SCI E172L	Plant Systematics Laboratory
BIO SCI E179L	Field Freshwater Ecology
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M127L	Virology and Immunology Laboratory
BIO SCI M130L	Advanced Molecular Lab Techniques
One of these two laboratories can be satisfied by completion of Excellence in Research in the Biological Sciences.	
D. Upper-Division Biology Electives:	
Select two of the following:	
BIO SCI N119–N190	
and select one four-unit course from the following:	
BIO SCI D103–D190, E106–E190, M114–M190, N110–N190	
CHEM 131A	Quantum Principles
CHEM 131B	Molecular Structure and Elementary Statistical Mechanics
CHEM 131C	Thermodynamics and Chemical Dynamics
PHYSICS 147A	Principles of Imaging
No course may be used to satisfy more than one requirement.	

Application Process to Declare the Major: The major in Neurobiology is open to junior- and senior-level students only. Applications to declare the major can be made at any time, but typically in the spring of the sophomore year. Review of applications submitted at that time and selection to the major by the Neurobiology Faculty Board is completed during the summer. Information can also be found at the http://www.changeofmajor.uci.edu. Double majors within the Francisco J. Ayala School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

Sample Program — Neurobiology

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	CHEM 1C- 1LC
CHEM 1A	CHEM 1B	HUMAN 1C
HUMAN 1A[1]	HUMAN 1B	HUMAN 1CS
HUMAN 1AS[1]	HUMAN 1BS	MATH 2A
BIO SCI 2A		
Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A[2]	CHEM 51B- 51LB	CHEM 51C- 51LC
CHEM 1LD	STATS 7, 8, MATH 2D, or MATH 3A	BIO SCI N110
MATH 2B		General Ed./Elective
BIO SCI 194S		
Junior		
Fall	**Winter**	**Spring**
BIO SCI N112A	BIO SCI N112B	BIO SCI N112C
Required Major Course	BIO SCI N113L	Required Major Course
BIO SCI 100	Research/Elective	PHYSICS 3C- 3LC
PHYSICS 3A	PHYSICS 3B- 3LB	

Senior		
Fall	**Winter**	**Spring**
Bio. Sci. Elective	Bio. Sci. Lab	Bio. Sci. Lab
Bio. Sci. Elective	Bio. Sci. Elective	Research/Elective
Research/Elective	General Ed./Elective	General Ed./Elective

1 Students have the option of taking HUMAN 1A and HUMAN 1ASor lower-division writing courses.

2 CHEM H52A-CHEM H52B-CHEM H52C, CHEM H52LA-CHEM H52LB may be taken instead of CHEM 51A-CHEM 51B-CHEM 51C, CHEM 51LB-CHEM 51LC.

Requirements for the Minor in Biological Sciences

Nine courses are required, no more than two of which may be taken on a Pass/Not Pass basis:

A. Select three of the following: [1]

BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology

B. Select six of the following: [2]

Three- or four-unit courses selected from BIO SCI 5–H90 (excluding 14 and 46), 93–99, and D103–D190, E106–E190, M114–M190, N110–N190.

1 Prerequisites are strictly enforced. Exceptions may be made for some majors that accept the above courses for degree requirements. Consult with the Biological Sciences Student Affairs Office or the academic counseling office of the major.

2 Three courses must be upper-division. Prerequisites are strictly enforced. (Courses used to satisfy group A may not also be used to satisfy group B.)

Residence requirement for the minor: A minimum of six courses required for the minor must be completed at UCI. Approved courses taken in the Education Abroad Program are considered to be in-residence courses.

NOTE: Students in any of the majors within the Francisco J. Ayala School of Biological Sciences or students majoring in Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences may not minor in Biological Sciences.

Graduate Study in Biological Sciences

The Francisco J. Ayala School of Biological Sciences offers graduate study in a wide variety of fields ranging across the spectrum of the biological sciences. The four Departments of the Francisco J. Ayala School of Biological Sciences (Developmental and Cell Biology (p. 341), Ecology and Evolutionary Biology (p. 347), Molecular Biology and Biochemistry (p. 353), and Neurobiology and Behavior (p. 360) offer concentrations of study under the Ph.D. degree administered by the Francisco J. Ayala School of Biological Sciences. Most graduate students are admitted to the Doctor of Philosophy (Ph.D.) degree program. Additionally, the Master's program in Biotechnology (p. 290) (M.S. degree in Biological Sciences), the M.S. degree in Biological Sciences and Educational Media Design (p. 293), the M.S. degree in Biotechnology Management (p. 291), and the Master's program in any of the four departments (M.S. degree in Biological Sciences) are offered. Each department has a graduate advisor whom students may consult for additional details of the individual programs. Several interdisciplinary graduate programs are also available: Graduate Program in Cellular and Molecular Biosciences (p. 294), Graduate Program in Mathematical and Computational Biology (p. 295), and Interdepartmental Neuroscience Program (p. 295).

The department or program evaluates applications for admission to graduate study based on letters of recommendation, Graduate Record Examination scores, grades, research experience, and other relevant qualifications of the applicant. Candidates for graduate admission are urged to consult the particular department or program whose faculty and expertise best fit their interests and background.

Master of Science and Doctor of Philosophy in the Biological Sciences

The Francisco J. Ayala School of Biological Sciences offers both the Master of Science and Doctor of Philosophy, although emphasis at the graduate level is placed on the Ph.D. programs. Most training takes place within one of the departments, although full facilities and curricular offerings are available to all graduate students in all departments of the Biological Sciences. Interdisciplinary study and research are encouraged.

Students are expected to maintain a B average at all times. The normative time to degree is two years for the Master's degree and five years for the doctoral degree. A Master's degree is not a prerequisite for the Ph.D. degree.

Students plan their academic program in consultation with the graduate advisor or a faculty committee. Faculty advisors may be changed to meet the needs and interests of the student. In addition, it is possible for students to transfer to another program in the School, subject to the approval of the Dean

of Graduate Studies, and acceptance into that program. Students are encouraged to consult with faculty members with regard to their research and academic interests.

During their graduate training all doctoral students are required to serve at least two quarters as a 50-percent teaching assistant under the direction of laboratory coordinators or faculty. Advanced graduate students may work closely with faculty in the planning and execution of the teaching program. The amount and nature of the teaching experience varies with the department.

Master of Science

The Master of Science degree may be completed by submission of a research thesis (plan I) or by course work and a comprehensive examination (plan II).

Plan I: Thesis Plan. The student is required to complete at least four didactic graduate courses (16 units) offered by the department, and elective course work with an additional eight units of graduate or upper-division undergraduate course work. In addition, the student will typically take additional seminar courses during the graduate study. Students in the M.S. program may be employed as teaching assistants, but units earned through enrollment in University Teaching (399) may not be counted toward degree completion. The student engages in thesis research with a faculty thesis advisor, and will prepare and submit a thesis to the thesis committee. The final examination is an oral presentation of the thesis to the committee. The normative time to degree is two years for the thesis M.S. degree.

Plan II: Comprehensive Examination Plan. The plan II M.S. degree is awarded based on completion of at least 36 units of course work and satisfactory completion of a comprehensive examination. The student is required to complete at least 16 units (four courses) of didactic graduate course work offered by the department. In addition, the student will take up to 12 units of research. An additional eight units or more of elective course work will be completed from other graduate courses offered by the department. A maximum of four units of upper-division undergraduate courses may be included in the program with the approval of the Associate Dean for Graduate Studies. Students in the M.S. program may be employed as teaching assistants, but units earned through enrollment in University Teaching (399) may not be counted toward degree completion. The comprehensive exam will be administered by a committee of at least three departmental faculty, and may include written and oral sections. The comprehensive examination format will include presentation of research or a capstone project and may include additional sections such as a research proposal, presentation of a project, critical analysis or other components. The normative time to degree is two years for the M.S. degree by comprehensive examination.

Doctor of Philosophy

Comprehensive Examination-First Year. Some departments and graduate programs require a comprehensive examination that is generally taken at the end of the first year of graduate study.

Advancement to Candidacy Exam. The advancement to candidacy examination is taken in the third year of graduate study. The student will prepare a written research proposal based on a federal granting agency format, and the proposal will be submitted to the advancement committee. The student will present the research proposal to a committee of five faculty members. At the time of advancement to candidacy, the student is expected to have identified an important and tractable dissertation topic, and to have demonstrated the technical and intellectual skills to complete doctoral thesis research.

Once the advancement to candidacy examination is completed, the student is expected to complete the doctoral degree within three years. The student must submit a dissertation on their research and defend the thesis in an oral examination during the final year of graduate study. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Graduate student status or consent of instructor is a prerequisite for all 200–299 courses.

Master of Science with a Concentration in Biotechnology

Department of Molecular Biology and Biochemistry
3205 McGaugh Hall; (949) 824-6034
morgano@uci.edu; http://www.bio.uci.edu/
Michael G. Cumsky, **Director**

The field of biotechnology has developed explosively since the discovery of gene cloning and sequencing methods in the mid-1970s. The field is now represented by many active and successful companies who share an intense demand for well-trained people with up-to-date research skills in the manipulation of nucleic acids, proteins, immunological reagents, and pathogenic organisms. The program in Biotechnology features two tracks leading to an M.S. degree in Biological Sciences. The first is the traditional program, and the second, which takes advantage of a defined area of campus research strength, provides an emphasis in stem cell biology. Both tracks incorporate extensive training from both teaching laboratories and actual research settings (individual faculty laboratories). Focus is placed on techniques relevant to industry and seminar exposure to the nature of industry. It is designed to train students to enter the field of biotechnology as skilled laboratory practitioners. Emphasis is placed on learning state-of-the-art technology in protein isolation and characterization, animal and microbial cell culture, virology, immunology, and/or stem cell biology. Students are trained in experimental rationales for solving actual research problems and are encouraged to take summer internships in industry between the first and second year of their studies.

The Department of Molecular Biology and Biochemistry evaluates applicants to the program on the basis of grades, letters of recommendation, GRE scores, and other relevant qualifications. Applicants should have successfully completed a B.S. degree or equivalent. Courses should include general

chemistry with laboratory, calculus, physics, organic chemistry, genetics, biochemistry, molecular biology, microbiology, immunology, and virology, as well as laboratory courses in biochemistry, molecular biology, microbiology, and either animal virology or immunology. Enrollment in the stem cell biology emphasis is limited to eight continuing students per year. Biotechnology graduate students interested in this track apply for admission during the winter quarter of their first year in the program.

The traditional program emphasizes training in laboratory and research environments. First-year students are required to enroll in a series of laboratory courses:

MOL BIO 250L	Biotechnology Laboratory - Nucleic Acids
MOL BIO 251L	Biotechnology Laboratory - Protein Purification and Characterization
MOL BIO 221L	Advanced Immunology Laboratory (if offered)
MOL BIO 224	Virus Engineering Laboratory (if offered)
MOL BIO 227L	Virology and Immunology Laboratory (if 221L or 224 are not offered)

These courses are designed to teach techniques in recombinant DNA methodology, protein isolation and characterization, proteomics, animal and microbial cell culture, immunology, and virology. In addition, students are trained rigorously in data recording and presentation as the laboratory notebooks are reviewed and graded by laboratory course instructors. Students are taught formal course work in nucleic acids, proteins, genetic engineering, and molecular/cellular biology. Emphasis during the second year is devoted exclusively to research projects in faculty laboratories, with the exception of one required elective course each quarter (e.g., DEV BIO 210, DEV BIO 231B). The program concludes with a presentation of the student's research at the end of the second year.

Students enrolled in the stem cell biology emphasis take the same number of laboratory and lecture courses as those in the traditional track. However, in the spring quarter of their first year they must enroll in the stem cell laboratory (taught at the Stem Cell Research Core Facility), and their electives must include the following courses, if offered: Stem Cell Policy (M&MG 230), Stem Cell Biology (DEV BIO 245), and Clinical Aspects of Stem Cells (DEV BIO 203B, when offered). In addition, their individual research must be conducted in the laboratory of a faculty member utilizing stem cells.

While the Biotechnology program is designed to produce skilled laboratory practitioners for industrial positions, some students may wish to continue in a Ph.D. degree program. The Department of Molecular Biology and Biochemistry is a member of the interdisciplinary graduate program in Cellular and Molecular Biosciences, a program which offers the Ph.D. degree in Biological Sciences. Biotechnology program students who wish to enter the interdisciplinary graduate program upon completion of the M.S. degree should apply for admission during their second year.

Master of Science in Biotechnology Management (MSBTM)

Department of Molecular Biology and Biochemistry
3205 McGaugh Hall; (949) 824-6034
morgano@uci.edu; http://www.bio.uci.edu/
Michael G. Cumsky, **Director**

The M.S. in Biotechnology Management is a joint graduate degree that will prepare scientists for leadership roles in biotechnology, science, and engineering-based companies through a curriculum comprised of courses from the Department of Molecular Biology and Biochemistry (MB&B) in the Francisco J. Ayala School of Biological Sciences, the Department of Biomedical Engineering in The Henry Samueli School of Engineering, and The Paul Merage School of Business. Students will receive advanced training in biotechnology through course work, a teaching laboratory, and two quarters of independent research in a faculty laboratory of their choosing. They will also learn to think as a business manager by solving product development challenges through consulting projects, creating business plans, and by exposure to current issues within the biotechnology sector. Students will develop quantitative and qualitative skills along with business communication skills. Students will learn about business from the biotechnology perspective and biotechnology from the business perspective, and will be taught to think about their work through the lens of innovation, a crucial view for their careers.

Some of the distinctive features of the MSBTM program include the following:

- Advanced training in biotechnology through course work and an eight-unit teaching laboratory;
- A research component whereby students will engage in research with a faculty member in either the Francisco J. Ayala School of Biological Sciences Sciences or the Department of Biomedical Engineering (requests to perform research in labs outside of Biological Sciences or Biomedical Engineering will be considered on a case-by-case basis). This research component is considered to be important for careers in the biotechnology industry and makes this program unique worldwide;
- An Intensive course, Management of Innovative Organizations (MGMTMBA 200), which presents fundamental concepts, tools, and solutions from management to initiate students into the concrete challenges that managers in high-performing organizations typically confront. Students will be introduced to the pedagogical methods of case analysis, group problem solving, and group presentations as a means of developing the skills and strategies associated with effective managerial action. The course is structured as a full-time, in-residence intensive;
- An experiential learning component wherein student teams, under the guidance of The Paul Merage School of Business and Department of Molecular Biology and Biochemistry professors, act as a consulting team which works with managers of biotechnology or biological science-based companies on innovative solutions to current problems faced by the companies;
- A business plan component wherein students from biosciences and management prepare a formal business plan for an Entrepreneurship or New Venture Management course;

- A new capstone course taught in the spring quarter of the second year by faculty in both Biological Sciences and The Paul Merage School of Business. The cross-listed course, Biotech Management (MOL BIO 253)/Biotech Management (MGMTMBA 293) will integrate the program's two-year curriculum and provide a format for the required comprehensive exam. The curriculum will address a number of management issues in the biotech industry including finance, product development, pharmaceuticals, project management, regulatory affairs, and ethics. Guest lecturers from the biotech industry will also be invited to talk about both the scientific and management sides of their companies;
- "Proseminar" courses in the first year that provides students with information and practical skills for success in the program and career planning.

Admissions

Applicants will apply directly to the Graduate Division for the MSBTM program beginning each fall. The program uses rolling admission deadlines. The priority deadline is January 15; applications received by this date are read first, and we begin filling next fall's class from this group. March 15 is the normal deadline; the remainder of the class is filled from these applicants. If the class is not full after review of the March 15 applicants, we will accept additional applications until June 1. Prerequisite requirements will be the same as those for the Graduate Program in Biotechnology, which include a B.A. or B.S. degree in biological sciences or related discipline and several specific elective and laboratory courses. Admission to graduate standing in MB&B is generally accorded to those possessing a B.S. degree in biological sciences or an allied field obtained with an acceptable level of scholarship from an institution of recognized standing. Those seeking admission without the prerequisite scholarship record may, in some cases, undertake remedial work; if such work is completed at the stipulated academic level, the applicant will be considered for admission. Those admitted from an allied field may be required to take supplementary upper-division courses in basic engineering subjects. The Graduate Record Examination (GRE) General Test is required of all applicants.

Foreign students will be required to submit a TOEFL score and occasionally a TSE score. Applicants from India must submit one of the following in order to be eligible for graduate studies consideration: a continuous four-year degree from an accredited university, college, or institution, or a completed three-year bachelor's accompanied with a completed two-year master's degree. The combination of 3+2 would be the equivalent of the U.S. bachelor's degree. The MSBTM program does not accept a straight three-year bachelor's degree, nor does it accept a one-year completion of the two-year master's degree in the 3+2 combination.

Applicants will be evaluated on their prior academic record and their potential for management and leadership as demonstrated in the submitted application materials (university's transcripts, GRE test scores, letters of recommendation, applicable work experience, a Statement of Purpose, and an essay). In addition, there will be an interview by admissions counselors from The Paul Merage School of Business.

Course Work and Examination Requirements

M.S. Plan II: Seventeen required courses, a minimum of 77 units, a zero-unit Proseminar sequence in the first year (defined below), and a comprehensive examination which will be administered during the jointly taught capstone course in the spring quarter of the second year.

Required and Recommended Courses, Business: A total of nine courses adding up to 36 units. These include the Intensive Management of Innovative Organizations (MGMTMBA 200), Experiential Learning (MGMTMBA 298),or New Venture Management: A Course in Entrepreneurship (MGMTMBA 213), and at least six courses from the Paul Merage School of Business, of which:

Three courses must be selected from the following five courses: Management Science (MGMTMBA 201B), Organizational Analysis for Management (MGMTMBA 202), Financial Accounting for Management (MGMTMBA 203A), Marketing Management (MGMTMBA 205), Managerial Finance (MGMTMBA 209A), and categorized as required courses;

Two courses must be selected from the following three courses: US Health Policy (MGMTMBA 264), Supply Chain Management (MGMTMBA 285), Business Law (MGMTMBA 292), and categorized as restricted elective courses; and

One additional elective course of the student's choosing.

Required and Recommended Courses, Biotechnology: A total of seven courses adding up to 36 units. These include:

Two core biological science courses, Nucleic Acid Structure and Function (MOL BIO 203) and Protein Structure and Function (MOL BIO 204);

Two additional graduate-level elective courses in biological sciences or biomedical engineering;

One teaching laboratory course focusing on essential methods in biotechnology, Biotechnology Management Laboratory (MOL BIO 252L); and

Two quarters of research (four units in winter quarter of the second year and eight units in spring quarter of the second year) whereby students will engage in independent research with a faculty member of their choosing in the School of Biological Sciences or Department of Biomedical Engineering (requests to perform research in labs outside of Biological Sciences or Biomedical Engineering will be considered on a case by case basis).

Proseminar Course (Year One)

This three-quarter course, MBA Proseminar (MGMTMBA 211), provides students with information and practical skills for success in the program and for career planning. The goal is to help clarify goals and develop skills and techniques to successfully manage the job search process for employment upon graduation and throughout one's career. This will be accomplished through workshops, presentations, webinars, and meetings with career counselors. Topics include resume writing, job interview coaching, company hiring practices, and career advice and counseling.

Capstone Course (Year Two)

(Biotech Management (MOL BIO 253)/Biotech Management (MGMTMBA 293), five units), jointly taught by Biological Sciences and Business School faculty, is designed to integrate the program's two-year curriculum and provide a format for the required comprehensive exam. The curriculum will address a number of management issues in the biotech industry including finance, product development, pharmaceuticals, project management, regulatory affairs, and ethics. Guest lecturers from the biotech industry will also be invited to talk about both the scientific and management sides of their companies.

Master of Science in Biological Sciences and Educational Media Design

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bhughes@uci.edu
Brad Hughes, **Director**

Program Objectives and Student Eligibility

To meet the increasingly complex challenges facing science and education, highly trained professionals with advanced scientific knowledge and pedagogical techniques coupled with state-of-the-art media design skills will be the science education leaders of the future. The Master of Science in Biological Sciences and Educational Media Design establishes an intensive pathway for training those innovative leaders. The program can be completed flexibly within one or two years of study, in as little as nine months of full-time study, or over two years of part-time study. In order to make the program accessible to working professionals, courses will be available during the academic year in the early evening and during the regular summer session. With the convenience of evening and summer course schedules, the program is tailored to suit working science educators.

Program candidates will typically possess the qualifications of a teaching credential and a B.S. in Biological Sciences or comparable degree, and have obtained a 3.0 or better GPA. Students with degrees in other areas will be considered if they have substantial course work in biology, chemistry, mathematics, and physics that is comparable to the degree requirements for a B.S. in Biological Sciences from UCI. Applicants possessing different prerequisite qualifications may potentially be considered for admission by approval of the program director with consideration of experience and/or additional course work, on an individual case basis.

Curriculum Description

The program offers an integrative interdisciplinary structure with a curriculum that includes advanced academic biological sciences course work electives, individually selected from upper-division and graduate-level schoolwide offerings. Students also choose from external field experience, research lab experience, or a graduate course in the School of Education. A special graduate-level integrative biological science course, Experimental Evolution in Biology and Education, is part of the required core courses. The four additional core courses comprise a blend of advanced training in the field of science education and leadership, media production technologies, and educational media design. The biological and educational course work are integrated through the productive synthesis of pedagogical methods, science content, and media design, culminating in a capstone project of biological science educational media that is presented and defended in the final quarter of study. Students are encouraged to serve as teaching assistants during their program; however, course units earned for University Teaching (399) will not count as units for degree completion.

Required and Elective Course Work

The M.S. program requires a minimum of 36 quarter units in approved courses, at least 24 of which must be from graduate-level courses in the 200 series or higher. Four graduate-level core courses (16 units) in science education media design are required for the M.S. degree including the following:

1. Advanced Pedagogical Design and Educational Science Media Production (four units, fall, lecture);
2. Directed Research Specialization and Project Development (four units, fall, lab);
3. Directed Educational Media Project Production (four units, winter, lab); and
4. Project Presentations and Science Education Leadership (four units, spring, lecture/seminar).

Three academic courses (12 units) in biological sciences are also required, including the required core graduate course Experimental Evolution in Biology and Education (four units, winter, lecture/seminar). The remaining eight academic course units may include graduate-level courses offered by the School of Biological Sciences (lecture or lab, approval of the departmental instructor and the program director are required), or upper-division undergraduate courses offered by the School of Biological Sciences (lecture or lab, approval of the program director is required).

Another eight units of electives from any of the following options must also be completed (approval of the program director is required), including:

1. Independent laboratory research (up to eight units, e.g., DEV BIO 200A);
2. Independent field research (up to eight units, e.g., ECO EVO 200A);
3. Graduate course work in the School of Education (maximum of four units);
4. Upper-division courses offered by the School of Biological Sciences (maximum of four units, lecture or lab); and

5. Graduate-level courses offered by the School of Biological Sciences (up to eight units, lecture or lab).

Capstone Project for Degree Completion

The written documentation, multimedia product, and oral presentation of the educational media capstone project will serve as the comprehensive examination for completion of the M.S. degree in Biological Sciences and Educational Media Design. The centerpiece of the capstone project is the educational media product, which uses modern multimedia tools to provide compelling educational content that links conceptually to the biological science course work content. The methodological design of the educational media demonstrates the student's pedagogical skills, as well as technical facility with media development tools. The scope of the project is set to a reasonable size and challenge range, both worthy of the master's degree and also realistically attainable. Projects may be developed using a modular production design in consultation with the program director, so that various elements are functional, while others are descriptively simulated, to efficiently showcase the educational media product design effectively without unreasonably high production efforts.

The educational media products are accompanied by a well-written documentation package. A requirement list and format for the project documentation package is provided early in the program, and includes such elements as pedagogical rationale for product design referenced to pedagogical course work, California State content standards addressed, lesson plans, bibliographic references, background content information referenced to biological science course work, user manual instructions, assessment tools, media overview linked to media design and production course work, and advertisement of product features. All projects will be required to address National or State standards, except by approval of the program director, for projects that deal with higher education or public educational foci.

Presentations of the projects occur during class sessions via multimedia colloquia style talks for instructor and peer review. Presentations emulate in-service training for end users, including comprehensive integrated descriptions of the project's educational media features and documentation package. This constructive process includes extensive peer evaluation, revisionary responses, and discussion participation. Exemplary capstone projects may be exhibited/presented at the annual UCI Media Arts in Science Symposia (MASS), currently in development.

Courses in Biological Sciences and Educational Media Design

BSEMD 200	Individual Research
BSEMD 211	Advanced Pedagogical Design and Educational Science Media Production
BSEMD 212	Directed Research Specialization and Project Development
BSEMD 213	Directed Educational Media Project Production
BSEMD 214	Project Presentations and Science Education Leadership
BSEMD 220	Experimental Evolution in Biology and Education
BSEMD 299	Independent Study

Interdisciplinary Graduate Programs

The School is structured in a manner that encourages an interdisciplinary approach to scientific problems. Interaction and cooperative efforts across traditional institutional boundaries are especially evident in the School's participation in various organized research units (described in the Office of Research (p. 131) section) and in the interdepartmental/interschool graduate programs described below.

Graduate Program in Cellular and Molecular Biosciences

4141 Natural Sciences II; (949) 824-8145
http://cmb.uci.edu
David A. Fruman, **Director**

The combined graduate program in Cellular and Molecular Biosciences (CMB) provides the first year of instruction for graduate students entering Ph.D. programs in six departments within the Francisco J. Ayala School of Biological Sciences and the School of Medicine. Applicants should have significant laboratory experience and be well prepared in biochemistry, molecular biology, cell biology, and genetics with appropriate course work in organic chemistry, calculus, and physics.

Students in the CMB program will select three didactic courses, one each quarter, from a menu of approved course options. Students will select one course from each key biological category of "Molecules of Life," "Cells and Signaling," and "Integrated Systems and Genetics." The diversity of curriculum options offers students, in cooperation with a faculty advisor, the opportunity to customize the curriculum to the student's research goals and interests. The first year curriculum also includes instruction in PhD Fundamentals (including experimental design, writing, presentation skills, biostatistics) and a short course in the Responsible Conduct of Research. During the first year, the students also undertake introductory research in at least two laboratories. Students can select a laboratory rotation from over 100 faculty laboratories in the departments of Biological Chemistry, Developmental and Cell Biology, Microbiology and Molecular Genetics, Molecular Biology and Biochemistry, Pathology and Laboratory Medicine, and Physiology and Biophysics. Each faculty member's area of research is described on the department websites. Faculty also are associated with research areas that span departments, as shown on the CMB Web site. The year culminates in a comprehensive preliminary examination and evaluation.

At the end of the first academic year, students will select a thesis advisor in one of the departments. Students who select a thesis advisor in the Francisco J. Ayala School of Biological Sciences (Department of Developmental and Cell Biology or Molecular Biology and Biochemistry) will complete

the doctoral degree in Biological Sciences. Students who select a thesis advisor in the School of Medicine (Departments of Biological Chemistry, Microbiology and Molecular Genetics, Pathology and Laboratory Medicine, and Physiology and Biophysics) will complete the doctoral degree in Biomedical Sciences.

During the second year and beyond, students participate in the departmental doctoral program. Students are required to meet all doctoral degree requirements associated with the thesis advisor's department or program, and may be required to take additional course work, and participate in journal club and seminar series. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years. Further information is available in the *Catalogue* sections of the participating departments and through the CMB program office.

Graduate Program in Mathematical and Computational Biology

Center for Complex Biological Systems
2624 Biological Sciences III; (949) 824-4120
mcsb@uci.edu; http://mcsb.bio.uci.edu/
Qing Nie, **Director**

The graduate program in Mathematical and Computational Biology (MCB) is a one-year program designed to function in concert with existing departmental programs. Students who successfully complete the MCB program select a thesis advisor from among the participating faculty and then automatically join a departmental program for the remainder of their Ph.D. training. In this way, the MCB serves not as a degree-granting program, but as a "gateway" toward a Ph.D. degree in an existing degree program.

The MCB program provides students with an opportunity for a broad introductory training in mathematical and computational biology, individualized faculty counseling on curricular needs, and exposure to a large and diverse group of faculty and research projects in participating departments of the program. Member departments include Biomedical Engineering, Computer Science, Developmental and Cell Biology, Ecology and Evolutionary Biology, Mathematics, Microbiology and Molecular Genetics, and Molecular Biology and Biochemistry. (Other actively participating departments are Chemistry and Physics; admission to these departments via MCB is currently under review.)

The MCB curriculum is designed to teach students at the beginning of their graduate studies the necessary mathematical, computational, and biological knowledge for successful research at the interface between these disciplines. The needs of students with a variety of backgrounds can be met provided that they have had mathematical training comparable to a standard one-year university-level calculus course and a lower-division university course in elementary differential equations and linear algebra. Exceptional students not meeting these prerequisites may be admitted to the program on the condition that they fulfill these requirements during the first fall quarter of their graduate study or the summer preceding, and pass with a grade of B or better.

All first-year students normally take six four-unit MCB core courses, three quarters in mathematical and computational methods for biology and three in biological sciences. Research laboratory rotations constitute an important component of the first-year training program, providing students with intensive introductions to experimental design and quantitative data analysis as well as familiarizing them with available research opportunities. Students are expected to conduct three rotations in different labs prior to choosing a thesis advisor. Because of the interdisciplinary nature of the MCB program and the diversity of the enrolled students, MCB students are expected to become familiar with both "wet" experimental biology labs as well as with mathematical/computational laboratories.

At the end of the first year, each student will choose a primary thesis advisor from among the participating faculty of the member departments, and will enroll in a departmental Ph.D. program with which the thesis advisor is affiliated. To ensure interdisciplinarity of the thesis project, students who complete the MCB program choose a secondary thesis advisor from a department complementary to the primary thesis advisor's department. Although completion of the Ph.D. will be subject to the degree requirements of the departmental Ph.D. program in which the student enrolls, participating departments have agreed to accept both the course work and research conducted during the MCB gateway year in partial fulfillment of such requirements. The degree to which this is applicable varies. Students must consult with the department of choice for more specific information.

Interdepartmental Neuroscience Program

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gp-inp@uci.edu; http://www.inp.uci.edu
Marcelo A. Wood, **Director**

The Interdepartmental Neuroscience Program (INP) is a first-year graduate program that brings together more than 90 faculty from the Francisco J. Ayala School of Biological Sciences and the School of Medicine, including participation from the Departments of Anatomy and Neurobiology, Developmental and Cell Biology, Molecular Biology and Biochemistry, Neurobiology and Behavior, Pharmacology, and Physiology and Biophysics. INP faculty have broad research interests in behavioral neuroscience, brain aging, developmental neurobiology, genetics, learning and memory, molecular neurobiology, cellular neurobiology, neural injury/disorders/repair, neuropharmacology, plasticity, and sensory neuroscience. Neuroscience as a discipline requires scientists to have a detailed understanding of at least one field, and a broad understanding of many other fields. INP provides breadth early on, followed by specialization in years two through five of predoctoral training.

INP organizes and coordinates a core curriculum that provides a foundation in Neuroscience; this forms the basis of future specialized instruction in a participating departmental degree-granting program. This curriculum includes course work and laboratory rotations. Each trainee is individually mentored/assisted in tailoring an appropriate course of study based on academic background, interests, and research foci. After successfully completing

the academic requirements of the program, students identify a thesis advisor who is willing to accept them into their laboratory, and the student will transfer to the doctoral program in their advisor's home department. In this way, INP serves not as a degree-granting program, but as a "gateway" to further graduate training. Students are required to meet all doctoral degree requirements associated with the thesis advisor's department or program.

In particular, the program provides trainees with an opportunity: (1) to begin training in Neuroscience with a broad academic introduction, (2) to receive individualized attention to curricular needs, (3) to conduct initial research projects with a large and diverse group of faculty in a wide variety of departments, and (4) to conduct dissertation research in any of a large and diverse group of laboratories in a wide variety of departments.

In the first year of study, students must successfully complete one course from each of the molecular, systems, and cellular neuroscience categories. All trainees also participate every quarter in a two-unit course called Foundations of Neuroscience. This mandatory course meets in the fall and winter quarters and is intended to expose students to critical reading and analysis of the primary literature. Students are encouraged to carry out three laboratory rotations of 10 weeks each. With permission from the Director and the Dean, students may carry out fewer rotations. Rotations are graded on a Satisfactory/Unsatisfactory only scale. Trainees are judged as having successfully completed the program provided that they have: (1) achieved at least a B+ (3.3) average in the core courses, (2) achieved a satisfactory grade in each quarter of Foundations of Neuroscience, (3) achieved satisfactory grades in all rotations, and (4) identified a participating faculty member who has agreed to serve as their thesis advisor.

The ideal INP candidate will have had a substantial subset of the following courses: biology, chemistry, physics, calculus, neuroscience, psychology, biochemistry, and genetics. Preference will be given to applicants who have had laboratory research experience.

Following completion of the INP and selection of a thesis mentor, students will become members of the faculty member's participating department. In addition to the INP course work requirements, each department has specific requirements to be fulfilled, indicated below. Students who select a thesis advisor in the Francisco J. Ayala School of Biological Sciences (Department of Developmental and Cell Biology, Molecular Biology and Biochemistry, or Neurobiology and Behavior) will complete the doctoral degree in Biological Sciences. Students who select an advisor in the School of Medicine (Department of Anatomy and Neurobiology, Pharmacology, or Physiology and Biophysics) will complete the doctoral degree in Biomedical Sciences.

Developmental and Cell Biology (Francisco J. Ayala School of Biological Sciences): Students entering the Developmental and Cell Biology program are required to enroll in and attend the weekly department seminar series (DEV BIO 290A-DEV BIO 290B-DEV BIO 290C) and Advanced Topics in Cell Biology journal club (DEV BIO 206). Two quarters of teaching under the supervision of departmental faculty are required. Student training will also be individually assessed for possible courses with an emphasis in molecular, developmental biology, or genetics as deemed necessary for successful completion of the thesis research project.

Molecular Biology and Biochemistry (Francisco J. Ayala School of Biological Sciences): Students entering the Molecular Biology and Biochemistry program are required to enroll in and attend the weekly department seminar series (MOL BIO 201A-MOL BIO 201B-MOL BIO 201C) and the Research in Progress Seminar (MOL BIO 229) where they will present their own work annually. Students will enroll in University Teaching (399) and teach (TA) beginning in their second year for at least two quarters. Student training will also be individually assessed to include at least one formal graduate course in each of the second through fifth years with an emphasis in molecular biology or biochemistry as deemed necessary for successful completion of the thesis research project. Necessary courses will include at least two out of the three core classes (MOL BIO 203-MOL BIO 204, and MOL BIO 206).

Neurobiology and Behavior (Francisco J. Ayala School of Biological Sciences): Neurobiology and Behavior accepts any of the INP core courses toward the requirement of one each from Cellular, Molecular, Systems, and Behavioral categories. INP students who enter Neurobiology and Behavior in their second year must complete the fourth category if they only fulfilled three as INP students. In addition, they will fulfill the requirements met by all continuing students including teaching (TA) beginning in their second year for at least two quarters, advancing to candidacy in their third year, annual meetings with an advisory committee, and completing four advanced courses prior to defending their dissertation in their fifth year. They must also participate in the regular department colloquia. Students also present their research annually in the graduate student NeuroBlitz colloquium series.

Anatomy and Neurobiology (School of Medicine): Students entering the Anatomy and Neurobiology program are required to participate in the Current Topics in Neuroscience journal club (ANATOMY 227A-ANATOMY 227B-ANATOMY 227C) and attend all department sponsored seminars. They are also required to meet once each year with an advisory committee to monitor their progress and present their research at the annual "Grad Day" meeting. Individual advisors may require students to take other courses depending on their interests and research program.

Pharmacology (School of Medicine): Students entering the Pharmacology program through the INP are required to complete Statistics (PHARM 256) and Ethics (PHARM 257) during the summer. They will also fulfill requirements met by all continuing students including the seminar series (PHARM 298), research (PHARM 299), and advance to candidacy in their third year.

Physiology and Biophysics (School of Medicine): Students entering the Physiology program through the INP are required to enroll each quarter in Topics in Physiology (PHYSIO 290) and to attend all meetings of the Physiology and Biophysics journal club, all Physiology and Biophysics Departmental seminars and lunch meetings with the Seminar speaker, and the Research in Progress seminars. All students are required to present their research once a year at the Research in Progress program. Students are encouraged, but not required, to enroll in Physiology of Ion Channels (PHYSIO 232) and Proteomics (PHYSIO 252). All students are required to hold meetings with their thesis committee annually, beginning in their second year. The Department has no formal teaching requirements, but students who wish to gain experience as Teaching Assistants (TA) can make arrangements to do so in coordination with the Graduate Advisor.

Faculty

Dritan Agalliu, Ph.D. Columbia University, *Assistant Professor of Developmental and Cell Biology* (molecular, cellular, and genetic analysis of mammalian blood-brain barrier development, the role of the barrier in disease pathogenesis)

Nancy M. Aguilar-Roca, Ph.D. University of California, San Diego, *Lecturer with Potential Security of Employment of Ecology and Evolutionary Biology*

Steven D. Allison, Ph.D. Stanford University, *Associate Professor of Ecology and Evolutionary Biology; Earth System Science*

Joseph Arditti, Ph.D. University of Southern California, *Professor Emeritus of Developmental and Cell Biology* (developmental physiology of orchids)

Kavita Arora, Ph.D. University of Bombay, *Professor of Developmental and Cell Biology* (Drosophila development; TGF-ß signal transduction; cell signaling)

Dana W. Aswad, Ph.D. University of California, Berkeley, *Professor of Molecular Biology and Biochemistry*

Peter R. Atsatt, Ph.D. University of California, Los Angeles, *Professor Emeritus of Ecology and Evolutionary Biology*

John C. Avise, Ph.D. University of California, Davis, *UCI Distinguished Professor of Ecology and Evolutionary Biology*

Francisco J. Ayala, Ph.D. Columbia University, *Donald Bren Professor* and *University Professor of Ecology and Evolutionary Biology; Logic and Philosophy of Science*

Manny Azizi, Ph.D. University of Massachusetts, *Assistant Professor of Ecology and Evolutionary Biology*

Pierre F. Baldi, Ph.D. California Institute of Technology, *UCI Chancellor's Professor of Computer Science; Biological Chemistry; Biomedical Engineering; Developmental and Cell Biology* (bioinformatics, computational biology)

Alan G. Barbour, M.D. Tufts University, *Professor of Microbiology and Molecular Genetics; Ecology and Evolutionary Biology; Medicine*

Lee Bardwell, Ph.D. Stanford University, *Professor of Developmental and Cell Biology* (intracellular signaling in development and disease)

Lbachir Benmohamed, Ph.D. Pasteur Institute, *Associate Professor in Residence of Ophthalmology; Molecular Biology and Biochemistry*

Albert F. Bennett, Ph.D. University of Michigan, *Professor Emeritus of Ecology and Evolutionary Biology*

Rudi C. Berkelhamer, Ph.D. University of California, Berkeley, *Senior Lecturer of Ecology and Evolutionary Biology*

Hans-Ulrich Bernard, Ph.D. University of Goettingen, *Professor of Molecular Biology and Biochemistry; Program in Public Health*

Michael W. Berns, Ph.D. Cornell University, *Arnold and Mabel Beckman Chair in Laser Biomedicine* and *Professor of Surgery; Biomedical Engineering; Developmental and Cell Biology* (photomedicine, laser microscopy, biomedical devices)

Bruce Blumberg, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering; Environmental Health Sciences; Pharmaceutical Sciences* (gene regulation by nuclear hormone receptors in vertebrate development physiology, endocrine disruption)

Mathew M. Blurton-Jones, Ph.D. University of California, San Diego, *Assistant Professor of Neurobiology and Behavior*

Hans R. Bode, Ph.D. Yale University, *Professor Emeritus of Developmental and Cell Biology* (molecular basis of pattern formation in Hydra)

Alexander D. Boiko, Ph.D. University of Illinois at Urbana–Champaign, *Assistant Professor of Molecular Biology and Biochemistry*

Peter A. Bowler, Ph.D. University of California, Irvine, *Senior Lecturer of Ecology and Evolutionary Biology*

Matthew E. Bracken, Ph.D. Oregon State University, *Associate Professor of Ecology and Evolutionary Biology*

Timothy J. Bradley, Ph.D. University of British Columbia, *Professor of Ecology and Evolutionary Biology*

Timothy Bredy, Ph.D McGill University, *Assistant Professor of Neurobiology and Behavior*

Adriana D. Briscoe, Ph.D. Harvard University, *Professor of Ecology and Evolutionary Biology*

Peter J. Bryant, Ph.D. University of Sussex, *Research Professor and Professor Emeritus of Developmental and Cell Biology* (tumor-suppressor genes of Drosophila and humans)

Susan V. Bryant, Ph.D. University of London, *Professor Emerita of Developmental and Cell Biology* (molecular basis of limb development and regeneration)

Michael J. Buchmeier, Ph.D. McMaster University, *Professor of Medicine; Microbiology and Molecular Genetics; Molecular Biology and Biochemistry*

Nancy T. Burley, Ph.D. University of Texas at Austin, *Professor of Ecology and Evolutionary Biology*

Jorge A. Busciglio, Ph.D. Universidad Nacional de Córdoba, *Professor of Neurobiology and Behavior*

Robin M. Bush, Ph.D. University of Michigan, *Associate Professor of Ecology and Evolutionary Biology*

Lawrence F. Cahill, Ph.D. University of California, Irvine, *Professor of Neurobiology and Behavior; Cognitive Sciences*

Anne L. Calof, Ph.D. University of California, San Francisco, *Professor of Anatomy and Neurobiology; Developmental and Cell Biology* (neurogenesis and neuronal differentiation)

Diane R. Campbell, Ph.D. Duke University, *Professor of Ecology and Evolutionary Biology*

Richard D. Campbell, Ph.D. The Rockefeller University, *Professor Emeritus of Developmental and Cell Biology* (Morphogenesis; biology of Hydra; fractal geometry of biological forms)

F. Lynn Carpenter, Ph.D. University of California, Berkeley, *Professor Emerita of Ecology and Evolutionary Biology*

Ken W. Cho, Ph.D. University of Pennsylvania, *Professor of Developmental and Cell Biology* (TGF-ß signaling, gene regulatory networks in development)

Olivier Cinquin, Ph.D. University College London, *Assistant Professor of Developmental and Cell Biology* (mathematical modeling of networks, systems biology)

Olivier Civelli, Ph.D. Swiss Federal Institute of Technology in Zurich, *Department Chair and Eric L. and Lila D. Nelson Chair in Neuropharmacology* and *Professor of Pharmacology; Developmental and Cell Biology; Pharmaceutical Sciences* (novel neuroactive molecules)

Michael T. Clegg, Ph.D. University of California, Davis, *Donald Bren Professor* and *Professor of Ecology and Evolutionary Biology*

Melanie Cocco, Ph.D. Pennsylvania State University, *Associate Professor of Molecular Biology and Biochemistry; Pharmaceutical Sciences*

Susana Cohen-Cory, Ph.D. The Rockefeller University, *Professor of Neurobiology and Behavior*

Carl W. Cotman, Ph.D. Indiana University, *Professor of Neurology; Biomedical Engineering; Neurobiology and Behavior* (amyloid, C1q, Alzheimer's disease, apoptosis, successful aging, dementia)

Karina S. Cramer, Ph.D. California Institute of Technology, *Associate Professor of Neurobiology and Behavior*

Michael G. Cumsky, Ph.D. University of California, Berkeley, *Senior Lecturer of Molecular Biology and Biochemistry*

Rowland H. Davis, Ph.D. Harvard University, *Professor Emeritus of Molecular Biology and Biochemistry*

Peter J. Donovan, Ph.D. University College London, *Professor of Biological Chemistry; Developmental and Cell Biology* (stem cell biology)

Aimee Lara Edinger, Ph.D. University of Pennsylvania, *Associate Professor of Developmental and Cell Biology* (cancer biology and metabolism, growth control, protein trafficking)

James J. Emerson, Ph.D. University of Chicago, *Assistant Professor of Ecology and Evolutionary Biology*

German A. Enciso Ruiz, Ph.D. Rutgers, the State University of New Jersey, *Associate Professor of Mathematics; Developmental and Cell Biology* (applied and computational mathematics, mathematical and computational biology)

Hung Y. Fan, Ph.D. Massachusetts Institute of Technology, *Professor of Molecular Biology and Biochemistry*

Norbert Fortin, Ph.D. Boston University, *Assistant Professor of Neurobiology and Behavior*

Donald E. Fosket, Ph.D. University of Idaho, *Professor Emeritus of Developmental and Cell Biology* (regulation of cytoskeleton formation and function)

Christie Fowler, Ph.D. Florida State University, *Assistant Professor of Neurobiology and Behavior*

Steven A. Frank, Ph.D. University of Michigan, *Professor of Ecology and Evolutionary Biology; Logic and Philosophy of Science*

Ron D. Frostig, Ph.D. University of California, Los Angeles, *Professor of Neurobiology and Behavior; Biomedical Engineering* (optical methods for brain imaging, functional organization of the cortex)

David A. Fruman, Ph.D. Harvard University, *Professor of Molecular Biology and Biochemistry*

Christine M. Gall, Ph.D. University of California, Irvine, *Professor of Anatomy and Neurobiology; Neurobiology and Behavior*

Sunil P. Gandhi, Ph.D. University of California, San Diego, *Assistant Professor of Neurobiology and Behavior*

David M. Gardiner, Ph.D. University of California, San Diego, *Professor of Developmental and Cell Biology* (limb development and regeneration)

Brandon S. Gaut, Ph.D. University of California, Riverside, *Professor of Ecology and Evolutionary Biology*

Donovan German, Ph.D. University of Florida, *Assistant Professor of Ecology and Evolutionary Biology*

Paul David Gershon, Ph.D. University of Liverpool, *Professor of Molecular Biology and Biochemistry*

Charles Glabe, Ph.D. University of California, Davis, *Professor of Molecular Biology and Biochemistry*

Michael L. Goulden, Ph.D. Stanford University, *Department Vice Chair and Professor of Earth System Science; Ecology and Evolutionary Biology*

Celia Goulding, Ph.D. King's College London, *Associate Professor of Molecular Biology and Biochemistry; Pharmaceutical Sciences*

Gale A. Granger, Ph.D. University of Washington, *Professor Emerita of Molecular Biology and Biochemistry*

Enrico Gratton, Ph.D. University of Rome, *Professor of Biomedical Engineering; Developmental and Cell Biology; Physics and Astronomy* (design of new fluorescence instruments, protein dynamics, single molecule, fluorescence microscopy, photon migration in tissues)

Kim Green, Ph.D. University of Leeds, *Assistant Professor of Neurobiology and Behavior*

Steven P. Gross, Ph.D. University of Texas at Austin, *Professor of Developmental and Cell Biology; Biomedical Engineering; Physics and Astronomy* (force generation by molecular motors in living cells)

John F. Guzowski, Ph.D. University of California, Irvine, *James L. McGaugh Chair in the Neurobiology of Learning and Memory* and *Associate Professor of Neurobiology and Behavior*

Barbara A. Hamkalo, Ph.D. University of Massachusetts, *Professor Emerita of Molecular Biology and Biochemistry*

Bradford A. Hawkins, Ph.D. University of California, Riverside, *Professor of Ecology and Evolutionary Biology*

Patrick L. Healey, Ph.D. University of California, Berkeley, *Professor Emeritus of Developmental and Cell Biology* (plant cellular differentiation and morphogenesis, ultrastructure and histochemistry of secretory systems, early reproductive development)

L. R. Herman, B.S. University of California, Irvine, *Academic Coordinator of Biological Sciences*

James W. Hicks, Ph.D. University of New Mexico, *Professor of Ecology and Evolutionary Biology*

Franz J. Hoffmann, Ph.D. University of Hohenheim, *Senior Lecturer with Security of Employment Emeritus of Developmental and Cell Biology* (regeneration of cultured plant cells, somatic cell genetics)

Yilin Hu, Ph.D. Loma Linda University, *Assistant Professor of Molecular Biology and Biochemistry*

Bradley S. Hughes, Ph.D. University of California, Irvine, *Lecturer with Security of Employment of Ecology and Evolutionary Biology; Education*

Christopher C. Hughes, Ph.D. University of London, *Director of Edwards Lifesciences Cardiovascular Technology Center and Professor of Molecular Biology and Biochemistry; Biomedical Engineering* (tissue engineering, growth and patterning of blood vessels)

George L. Hunt, Jr., Ph.D. Harvard University, *Professor Emeritus of Ecology and Evolutionary Biology*

Travis E. Huxman, Ph.D. University of Nevada, *Professor of Ecology and Evolutionary Biology*

Matthew Inlay, Ph.D. University of California, San Diego, *Assistant Professor of Molecular Biology and Biochemistry*

Mahtab F. Jafari, Ph.D. University of California, San Francisco, *Vice Chair of the Undergraduate Program in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Ecology and Evolutionary Biology; Pharmacology*

Anthony A. James, Ph.D. University of California, Irvine, *UCI Distinguished Professor of Microbiology and Molecular Genetics; Molecular Biology and Biochemistry*

Keith E. Justice, Ph.D. University of Arizona, *Professor Emeritus of Ecology and Evolutionary Biology*

Pavan Kadandale, Ph.D. Rutgers, The State University of New Jersey, *Lecturer with Potential Security of Employment of Molecular Biology and Biochemistry*

Claudia H. Kawas, M.D. University of Louisville, *Nichols Term Chair in Neuroscience* and *Professor of Neurology; Epidemiology; Neurobiology and Behavior*

Daniel J. Knauer, Ph.D. University of Nebraska, *Professor Emeritus of Developmental and Cell Biology* (human antithrombins and related serine protease inhibitors)

Natalia Komarova, Ph.D. University of Arizona, *Professor of Mathematics; Ecology and Evolutionary Biology* (applied and computational mathematics, mathematical and computational biology, mathematics of complex and social phenomena)

Harold Koopowitz, Ph.D. University of California, Los Angeles, *Professor Emeritus of Ecology and Evolutionary Biology*

Stuart M. Krassner, SCE Johns Hopkins University, *Professor Emeritus of Developmental and Cell Biology* (developmental transitions of hemoflagellates)

Young Jik Kwon, Ph.D. University of Southern California, *Associate Professor of Pharmaceutical Sciences; Biomedical Engineering; Chemical Engineering and Materials Science; Molecular Biology and Biochemistry* (gene therapy, drug delivery, cancer-targeted therapeutics, combined molecular imaging and therapy, cancer vaccine)

Frank M. Laferla, Ph.D. University of Minnesota, *Dean of the Francisco J. Ayala School of Biological Sciences* and *Professor of Neurobiology and Behavior; Neurology*

Arthur D. Lander, Ph.D. University of California, San Francisco, *Donald Bren Professor* and *Professor of Developmental and Cell Biology; Biomedical Engineering; Logic and Philosophy of Science; Pharmacology* (systems biology of development, pattern formation, growth control)

Thomas E. Lane, Ph.D. University of California, Los Angeles, *Professor of Molecular Biology and Biochemistry*

Michael Leon, Ph.D. University of Chicago, *Professor of Neurobiology and Behavior*

Shin Lin, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering* (combined use of biochemistry, cell biology, molecular biology, molecular biophysics to study the structure and function of proteins involved in cytoskeletal/contractile functions and signal transduction in muscle and nonmuscle cells)

Melissa Lodoen, Ph.D. University of California, San Francisco, *Assistant Professor of Molecular Biology and Biochemistry*

Anthony D. Long, Ph.D. McMaster University, *Professor of Ecology and Evolutionary Biology; Pharmaceutical Sciences*

Catherine Loudon, Ph.D. Duke University, *Senior Lecturer of Ecology and Evolutionary Biology*

Ulrike Luderer, M.D., Ph.D. Northwestern University, *Professor of Medicine; Developmental and Cell Biology; Environmental Health Sciences; Program in Public Health* (reproductive toxicology, developmental toxicology, developmental basis of ovarian toxicity, ovarian cancer)

Hartmut Luecke, Ph.D. William Marsh Rice University, *Professor of Molecular Biology and Biochemistry; Molecular Biology and Biochemistry; Physiology and Biophysics*

Ray Luo, Ph.D. University of Maryland, College Park, *Professor of Molecular Biology and Biochemistry; Biomedical Engineering* (protein structure, noncovalent associations involving proteins)

Andrej Luptak, Ph.D. Yale University, *Vice Chair of Graduate Programs in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Chemistry; Molecular Biology and Biochemistry* (chemical biology)

Grant R. MacGregor, Ph.D. University of Sussex, *Associate Professor of Developmental and Cell Biology* (mouse reproduction, development, homeostasis)

Richard E. MacMillen, Ph.D. University of California, Los Angeles, *Professor Emeritus of Ecology and Evolutionary Biology*

Jerry E. Manning, Ph.D. University of Utah, *Professor Emeritus of Molecular Biology and Biochemistry*

J. Lawrence Marsh, Ph.D. University of Washington, *Professor of Developmental and Cell Biology* (mechanisms of neurodegeneration and molecular genetics of development)

John F. Marshall, Ph.D. University of Pennsylvania, *Professor Emeritus of Neurobiology and Behavior*

Rachel Martin, Ph.D. Yale University, *Associate Professor of Chemistry; Molecular Biology and Biochemistry* (analytical, chemical biology, physical chemistry and chemical physics)

Adam Martiny, Ph.D. Technical University of Denmark, *Associate Professor of Earth System Science; Ecology and Evolutionary Biology*

Jennifer Martiny, Ph.D. Stanford University, *Professor of Ecology and Evolutionary Biology*

Debra K. Mauzy-Melitz, Ph.D. Marquette University, *Lecturer with Potential Security of Employment of Developmental and Cell Biology* (role of writing in scientific teaching)

James L. McGaugh, Ph.D. University of California, Berkeley, *Research Professor and Professor Emeritus of Neurobiology and Behavior; Logic and Philosophy of Science*

Matthew J. McHenry, Ph.D. University of California, Berkeley, *Associate Professor of Ecology and Evolutionary Biology*

Bruce L. McNaughton, Ph.D. Carleton University, *UCI Distinguished Professor of Neurobiology and Behavior*

Alexander McPherson, Ph.D. Purdue University, *Professor of Molecular Biology and Biochemistry*

Raju Metherate, Ph.D. McGill University, *Professor of Neurobiology and Behavior*

Ronald L. Meyer, Ph.D. California Institute of Technology, *Professor of Developmental and Cell Biology* (development of nerve connections, nerve injury, and regeneration)

John Middlebrooks, Ph.D. University of California, San Francisco, *Professor of Otolaryngology; Biomedical Engineering; Cognitive Sciences; Neurobiology and Behavior* (hearing research, neurophysiology, auditory prosthesis, computational neuroscience, auditory cortex)

Ricardo Miledi, M.D. Universidad Nacional Autonoma De Mexico, *Professor Emeritus of Neurobiology and Behavior*

Kivie Moldave, Ph.D. University of California, Berkeley, *Professor Emeritus of Molecular Biology and Biochemistry*

Edwin S. Monuki, M.D. University of California, San Diego, *Associate Professor of Pathology and Laboratory Medicine; Developmental and Cell Biology* (cerebral cortex, choroid plexus development, translation)

Kailen Mooney, Ph.D. University of Colorado Boulder, *Associate Professor of Ecology and Evolutionary Biology*

Naomi Morrissette, Ph.D. University of Pennsylvania, *Associate Professor of Molecular Biology and Biochemistry*

Seyed Ali Mortazavi, Ph.D. California Institute of Technology, *Assistant Professor of Developmental and Cell Biology* (functional genomics to study transcriptional regulation in development)

Laurence D. Mueller, Ph.D. University of California, Davis, *Professor of Ecology and Evolutionary Biology*

R. Michael Mulligan, Ph.D. Michigan State University, *Professor of Developmental and Cell Biology; Ecology and Evolutionary Biology* (RNA editing in plant mitochondria and chloroplasts)

Edward L. Nelson, M.D. University of Oregon, *Associate Professor of Medicine; Molecular Biology and Biochemistry*

Andrea C. Nicholas, Ph.D. University of Chicago, *Lecturer with Potential Security of Employment of Neurobiology and Behavior*

Diane K. O'Dowd, Ph.D. University of California, San Diego, *Professor of Developmental and Cell Biology; Anatomy and Neurobiology* (regulation of activity in developing and adult nervous systems)

Ian Parker, Ph.D. University College London, *Professor of Neurobiology and Behavior; Physiology and Biophysics*

Irene Pedersen, Ph.D. University of California, San Diego, *Assistant Professor of Molecular Biology and Biochemistry*

Maksim Plikus, Ph.D. University of Southern California, *Assistant Professor of Developmental and Cell Biology* (mechanisms of regeneration, stem cell control)

Thomas L. Poulos, Ph.D. University of California, San Diego, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences; Physiology and Biophysics* (chemical biology)

Jessica Pratt, Ph.D. University of California, Irvine, *Lecturer with Potential Security of Employment of Ecology and Evolutionary Biology*

Jennifer A. Prescher, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Molecular Biology and Biochemistry; Pharmaceutical Sciences* (chemical biology, organic and synthetic)

Susanne M. Rafelski, Ph.D. Stanford University, *Assistant Professor of Developmental and Cell Biology; Biomedical Engineering* (control of mitochondrial network size, topology and function in budding yeast cells)

James T. Randerson, Ph.D. Stanford University, *UCI Chancellor's Professor of Earth System Science; Ecology and Evolutionary Biology*

Jose Mari Ranz Navalpotro, Ph.D. Universidad Autónoma de Madrid, *Associate Professor of Ecology and Evolutionary Biology*

Sergio Rasmann, Ph.D. U of Neuchatel, *Assistant Professor of Ecology and Evolutionary Biology*

Olga Razorenova, Ph.D. Institute of Molecular Genetics, *Assistant Professor of Molecular Biology and Biochemistry*

Markus W. Ribbe, Ph.D. University of Bayreuth, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry* (chemical biology, inorganic and organometallic)

Michael R. Rose, Ph.D. University of Sussex, *Professor of Ecology and Evolutionary Biology*

Ann K. Sakai, Ph.D. University of Michigan, *Professor of Ecology and Evolutionary Biology*

Brian Sato, Ph.D. University of California, San Diego, *Lecturer with Potential Security of Employment of Molecular Biology and Biochemistry*

Thomas F. Schilling, Ph.D. University of Oregon, *Professor of Developmental and Cell Biology* (zebrafish development, vertebrate genetics, craniofacial development)

Donald F. Senear, Ph.D. University of Washington, *Professor of Molecular Biology and Biochemistry*

Justin F. Shaffer, Ph.D. University of Washington, *Lecturer with Potential Security of Employment of Developmental and Cell Biology* (improving teaching and learning in college science classes)

Steven L. Small, M.D. University of Rochester, *Dr. Stanley van den Noort Endowed Chair* and *Professor of Neurology; Cognitive Sciences; Neurobiology and Behavior*

Ivan Soltesz, Ph.D. Eötvös Loránd University, *UCI Chancellor's Professor of Anatomy and Neurobiology; Neurobiology and Behavior; Physiology and Biophysics*

Cascade J. Sorte, Ph.D. University of California, Davis, *Assistant Professor of Ecology and Evolutionary Biology*

George Sperling, Ph.D. Harvard University, *UCI Distinguished Professor of Cognitive Sciences; Neurobiology and Behavior*

Craig Stark, Ph.D. Carnegie Mellon University, *Professor of Neurobiology and Behavior*

Oswald Steward, Ph.D. University of California, Irvine, *Reeve-Irvine Chair in Spinal Cord Injury Research* and *Professor of Anatomy and Neurobiology; Neurobiology and Behavior*

Georg F. Striedter, Ph.D. University of California, San Diego, *Professor of Neurobiology and Behavior*

Christine Suetterlin, Ph.D. University of Basel, *Associate Professor of Developmental and Cell Biology* (centrosome and cilia regulation, Golgi, host-pathogen interaction)

Katumi Sumikawa, Ph.D. Imperial College London, *Professor of Neurobiology and Behavior*

Sha Sun, Ph.D. University of Chicago, *Assistant Professor of Developmental and Cell Biology* (long noncoding RNAs in epigenetic programming)

Richard Symanski, Ph.D. Syracuse University, *Senior Lecturer of Ecology and Evolutionary Biology*

Andrea Tenner, Ph.D. University of California, San Diego, *Professor of Molecular Biology and Biochemistry; Neurobiology and Behavior*

Krishna K. Tewari, Ph.D. University of Lucknow, *Professor Emeritus of Molecular Biology and Biochemistry*

Leslie M. Thompson, Ph.D. University of California, Irvine, *Professor of Psychiatry and Human Behavior; Biological Chemistry; Neurobiology and Behavior*

Kevin Thornton, Ph.D. University of Chicago, *Associate Professor of Ecology and Evolutionary Biology*

Kathleen K. Treseder, Ph.D. Stanford University, *UCI Chancellor's Fellow* and *Professor of Ecology and Evolutionary Biology*

Shiou-Chuan (Sheryl) Tsai, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences*

Luis P. Villarreal, Ph.D. University of California, San Diego, *Professor of Molecular Biology and Biochemistry*

Craig Walsh, Ph.D. University of California, Los Angeles, *Associate Professor of Molecular Biology and Biochemistry*

Rahul Warrior, Ph.D. Yale University, *Associate Professor of Developmental and Cell Biology* (developmental genetics of transcription and proteoglycan synthesis)

Norman M. Weinberger, Ph.D. Case Western Reserve University, *Professor Emeritus of Neurobiology and Behavior; Logic and Philosophy of Science*

Arthur Weis, Ph.D. University of Illinois at Urbana-Champaign, *Professor Emeritus of Ecology and Evolutionary Biology*

Gregory A. Weiss, Ph.D. Harvard University, *Professor of Chemistry; Molecular Biology and Biochemistry* (analytical, chemical biology, organic and synthetic, polymer, materials, nanoscience)

Stephen G. Weller, Ph.D. University of California, Berkeley, *Professor of Ecology and Evolutionary Biology*

Dominik Franz X. Wodarz, Ph.D. Oxford University, *Professor of Ecology and Evolutionary Biology; Mathematics* (mathematical biology, infectious disease and cancer)

Marcelo A. Wood, Ph.D. Princeton University, *UCI Chancellor's Fellow and Department Chair* and *Associate Professor of Neurobiology and Behavior*

Clifford A. Woolfolk, Ph.D. University of Washington, *Professor Emeritus of Molecular Biology and Biochemistry*

Xaiohui Xie, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Computer Science; Developmental and Cell Biology* (computational biology, bioinformatics, genomics, neural computation, machine learning)

Guiyun Yan, Ph.D. University of Vermont, *Professor of Program in Public Health; Ecology and Evolutionary Biology; Program in Public Health*

Michael Yassa, Ph.D. University of California, Irvine, *Assistant Professor of Neurobiology and Behavior*

Bio Sci & Educational Media Design Courses

BSEMD 200. Individual Research. 2-12 Units.
Individual research with Biological Sciences and Educational Media Design faculty.

Repeatability: May be repeated for credit unlimited times.

BSEMD 211. Advanced Pedagogical Design and Educational Science Media Production. 4 Units.
Explores array of pedagogical methodologies for designing effective science curriculum. Concurrently overviews educational science digital media production tools with training for such skills as scripting, scientific videography and editing, photography, illustration, games, and Web multimedia integration.

Prerequisite: Biological Sciences and Educational Media Design majors only.

BSEMD 212. Directed Research Specialization and Project Development. 4 Units.
Supports establishing field experiences, selecting biology course work, and investigating research interests for conceptualizing the capstone project proposal. Supports applying concepts and skills from the BSEMD 211 course to projects in early development.

Restriction: Biological Sciences and Educational Media Design majors only.

BSEMD 213. Directed Educational Media Project Production. 4 Units.
Supports production of the capstone project's individually designed modules, effective functional scientific educational media components, showcasing advanced pedagogical design with innovative educational media content, refining approaches detailed in the BSEMD 211 course.

Prerequisite: BSEMD 211 and BSEMD 212.

Restriction: Biological Sciences and Educational Media Design majors only.

BSEMD 214. Project Presentations and Science Education Leadership. 4 Units.
This program capstone course facilitates refining presentation aspects of the final capstone educational media project, writing of the supporting documentation package, and multimedia presentation of projects. Also includes seminar research talks on contemporary issues affecting science education.

Prerequisite: BSEMD 211 and BSEMD 212 and BSEMD 213 and BSEMD 220.

Restriction: Biological Sciences and Educational Media Design majors only.

BSEMD 220. Experimental Evolution in Biology and Education. 4 Units.
Overview of the field of experimental evolution. Focuses on microbial laboratory techniques for testing evolution theory with examples from the impact of global climate change. Methods for addressing controversy in teaching evolution in secondary classrooms are discussed.

Restriction: Biological Sciences and Educational Media Design majors only.

BSEMD 299. Independent Study. 1-4 Units.
Independent study with Biological Sciences and Educational Media Design faculty.

Repeatability: May be repeated for credit unlimited times.

Biological Sciences Courses

BIO SCI 1A. Life Sciences. 4 Units.
Designed to introduce nonmajors to the basic concepts of modern biology. Discussion of evolutionary biology, ecology, molecular biology, and genetics.

Restriction: Non-School of Biological Sciences majors only.

(II)

BIO SCI 2A. Freshman Seminar. 2 Units.
Weekly meetings consisting of presentations by faculty, professional staff, and Peer Academic Advisors provide information about the School of Biological Sciences, campus resources, learning skills, and special programs/opportunities.

Grading Option: Pass/no pass only.

Restriction: Freshmen only. Biological Sciences majors only.

BIO SCI 2B. Freshman Seminar . 1 Unit.
Faculty presentations and readings focused on the structure, function, opportunities, and current issues in the biological sciences.

Grading Option: Pass/no pass only.

Restriction: Biological Sciences majors only. Freshman only.

BIO SCI 3A. Career Decision Making. 1 Workload Unit.
An introductory course designed to facilitate the career decision-making process. Decision-making processes, values, and standardized tests of aptitudes, interests, and values are utilized with non-test data in appraising biological sciences career options.

Grading Option: Pass/no pass only.

Restriction: Biological Sciences majors only.

BIO SCI 3B. Non-Health Sciences Career Exploration. 1 Workload Unit.
A survey course designed to assist students in exploring non-health science career options. Lectures by professionals in various fields.

Grading Option: Pass/no pass only.

BIO SCI 5. Introduction to Molecular Biology. 4 Units.
Molecules of life, with emphasis on medical applications.

Restriction: Non-Biological Sciences majors only. BIO SCI 5 may not be taken for credit if taken after BIO SCI 99.

(II)

BIO SCI 6. Tropical Biology: Race to Save the Tropics. 4 Units.
Population growth combines with tropical resource consumption by industrialized nations to cause high rates of deforestation, pollution, habitat fragmentation, and extinction of species. Discusses tropical biomes, their population, community, and ecosystem processes, and possible means of conservation of biodiversity.

(II)

BIO SCI 9A. Nutrition Science. 4 Units.
An introduction to nutrition science, integrating concepts from biology, biochemistry, microbiology, physiology, and psychology to explain the interaction between nutrients and the human body. Biological basis of nutrient standards is analyzed. Effects of nutrition, behavior, exercises on health/disease.

(II)

BIO SCI 9B. Biology and Chemistry of Food and Cooking . 4 Units.
The kitchen is used as a laboratory to introduce fundamental principles of biology, chemistry, and physics. A molecular/cellular analysis of cooking, including concepts such as protein structure, browning reactions, colloids, emulsions, carbohydrate metabolism, and development of flavor/texture through biochemical transformations.

(II)

BIO SCI 9D. Diseases of the Twenty-First Century . 4 Units.
Why do we get sick? An introduction to the biological basis of human disease, including diseases of the cardiovascular, respiratory, nervous, and reproductive systems. Case studies present diagnosis, treatment, and prevention protocols. Inheritable and infectious diseases also discussed.

Overlaps with BIO SCI 10, BIO SCI 12D.

(II)

BIO SCI 9E. Horticulture Science . 4 Units.
Scientific principles of horticulture at the UCI Arboretum. Taxonomy, plant life history strategies; experiments with seed dormancy; morphological adaptations for specialized sexual and clonal reproduction; basics of plant propagation and ecological restoration. Materials fee.

(II)

BIO SCI 9J. Biology of Oriental Medicine. 4 Units.
With lectures, demonstrations, and hands-on learning, the theory and practice of herbal medicine, acupuncture, qigong, and manipulative therapies are explained in Western biomedical terms. The latest basic and clinical research advances in each area are also described.

Overlaps with BIO SCI 9N, BIO SCI D124.

(II)

BIO SCI 9K. Global-Change Biology. 4 Units.
Addresses ways in which humans are altering the global environment, with consequences for the ecology of animals, plants, and microbes. Discussion on how these biologically oriented questions relate to human society, politics, and the economy.

Same as EARTHSS 13.

(II)

BIO SCI 9N. Introduction to Complementary and Alternative Medicine . 4 Units.
Basic and clinical research on complementary and alternative therapies (e.g., herbal medicine, mind-body practices, energy medicine, acupuncture, homeopathy, chiropractic, Ayurveda), and how such practices are integrated into Western medicine are discussed. Includes lectures, demonstrations, and hands-on learning.

Overlaps with BIO SCI 9J, BIO SCI 9D, BIO SCI 10, BIO SCI D124.

Restriction: Non-Biological Science majors only.

(II)

BIO SCI 10. The Biology of Human Diseases. 4 Units.
Introduction to concepts of diagnosis, treatment, and prevention of major human infectious diseases. Covers some aspects of epidemiology. Scope and impact of infectious diseases in the present and past experiences in controlling infectious disease. Reviews biology of human organ systems.

Overlaps with BIO SCI 9D, BIO SCI 12D.

(II)

BIO SCI 11. Topics in Biological Sciences. 4 Units.
Studies in selected areas of biological sciences.

Repeatability: May be taken for credit 3 times.

(II)

BIO SCI 12B. Disease and Civilization. 4 Units.
Demonstrates the role played by infectious diseases on the development of human civilization. The psychological impact of major epidemic diseases upon society and culture. Starting with early hunting and gathering cultures through the effect of AIDS in the modern world.

(II)

BIO SCI 12D. Molecular Basis of Human Disease. 4 Units.
Introduction to the concepts of the molecular basis, treatment, and diagnosis of human disease. Diseases resulting from infectious agents such as virus, bacteria, protozoan and metazoan animals, and diseases resulting from genetic disorders discussed in context of molecular mechanisms.

Overlaps with BIO SCI 9D, BIO SCI 10.

(II)

BIO SCI 14. California Teach 1: Introduction to Science and Mathematics Teaching. 3 Units.
First in a series for students interested in becoming middle or high school teachers of mathematics or science. Students gain an understanding of effective, research-based teaching strategies. Includes supervised field experience in a K-12 classroom.

Same as PHY SCI 5.

Restriction: School of Physical Sciences, School of Biological Sciences, School of Information and Computer Sciences, and School of Engineering majors have first consideration for enrollment.

BIO SCI 20. California Natural History. 4 Units.
Introduction to ecological relationships within a variety of California habitats. Explores aspects of the physical environments and the adaptations of organisms to their physical and biological surroundings in habitats such as the coastal zone, mountains, and deserts.

(II)

BIO SCI 23. Sustainable Landscaping: Design and Practices. 4 Units.
Through lectures and hands-on work, students learn how to design habitats around dwellings, within cities, and in rural environments. These include traditional/sustainable landscaping, restoration, stormwater/wastewater treatment, xeriscaping, and low impact development design. Sustainable landscape plant materials emphasized.

(II)

BIO SCI 25. Biology of Cancer. 4 Units.
Biological, clinical, and psychosocial nature of cancer through the perspectives of medical researchers, biologists, physicians, and health educators. For students of all majors, designed so that each can increase personal awareness of the biology of cancer.

Restriction: BIO SCI 25 may not be taken for credit if taken after BIO SCI M125.

(II)

BIO SCI 35. The Brain and Behavior. 4 Units.
Introduction to how the brain works. Biological processes underlying perception, movement, sleep-wake cycles, motivation, language, learning, and memory. Changes in the brain associated with sex differences, drug use, aging, seasons, and time of day. Fundamental properties of the nervous system.

Restriction: Non-Biological Sciences majors only.

(II)

BIO SCI 36. Drugs and the Brain. 4 Units.
Introduction to the actions of drugs on the brain. How studying drug action helps reveal normal functions of neurons. How drugs can correct neural disorders or disrupt neural function. Biological issues related to drug abuse, drug addiction, and drug seeking.

Restriction: Non-Biological Sciences majors only.

(II)

BIO SCI 37. Brain Dysfunction and Repair . 4 Units.
Introduction to the disruptions in brain function that underlie disorders such as Alzheimer's disease, Parkinsonism, schizophrenia, and depression, and the basis for drug therapies. The brain's ability to repair itself after damage and the pros and cons of that repair.

Restriction: Non-Biological Sciences majors only.

(II)

BIO SCI 38. Mind, Memory, Amnesia, and the Brain. 4 Units.
Introduction to neural mechanisms underlying learning and memory. Emphasis on molecular changes that mediate memory as well as structures involved in different forms of memory. Additionally, examines the biology of memory phenomena, from extraordinary memory to false memory to amnesia.

Restriction: Non-Biological Sciences majors only.

(II)

BIO SCI 41. Aspects of Mood Disorder. 4 Units.
There are significant differences in response to psychiatric illness across cultures. Delves into the neuroscience underlying mood disorder, investigating current pharmacological treatments and sociocultural influences on treatment outcomes.

Restriction: Non-School of Biological Sciences majors only.

(II)

BIO SCI 42. Origin of Life. 4 Units.
Biochemical explanations for the origin of life are presented. Topics include definitions of life, the first replicating molecules, the first catalyzed biosynthesis and metabolism, the origin of cells (compartmentalization) and the origins of information and the genetic code.

(II)

BIO SCI 43. Media on the Mind. 4 Units.
Surveys an ever-increasing collection of research, suggesting modern technology and social media are changing in the way our brains function.

Restriction: Non-Biological Sciences majors only.

(II)

BIO SCI 44. Stem Cells and Brain Repair. 4 Units.
Students introduced to the field of regenerative neurobiology. Both basic stem cell discoveries and their potential clinical application to brain disorders examined. Discussion of opportunities, challenges, and implications of this research.

Overlaps with BIO SCI N172.

Restriction: Non-Biological Sciences majors only.

(II)

BIO SCI 45. AIDS Fundamentals. 4 Units.
Considers the biological and sociological bases of the AIDS epidemic. Topics include the history of AIDS, current medical knowledge, transmission, risk reduction, and how the community can respond.

Same as PUBHLTH 80.

(II)

BIO SCI 46. Discussion and Literature Research in AIDS. 2-4 Units.
Students carry out two activities: (1) leading discussions about HIV/AIDS (predominantly regarding sociological and personal reactions) among students taking the AIDS Fundamentals course and (2) literature research about biomedical aspects of AIDS.

Prerequisite: BIO SCI 45 or PUBHLTH 80.

BIO SCI 47. Stress. 4 Units.
Investigates stress at a psychological, physiological, and molecular level, and provides a current overview of the field of stress research.

Restriction: Non-Biological Sciences majors only.

(II)

BIO SCI 55. Introduction to Ecology. 4 Units.
Principles of ecology; application to populations, communities, ecosystems, and humans.

Restriction: Non-Biological Sciences majors only. BIO SCI 55 may not be taken for credit if taken after BIO SCI 96 or BIO SCI E106.

(II)

BIO SCI 65. Biodiversity & Conservation. 4 Units.
A biological perspective on the current environmental crisis. The origin, evolution, and value of biological diversity. Extinction and depletion caused by overexploitation, habitat loss, and pollution. Conservation through habitat preservation and restoration, captive breeding, cryopreservation.

(II)

BIO SCI 75. Human Development: Conception to Birth. 4 Units.
Processes leading to the birth of a healthy child and the avoidance of birth defects. Male and female reproductive systems, hormonal control of egg-sperm formations, sexual intercourse, contraception, venereal diseases, fertilization, cell division, embryonic development, fetal physiology.

Restriction: Non-Biological Science majors only.

(II)

BIO SCI H90. The Idiom and Practice of Science. 4 Units.
The importance of biological sciences in our world is discussed. Topics may include brain and behavior, health and disease, genetics and society, and conservation biology. Primary goal is to encourage students to understand better the world in which they live.

Restriction: Campuswide Honors Program students only.

(II)

BIO SCI 92. Curriculum. 1-4 Units.
Initiation, planning, and coordination of student-run courses.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 12 times.

Restriction: Biological Sciences majors only.

BIO SCI 93. From DNA to Organisms. 4 Units.
Cell biology, biochemistry, genetics, and the biology of organ systems. Covers concepts of building blocks (nucleotides, amino acids, and cells) and of information flow (DNA to proteins, receptors to nuclei, the blood to distant organs, and DNA to offspring). Course may be offered online.

Restriction: BIO SCI 93 may not be taken for credit if taken after BIO SCI 97 or BIO SCI 98.

(II)

BIO SCI 94. From Organisms to Ecosystems. 4 Units.
Patterns of diversity, ecology, and evolutionary biology. Emphasis is on the Tree of Life and how its members are distributed and interact. Course may be offered online.

Prerequisite: BIO SCI 93. BIO SCI 93 with a grade of C- or better.

Restriction: BIO SCI 1A may not be taken for credit if taken after BIO SCI 94.

(II)

BIO SCI 97. Genetics. 4 Units.
Introduction to genetics. Basic features of replication and expression of DNA, cell division, and gene transmission. Recombination and mutation in diploid organisms.

Prerequisite: BIO SCI 94. BIO SCI 94 with a grade of C- or better.

Restriction: Biological Sciences, Pharmaceutical Sciences, Public Health Sciences, Biomedical Engineering: Premedical, and Nursing Science majors have first consideration for enrollment.

BIO SCI 98. Biochemistry. 4 Units.
Structure and properties of proteins; major biochemical pathways and mechanisms for their control.

Prerequisite: BIO SCI 97. BIO SCI 97 with a grade of C- or better. Prerequisite or corequisite: CHEM 51B.

Restriction: Biological Sciences, Pharmaceutical Sciences, Public Health Sciences, Biomedical Engineering: Premedical, and Nursing Science majors have first consideration for enrollment.

BIO SCI 99. Molecular Biology. 4 Units.
Biochemistry and replication of nucleic acids; molecular genetics; protein biosynthesis; genetic code; regulation of expression of genetic information; biochemical evolution.

Prerequisite: BIO SCI 98.

Restriction: Biological Sciences, Pharmaceutical Sciences, Public Health Sciences, Biomedical Engineering: Premedical, and Nursing Science majors have first consideration for enrollment.

BIO SCI 100. Scientific Writing. 3 Units.
Designed to give an overview of the basic aspects of scientific writing relevant to reporting research in the Biological Sciences.

Prerequisite: BIO SCI 99. Prerequisite or corequisite: BIO SCI 194S.

Grading Option: Pass/no pass only.

Restriction: Biological Sciences, Pharmaceutical Sciences, and Biomedical Engineering: Premedical majors have first consideration for enrollment.

BIO SCI 101. California Teach 2: Middle School Science and Mathematics Teaching. 3 Units.
Second in a series for students interested in becoming middle or high school teachers of mathematics or science. Students gain an understanding of effective, research-based teaching strategies for grades 6-8. Includes supervised field experience in a middle school classroom.

Prerequisite: PHY SCI 5.

Same as PHY SCI 105.

Restriction: School of Physical Sciences, School of Biological Sciences, School of Information and Computer Sciences, and School of Engineering majors have first consideration for enrollment.

BIO SCI 102. California Teach 3: High School Science and Mathematics Teaching. 2 Units.
Capstone of a series of three seminars for students interested in becoming secondary mathematics or science teachers. Meets six times for students to understand effective, research-based teaching strategies. Includes an opportunity to experience teaching in a high school.

Prerequisite: (PHY SCI 5 or BIO SCI 14) and (PHY SCI 105 or BIO SCI 101).

Same as PHY SCI 106.

Restriction: School of Physical Sciences, School of Biological Sciences, School of Information and Computer Sciences, and School of Engineering majors have first consideration for enrollment.

BIO SCI D103. Cell Biology. 4 Units.
Analysis of the basic structure and function of animal cells, with an emphasis on the regulation of cellular processes. The basic features of membranes, cellular compartmentalization, protein trafficking, vesicular transport, cytoskeleton, adhesion, signal transduction, and cell cycle are covered.

Prerequisite: BIO SCI 99.

Restriction: Students who require this class for completion of their degree have first consideration for enrollment.

BIO SCI D104. Developmental Biology. 4 Units.
Cellular and molecular analysis of how a fertilized egg develops into an organism consisting of complex structures such as the eye, arms, and brain. Emphasis is on the key concepts of developmental processes underlying pattern formation, growth, and regeneration.

Prerequisite: BIO SCI 99.

Restriction: Students who require this class for completion of their degree have first consideration for enrollment.

BIO SCI D105. Cell, Developmental, and Molecular Biology of Plants . 4 Units.
Emphasizes the special features of plant cells and plant development as compared to animals. Two central topics: Plants' ability to fuel our planet through photosynthesis, and the interactions of plants with microorganisms in making nitrogen available to other life forms.

Prerequisite: BIO SCI 99.

Restriction: Students who require this class for completion of their degree have first consideration for enrollment.

BIO SCI E106. Processes in Ecology and Evolution. 4 Units.
An in-depth study of the mechanisms that drive evolution and ecology including: natural selection, mutation, genetic drift, speciation, extinction, life history patterns, population dynamics, ecosystem and community structure, predator-prey and host pathogen interactions, and social behavior.

Prerequisite: BIO SCI 94.

Restriction: Students who require this class for completion of their degree have first consideration for enrollment.

BIO SCI E106L. Habitats and Organisms. 4 Units.
Introduces students to local habitats and organisms through required field trips and applies ecological and evolutionary principles from BIO SCI E106. Students also explore related literature.

Corequisite: BIO SCI E106.
Prerequisite: BIO SCI 100 and BIO SCI 194S and BIO SCI E106. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: BIO SCI E106L may not be taken for credit concurrently with or after taking BIO SCI E166. Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI E107. Seminar in Ecology and Evolutionary Biology. 2 Units.
Invited speakers, graduate students, and faculty present current research in ecology and evolutionary biology.

Grading Option: Pass/no pass only.

Restriction: Ecology and Evolutionary Biology majors only. Upper-division students only.

BIO SCI 108. Research Methods. 4 Units.
Explores tools of inquiry for developing and implementing science research projects. Students undertake independent projects requiring data collection, analysis, and modeling, and the organization and presentation of results. Additional topics include ethical issues and role of scientific literature.

Prerequisite: BIO SCI 14 or PHY SCI 5.

Same as PHYSICS 193, CHEM 193.

BIO SCI E109. Human Physiology. 4 Units.
Functional features of the major organ systems in the human body. Emphasis on homeostasis and the interactions of organ systems in health and disease. (Discussion of behavior and brain function deferred to BIO SCI N110.).

Prerequisite: BIO SCI 99.

Overlaps with PHRMSCI 120.

Restriction: Students who require this class for completion of their degree have first consideration for enrollment.

BIO SCI N110. Neurobiology and Behavior. 4 Units.
Consideration of the evolution of behavior, including ethological and psychological aspects and analysis of neuroanatomical, neurochemical, neurophysiological, and neuroendocrine systems underlying basic behavioral processes.

Prerequisite: Prerequisite or corequisite: BIO SCI 99.

Restriction: Students who require this class for completion of their degree have first consideration for enrollment.

BIO SCI D111L. Developmental and Cell Biology Laboratory. 4 Units.
Students study the division of cells, isolate cellular organelles (chloroplasts, mitochondria, nuclei), and follow changes in cells undergoing programmed cell death. Development is demonstrated in experiments showing cooperation of individual cells in forming a multicellular organism. Materials fee.

Corequisite: BIO SCI D103 or BIO SCI D104 or BIO SCI D105.
Prerequisite: BIO SCI 194S and BIO SCI 100. Prerequisite or corequisite: BIO SCI D103 or BIO SCI D104 or BIO SCI D105.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI E112L. Physiology Laboratory. 4 Units.
Laboratory with a focus on the whole organism and its organ systems. Examples of structure-function relationships will be drawn from both animal and human physiology. Cellular and molecular aspects will be introduced as required. Materials fee.

Prerequisite: BIO SCI 194S and BIO SCI 100 and (BIO SCI E109 or (BME 120 and BME 121)).

Overlaps with PHRMSCI 120L.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI N112A. Neuroscience: Fundamental Concepts and Current Applications. 3 Units.
In-depth exploration of the intellectual tools used to create, advance, and disseminate knowledge about the nervous system. Develops analytical, reasoning, and communication skills by exploring fundamental issues of data interpretation in cellular, molecular, systems, and behavioral analyses of brain function.

Prerequisite: BIO SCI N110.

BIO SCI N112B. Neuroscience: Fundamental Concepts and Current Applications. 3 Units.
In-depth exploration of the intellectual tools used to create, advance, and disseminate knowledge about the nervous system. Develops analytical, reasoning, and communication skills by exploring fundamental issues of data interpretation in cellular, molecular, systems, and behavioral analyses of brain function.

Prerequisite: BIO SCI N112A.

BIO SCI N112C. Neuroscience: Fundamental Concepts and Current Applications. 3 Units.
In-depth exploration of the intellectual tools used to create, advance, and disseminate knowledge about the nervous system. Develops analytical, reasoning, and communication skills by exploring fundamental issues of data interpretation in cellular, molecular, systems, and behavioral analyses of brain function.

Prerequisite: BIO SCI N112B.

BIO SCI D113. Genetics Majors Seminar. 1 Unit.
Genetics majors attend a weekly seminar to discuss current research techniques and career opportunities in the field. Students have the opportunity to present their own independent research.

Repeatability: May be taken for credit 2 times.

Restriction: Genetics majors only.

BIO SCI N113L. Neurobiology Laboratory. 3 Units.
Nature and actions of genes/gene products that regulate the functioning of the nervous system and its interaction with muscles. Topics include: neural control of gene expression; genetics and molecular biology of neural and neuromuscular diseases; gene therapies for neural disorders. Materials fee.

Prerequisite: BIO SCI 100 and BIO SCI 194S. Prerequisite or corequisite: BIO SCI N110.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI D114. Developmental and Cell Biology Majors Seminar. 1 Unit.
Developmental and Cell Biology majors attend a weekly seminar to discuss current research techniques and career opportunities in the field. Students have the opportunity to present their own independent research.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Developmental and Cell Biology majors only.

BIO SCI M114. Advanced Biochemistry. 4 Units.
Physical-chemical properties of macromolecules. Structure-function relationships in nucleic acids, protein, carbohydrates, and lipids. Integration and regulation of metabolism. Biochemistry of organs and biochemistry of diseases.

Prerequisite: BIO SCI 99.

BIO SCI M114L. Biochemistry Laboratory. 5 Units.
Properties of enzymes and the culture and isolation of mutants of microorganisms. Materials fee.

Prerequisite: BIO SCI 99 and BIO SCI 100 and BIO SCI 194S.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI E115L. Evolution Laboratory. 4 Units.
Students perform experiments which illustrate important concepts in evolutionary biology such as natural selection, random genetic drift, inbreeding, age-specific selection, sexual selection, and phylogenetic reconstruction. Materials fee.

Corequisite: .
Prerequisite: BIO SCI 100 and BIO SCI 194S and BIO SCI E106. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI M116. Advanced Molecular Biology. 4 Units.
Mechanisms of gene expression; special emphasis on regulatory events that occur in Eukaryotic organisms other than initiation of transcription. Chromatin structure and rearrangement, RNA polymerases, cis- and trans-acting elements, RNA processing, transport and stability, protein synthesis, trafficking, and turnover.

Prerequisite: BIO SCI 99 and (BIO SCI M114L or BIO SCI M116L).

BIO SCI M116L. Molecular Biology Laboratory. 5 Units.
Students perform experiments which illustrate the chemical and biological properties of nucleic acids. Emphasis is placed on recent techniques in recombinant DNA technology including gene isolation and characterization. Materials fee.

Prerequisite: BIO SCI 99 and BIO SCI 100 and BIO SCI 194S.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI D117. Movement and Health. 4 Units.
Mechanisms of movements of molecules within and across cell membranes, cytoskeleton and cell motility, muscle contraction, and physical exercises and mind-body practices. Chemical, electromagnetic, and vital energy, and regulatory pathways in such processes. Relevance to health, diseases, and integrative medicine.

Prerequisite: BIO SCI 99.

BIO SCI E117A. Exercise Sciences Seminar. 3 Units.
Students are introduced to fundamental concepts and topics in exercise science with an emphasis on developing innovative approaches for exploring the biological response to physical activity/inactivity. Interactive course with robust discussion amongst faculty and students.

Prerequisite: BIO SCI E109 and BIO SCI E112L and BIO SCI E183.

BIO SCI E117B. Exercise Sciences Seminar. 3 Units.
Students are introduced to fundamental concepts and topics in exercise science with an emphasis on developing innovative approaches for exploring the biological response to physical activity/inactivity. Interactive course with robust discussion amongst faculty and students.

Prerequisite: BIO SCI E109 and BIO SCI E112L and BIO SCI E183.

BIO SCI E117C. Exercise Sciences Seminar. 3 Units.
Students are introduced to fundamental concepts and topics in exercise science with an emphasis on developing innovative approaches for exploring the biological response to physical activity/inactivity. Interactive course with robust discussion amongst faculty and students.

Prerequisite: BIO SCI E109 and BIO SCI E112L and BIO SCI E183.

BIO SCI E118. Ecosystem Ecology. 4 Units.
A mechanistic perspective on ecosystem processes. Covers ecosystem development, element cycling, and interactions with plants and microbes. The role of ecosystems in environmental change is also addressed.

Prerequisite: CHEM 51C.

Same as EARTHSS 164.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 264.

BIO SCI M118L. Experimental Microbiology Laboratory. 5 Units.
Introductory general microbiology designed for preprofessional biology majors. Includes microscopy, cultivation of bacteria, morphological and biochemical characterization of bacteria, microbial metabolism, growth and genetics, microorganisms and human disease, and interactions of microorganisms with the environment. Materials fee.

Prerequisite: BIO SCI 99 and BIO SCI 100 and BIO SCI 194S.

Overlaps with BIO SCI M122L.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI M119. Advanced Topics in Immunology. 4 Units.
Literature-based, interactive discussions focused on review of seminal historic and recent immunology literature. Student responsibilities include reading, critical evaluation, and discussion of manuscripts.

Prerequisite: BIO SCI M121.

Restriction: Microbiology and Immunology majors have first consideration for enrollment.

BIO SCI N119. History of Neuroscience. 4 Units.
An overview of the conceptual and technical foundations of contemporary neuroscience from ancient times to the present. The subjects include synapses, neurons, brain organization, sensory, motor and regulatory systems, learning and memory, human brain function and dysfunction.

Prerequisite: BIO SCI 35 or BIO SCI N110 or PSY BEH P115D or (PSYCH 9A and PSYCH 9B and PSYCH 9C).

Restriction: Upper-division students only.

Concurrent with NEURBIO 255.

BIO SCI E120. Marine Biology . 4 Units.
Examines how the physical environment influences biology of marine life, the relationship between structure and function in adaptation to marine environments, and anthropogenic impacts on marine life. A field trip is required. Materials fee.

Prerequisite: BIO SCI 94.

BIO SCI M120. Signal Transduction in Mammalian Cells. 4 Units.
Introduction to major biochemical pathways that transmit information from extracellular cues into changes in cell behavior. Focuses on kinases, phosphateses, G proteins, second messengers, and protein-protein interactions. Includes discussion of primary research articles and experimental techniques.

Prerequisite: BIO SCI D103.

BIO SCI N120. Human Biology. 4 Units.
Human Biology provides an in-depth look at cutting edge topics in physiology and epidemiology as they relate to global issues of ethics, anthropology, and socioeconomics, providing the student an understanding of human health beyond basic biological function.

Prerequisite: BIO SCI 99.

Restriction: Human Biology majors only.

BIO SCI D121. Stem Cell Biology. 4 Units.
Introduces upper-level undergraduate students to stem cell biology. Include the basic biology of stem cells, potential applications of stem cells, and the ethical, legal, and moral issues associated with human stem cell research.

Prerequisite: BIO SCI D103 and BIO SCI D104.

BIO SCI M121. Immunology with Hematology. 4 Units.
Antibodies, antigens, antigen-antibody reactions, cells and tissues of lymphoreticular and hematopoietic systems, and individual and collective components of cell-mediated and humoral immune response.

Prerequisite: BIO SCI 98.

BIO SCI M121L. Advanced Immunology Laboratory. 4 Units.
Emphasis is placed on learning modern techniques in immunology such as ELISAs, western blotting, immunofluorescent staining assays.

Prerequisite: BIO SCI M116L and BIO SCI M121 and BIO SCI 194S. Prerequisite or corequisite: BIO SCI 100.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

Concurrent with MOL BIO 221L.

(Ib)

BIO SCI M122. General Microbiology. 4 Units.
Comparative metabolism of small molecules and cell structure and relationship to microbial classification. Macromolecule synthesis and regulation, sporulation, cell division, growth, and effect of antibiotics.

Prerequisite: BIO SCI 98.

BIO SCI M122L. Advanced Microbiology Laboratory. 4 Units.
Advanced course featuring selective isolation of a wide variety of microbial types. Identification and characterization of organisms by morphological, nutritional, and biochemical approaches. Medical, industrial, and research applications. Materials fee.

Prerequisite: BIO SCI 194S. Prerequisite or corequisite: BIO SCI 100 and (BIO SCI M122 or BIO SCI M132).

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI M123. Introduction to Computational Biology. 4 Units.
The use of theories and methods based on computer science, mathematics, and physics in molecular biology and biochemistry. Basics in biomolecular modeling. Analysis of sequence and structural data of biomolecules. Analysis of biomolecular functions.

Prerequisite: MATH 2D or MATH 2J or STATS 7 or STATS 8.

Same as COMPSCI 183.

Concurrent with MOL BIO 223.

BIO SCI D124. Biology of Integrative Medecine. 4 Units.
Presentation of biological principles and the latest clinical and basic research on complementary and alternative therapies (e.g., mind-body medicine, energy medicine, herbal medicine, acupuncture, manipulative therapies) and their integration with Western medicine. Lectures supplemented by demonstrations and hands-on learning sessions.

Overlaps with BIO SCI 9J, BIO SCI 9N.

BIO SCI E124. Infectious Disease Dynamics. 4 Units.
Discusses how the dynamical interactions between pathogens and the immune system can give rise to a variety of outcomes which include clearance of infection, persistent infection, escape from immune responses, and pathology.

Prerequisite: BIO SCI 96 or BIO SCI 97 or BIO SCI E106.

BIO SCI M124A. Virology. 4 Units.
Replication of viruses in populations, animals, and the host cell. The effects of viral infection on populations, individuals, and specific molecular effects on the target cell. Role of viral infections in cancer and degenerative diseases.

Prerequisite: BIO SCI 99.

Restriction: Biological Sciences majors only.

BIO SCI M124B. Viral Pathogenesis and Immunity. 4 Units.
The mechanisms of viral pathogenesis and of host resistance to viruses are explored in detail. HIV-1 and Influenza-A are used as examples. In each case, viral replication, cytopathic effects, immune response, and viral evasion are discussed.

Prerequisite: BIO SCI M121 or BIO SCI M124A. Recommended: BIO SCI M122.

BIO SCI M124L. Virus Engineering Laboratory. 4 Units.
An advanced laboratory for undergraduates who have completed a virology lecture class. Students learn to engineer recombinant viruses and express genes in mouse tissue.

Prerequisite: BIO SCI 194S and BIO SCI M116L and (BIO SCI M124A or BIO SCI M124B). Prerequisite or corequisite: BIO SCI 100.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI M125. Molecular Biology of Cancer. 4 Units.
Molecular mechanisms of carcinogenesis. Consideration of transformation by DNA tumor viruses, RNA tumor viruses, and chemical carcinogens.

Prerequisite: BIO SCI 99.

BIO SCI M126. Learning to Read Primary Literature in Biochemistry and Molecular Biology. 4 Units.
An introduction to primary literature focusing on methods to approach, understand, and analyze scientific papers.

Prerequisite: BIO SCI 99.

BIO SCI E127. Physiological Plant Ecology. 4 Units.
An examination of the interactions between plants and their environment. Emphasis on the underlying physiological mechanisms of plant function, adaptations and responses to stress, and the basis of the distribution of plants and plant assemblages across the landscape.

Prerequisite: (EARTHSS 51) or (EARTHSS 60A and EARTHSS 60C) or (BIO SCI E106).

Same as EARTHSS 168.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

BIO SCI M127L. Virology and Immunology Laboratory. 5 Units.
Introductory laboratory course in virology and immunology designed for biology majors. Curriculum includes plasmid preparation, plasmid characterization, microscopy, cell culture, transfection and infection of cells, cell counting, plaque assays, ELISA, Western blot, mixed lymphocyte reactions. Materials fee.

Corequisite: BIO SCI M121 or BIO SCI M124A.
Prerequisite: BIO SCI 99 and BIO SCI 194S and BIO SCI 100 and BIO SCI M116L.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI D129. Biotechnology and Plant Breeding. 4 Units.
Conventional plant breeding techniques, their limitations, and supplementations through modern biotechnology. Includes cloning, cell transformation (genetic engineering), and cell fusion. Crop improvement, state of the art in animal and human systems, and the impact of gene technology of society.

Prerequisite: BIO SCI 94.

BIO SCI M129. Discovery of the New RNA World. 4 Units.
Focus is on RNAs role in catalysis and regulation. Topics include non-coding RNAs function in normal cells (regulation of cell homeostasis, development, and differentiation) and in disease (cancer, viral infection).

Prerequisite: BIO SCI 99 and (BIO SCI D103 or BIO SCI D104).

BIO SCI D130. Photomedicine. 4 Units.
Studies the use of optical and engineering-based systems (laser-based) for diagnosis, treating diseases, manipulation of cells and cell function. Physical, optical, and electro-optical principles are explored regarding molecular, cellular, organ, and organism applications.

(Design units: 0)

Prerequisite: PHYSICS 3C or PHYSICS 7D.

Same as BME 135.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

BIO SCI E130. Forensic Genetics. 4 Units.
Covers techniques currently used for forensic identification and paternity testing. Topics include STR, Y-STR and mitochondrial DNA tests, database searches, mixtures, allelic drop out, likelihood ratios, laboratory errors and the interaction of science and the legal system.

Prerequisite: BIO SCI 93 and BIO SCI 94.

BIO SCI M130L. Advanced Molecular Lab Techniques. 6 Units.
Discovery-driven experimentation in the fields of molecular biology, biochemistry, and cell biology. Also involves other aspects of the lab experience including group discussion of results, scientific paper analysis, and student presentations. Materials fee.

Prerequisite: BIO SCI 100 and BIO SCI 194S and (BIO SCI D111L or BIO SCI M114L or BIO SCI M116L or BIO SCI M118L).

Repeatability: May be taken for credit 3 times.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI E131L. Image Analysis in Biological Research. 4 Units.
Introduction to scientific image analysis including techniques such as high-speed, time-lapse, thermal imaging, and flow visualization. Students will make movies using cameras, edit and analyze images using computers, and do a writing project.

Prerequisite: (BIO SCI E106 or BIO SCI E109) and BIO SCI 100 and BIO SCI 194S.

(Ib)

BIO SCI D132. Introduction to Personalized Medicine. 4 Units.
Introduction to the use of genomic techniques for the study of individual genomes and transcriptomes in healthy and diseased samples. Covers GWAS, current sequencing techniques, cancer genomics, and biomarker discovery.

Prerequisite: BIO SCI 99.

BIO SCI D133. Advances in Regenerative Medicine. 4 Units.
Introduces the rapidly growing field of regenerative medicine. New developments in stem cell research are discussed. Cellular, molecular, and engineering aspects of stem cell-based organ replacement strategies are examined, with emphasis on specific regenerative therapies.

Prerequisite: BIO SCI D103.

Overlaps with BIO SCI N172.

BIO SCI M133. High-Resolution Structures: NMR and X-ray. 4 Units.
Basic principles of magnetic resonance and x-ray crystallography toward the determination of high-resolution biomolecular structures.

Prerequisite: MATH 2B.

Restriction: Upper-division students only.

Concurrent with MOL BIO 211.

BIO SCI D135. Cell Biology of Human Disease. 4 Units.
Builds on prior biology courses about the underlying cell biological mechanisms and recent treatment advances of several model diseases. Emphasizes literature searches, reading primary literature, and student group work.

Prerequisite: BIO SCI D103.

BIO SCI E135. Molecular Evolution. 4 Units.
Introduction to the study of evolutionary change in genes and DNA sequences. Combines study of molecular biology with the study of evolution. Molecular evolution has application to many disciplines, including molecular biology, virology, systematics, and the origin of life.

Prerequisite: BIO SCI E106.

BIO SCI D136. Human Anatomy. 4 Units.
Presents a systems approach to the analysis of human structure. Molecular, cellular, tissue, organ, and organ system levels of structure and organization are integrated throughout.

Prerequisite: BIO SCI 99.

Overlaps with BIO SCI D170.

BIO SCI E136. The Physiology of Human Nutrition . 4 Units.
Examines the biochemical basis of energy metabolism, physiological processes in digestion and uptake, and the biochemical transformation of carbohydrates, fats, and proteins in the human body. The emphasis is on expanding the students' understanding of physiology.

Prerequisite: BIO SCI 98 and BIO SCI E109.

Overlaps with BIO SCI M150.

BIO SCI D137. Eukaryotic and Human Genetics. 4 Units.
Structure and function of genes in eukaryotes with emphasis on special problems of genetic studies in humans. Molecular methods of genetic analysis and gene transfer are discussed. Practical applications and ethical and social issues raised by genetic studies are addressed.

Prerequisite: BIO SCI 97. Recommended: BIO SCI 99.

BIO SCI E137. Genetics of Complex Traits. 4 Units.
Many ecologically important traits (e.g., size, age at sexual maturity) and clinical conditions are rooted in the interaction of multiple genetic loci with the environment. Theoretical and practical approaches to dissecting the genetic architecture of complex traits are explored.

Prerequisite: BIO SCI 97.

BIO SCI M137. Microbial Genetics. 4 Units.
Basic principles of microbial genetics are presented as lectures for the first half of the course. The second half is devoted to applications of these principles and requires reading review and original research papers and interactions with guest lecturers.

Corequisite: Recommended: BIO SCI 99.
Prerequisite: BIO SCI 97 and BIO SCI 98.

BIO SCI D138. Quantitative Cell Biology . 4 Units.
Builds on prior biology courses about cell biology, and works to develop a deeper understanding of experimental techniques and interpretation of experiments. A key focus will be the question of how one moves from specific examples to general.

Prerequisite: BIO SCI 99.

BIO SCI E138. Comparative Animal Physiology. 4 Units.
Maintenance aspects of physiology: water balance; feeding and digestion; metabolism; respiration and circulation.

Prerequisite: BIO SCI E109.

BIO SCI E139. Animal Sensing and Motion. 4 Units.
Explores how animals sense and respond to their environment. Includes a consideration of sensory systems, muscle physiology, and biomechanics to understand the mechanistic basis of animal behavior.

Prerequisite: BIO SCI E109.

BIO SCI D140. How to Read a Science Paper. 4 Units.
Provides junior and senior undergraduates currently involved or interested in pursuing research exposure to current scientific literature and training on how to read and critically evaluate primary research articles in preparation for research-oriented.

Corequisite: BIO SCI 199.
Prerequisite: BIO SCI 99.

Restriction: Upper-division students only.

BIO SCI E140. Evolution and the Environment. 4 Units.
Explores basic topics in ecology and evolutionary biology and applications to agriculture, conservation, environmental issues, and public health. Format involves discussion of scientific journal articles and other readings, with focus on learning to evaluate scientific evidence.

Prerequisite: Prerequisite or corequisite: BIO SCI E106.

BIO SCI E142W. Writing/Philosophy of Biology. 4 Units.
Philosophy of biology, e.g., scientific method in biology, the structure of evolutionary theory, teleology, ethics, and evolution. Course work includes one 4,000-word and four 1,000-word papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as LPS 142W, PHILOS 142W.

Restriction: Juniors only.

(Ib)

BIO SCI M143. Human Parasitology. 4 Units.
Introduction to human animal-parasitic diseases including worms and protozoan infections.

Prerequisite: BIO SCI 99.

BIO SCI M144. Cell Organelles and Membranes. 4 Units.
Structure, function, and biogenesis of biological membranes and membrane-bound organelles; protein trafficking and transmembrane signaling.

Prerequisite: BIO SCI D103.

BIO SCI D145. Genomics, Development, and Medicine. 4 Units.
Focuses on the applications of genomics and proteomics to problems in genetics, cell, and developmental biology. Students will gain a comprehensive understanding of the techniques currently used for genomics analysis and how best to apply these tools to solve problems.

Prerequisite: BIO SCI 99.

BIO SCI E145. Animal Coloration and Vision. 4 Units.
Physiological and behavioral mechanisms of color production and vision including crypsis, mimicry, aposematism, masquerade, sexual dimorphism, and predator-prey interactions through the lens of signals, receivers, and receptors; color and polarization vision in mate choice and visual adaptations to aquatic environments.

Prerequisite: Prerequisite or corequisite: BIO SCI E106.

BIO SCI N147. Hearing and the Brain. 4 Units.
An overview of brain mechanisms of hearing, including perception of simple sounds, speech, and music. Begins with sound itself, and looks at processing by the ear, auditory pathways, auditory cortex, and beyond. Also auditory development, learning, and clinical issues.

Prerequisite: PSYCH 160A or BIO SCI N110.

Same as PSYCH 161H.

Restriction: Psychology majors have first consideration for enrollment.

BIO SCI D148. Development and Disease. 4 Units.
Development of animal embryos from a fertilized egg to a functioning organism. Topics include reproduction, body-axis formation, growth and differentiation of embryonic cells, and organogenesis, with an emphasis on congenital birth defects and diseases that disrupt these processes.

Prerequisite: BIO SCI D103.

BIO SCI E150. Conservation Biology. 4 Units.
Genetic and ecological issues in conservation biology, including effects of human population growth, the value of biodiversity, conservation genetics, demography, metapopulation dynamics, community and ecosystem processes, species invasions, global climate change, and reserve design and management.

Prerequisite: BIO SCI E106.

BIO SCI M150. Nutritional Biochemistry . 4 Units.
Metabolic processes of sugar and fat that lead to an understanding of diabetes, cancer, obesity and other disease states will be the focus of this course. Nutritional supplements, analysis of metabolites and mechanisms of metabolic enzymes will be covered.

Prerequisite: BIO SCI 98.

Overlaps with BIO SCI E136.

BIO SCI N150. Brain Dysfunction and Repair. 4 Units.
Introduction to the disruptions in brain function that underlie disorders such as Alzheimer's disease, Parkinsonism, schizophrenia, and depression, and the basis for drug therapies. The brain's ability to repair itself after damage and the pros and cons of that repair.

Prerequisite: BIO SCI N110.

Restriction: Neurobiology majors only.

BIO SCI E151. Population Dynamics in Ecology, Epidemiology, and Medicine. 4 Units.
Explore the dynamics of populations on an ecological, epidemiological, and medical level. Considers the dynamics of competition, predation, and parasitism; the spread and control of infectious diseases; and the in vivo dynamics of viral infections and the immune system.

Prerequisite: BIO SCI 94 or BIO SCI E106.

Concurrent with ECO EVO 251.

BIO SCI N151. Neurobiology of Aging. 4 Units.
Multidisciplinary overview of the functional capacity of the aging brain, its structural changes and the mechanisms underlying function and structure. Emphasis will be on successful brain aging and those mechanisms which lead to the development of Alzheimer's disease.

Prerequisite: BIO SCI N110.

BIO SCI N152. Developmental Neurobiology. 4 Units.
The development of the nervous system is discussed with emphasis on the processes that underlie the appearance of complex and highly ordered neural circuits. Topics include neural induction, specification, migration and death; axon growth, and neural circuit formation.

Prerequisite: BIO SCI 93.

BIO SCI D153. Molecular and Cellular Basis of Disease. 4 Units.
Provides students with examples of how human disease is usually manifested at the cellular level. The roles of specific molecules and organelles are discussed where their roles in the disease process are understood.

Prerequisite: BIO SCI D103.

BIO SCI E153. Functional and Structural Evolutionary Genomics. 4 Units.
Function and organization of genomes analyzed from an evolutionary perspective. Review of some of the most recent experimental approaches in genome analysis and comparative genomics. Relevant software to analyze DNA and expression data is used.

Prerequisite: BIO SCI 97. Recommended: BIO SCI E135 or BIO SCI E168 and (BIO SCI 7 or STATS 7 or MATH 7).

Concurrent with ECO EVO 253.

BIO SCI N153. Neuropharmacology. 4 Units.
Survey of neurotransmitter systems, focusing on how transmitters are made, how they interact with their receptors, and how drugs can influence these processes to alter neural function and behavior.

Prerequisite: BIO SCI N110.

BIO SCI E154. Genetics and Human History. 4 Units.
Explores topics in human health/history from an evolutionary perspective, with emphasis on genetics. Topics include the relationship between genetics and human disease as an evolutionary question, and how modern genetic techniques are used to study the history of human populations.

Prerequisite: Prerequisite or corequisite: BIO SCI E106.

BIO SCI N154. Molecular Neurobiology. 4 Units.
Nature and actions of genes/gene products that regulate the functioning of the nervous system and its interaction with muscles. Topics include: neural control of gene expression; genetics and molecular biology of neural and neuromuscular diseases; gene therapies for neural disorders.

Prerequisite: BIO SCI N110.

BIO SCI E155. Physiology in Extreme Environments. 4 Units.
An in-depth look at the physiological mechanisms that allow animals, including humans, to be physically active and survive in extreme environments. Physiological responses to high altitude, diving, microgravity, deserts, and extreme cold are examined.

Prerequisite: BIO SCI E109 and PHYSICS 3A.

BIO SCI N155. Wiring the Developing Brain . 4 Units.
The development of the nervous system is discussed with particular emphasis on the processes that underlie the appearance of complex and highly ordered neural circuits. Basic neurodevelopmental processes are discussed and correlated with normal brain function/dysfunction.

Prerequisite: BIO SCI N110 or BIO SCI N152.

BIO SCI N156. Molecular Mechanisms of Memory. 4 Units.
Current topics focused on understanding the molecular mechanisms that contribute to synaptic plasticity, learning, and memory. Primary literature is used to explore the variety of molecular mechanisms underlying these processes.

Prerequisite: BIO SCI N110.

BIO SCI E157. Comparative Vertebrate Anatomy. 4 Units.
Structure and evolution of the major organ systems in vertebrates, from fish to mammals. Materials fee.

Prerequisite: BIO SCI 94.

BIO SCI N158. Neurobiology of Learning and Memory. 4 Units.
How the brain and behavior change as a result of experience, with an emphasis on identifying the neurochemical processes through which memory is stored and the parts of the brain that are involved.

Prerequisite: BIO SCI 35 or BIO SCI N110.

Same as PSYCH 162A.

Restriction: Psychology majors have first consideration for enrollment.

BIO SCI N159. Animal Behavior. 4 Units.
Explores why animals behave the way they do from evolutionary/mechanistic perspectives. Considers selective pressures and evolutionary constraints that shape animal behavior and the underlying neural and hormonal mechanisms by using examples such as why dogs bark, why some birds migrate.

Prerequisite: BIO SCI N110.

BIO SCI E160. Biology of Birds. 4 Units.
A thorough introduction to the biology of birds, covering topics ranging from avian anatomy and physiology to behavior, natural history, ecology, genetics, evolution, systematics, and conservation. Examples from both local and global avifauna.

Corequisite: BIO SCI E161L.
Prerequisite: BIO SCI 94.

BIO SCI M160. Structure-Function Relationships of Integral Membrane Proteins. 4 Units.
Integral membrane proteins such as voltage and ligand-gated ion channels, water channels, pumps, cotransporters, and receptors (e.g., GPCRs). The emphasis is on the relationship between atomic structure and the functional properties of these proteins.

Prerequisite: BIO SCI 98 and BIO SCI 99. BIO SCI 98 with a grade of B or better. BIO SCI 99 with a grade of B or better.

Concurrent with MOL BIO 255.

BIO SCI N160. Language and the Brain . 4 Units.
Research analysis on biological bases of human linguistic capacity. Development, focusing on hemispheric specialization, plasticity; localization of specific linguistic functions in adults, with emphasis on study of aphasias; relation of linguistic capacity to general cognitive capacity, considering research on retardation.

Prerequisite: BIO SCI 35 or BIO SCI N110.

Same as PSYCH 161, LINGUIS 158.

Restriction: Psychology and Biology majors have first consideration for enrollment.

BIO SCI E161L. Biology of Birds Lab. 4 Units.
The companion to Biology of Birds (E160). Consists primarily of field trips to identify local birds and study avian natural history. Students must provide their own transportation to field sites, some with entrance fees. Students must have field binoculars.

Corequisite: BIO SCI E160.
Prerequisite: BIO SCI 100 and BIO SCI 194S.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI E163. Environmental Microbiology. 4 Units.
Establishes a fundamental understanding of microbes living in the environment, including their distribution, diversity, and biochemistry, and discusses how they attribute to global biogeochemical cycles.

Prerequisite: (EARTHSS 53) or (EARTHSS 60A and EARTHSS 60C) or (BIO SCI E106 and BIO SCI M122).

Same as EARTHSS 170.

Concurrent with EARTHSS 270.

BIO SCI N164. Functional Neuroanatomy. 4 Units.
How neuroscience uses tools of many disciplines, from imaging to behavior, to develop and test hypotheses about functions of specific parts of the brain. Basic organization of nerve cells/vertebrate nervous system; methods of visualizing nerve cells; neural connections/activity patterns.

Prerequisite: BIO SCI N110.

BIO SCI N165. Brain Disorders and Behavior. 4 Units.
Examines the localization of human brain functions and the effects of neurological disorders on psychological functions such as perception, motor control, language, memory and decision-making.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or BIO SCI 35 or BIO SCI N110.

Same as PSYCH 160D.

Restriction: Psychology majors have first consideration for enrollment.

BIO SCI E166L. Field Biology. 4 Units.
Conducting group and independent studies in Southern California ecosystems, this course covers the fundamentals of experimental design, statistical analysis, communicating scientific findings (orally, visually, in writing), and other skills necessary for the scientific investigation of biological processes in the field. Materials fee.

Prerequisite: BIO SCI 100 and BIO SCI E106 and BIO SCI 194S. Satisfactory completion of the Lower-Division Writing Requirement.

(Ib)

BIO SCI N166. Introduction to Cognitive Neuroscience. 4 Units.
Introduction to the neural basis of human perceptual, motor, and cognitive abilities. Topics include sensory perception, motor control, memory, language, attention, emotion, frontal lobe function, functional brain imaging, and neuropsychological disorders.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or BIO SCI 35 or BIO SCI N110.

Same as PSY BEH 192L, PSYCH 160A.

Restriction: Psychology majors have first consideration for enrollment.

BIO SCI E168. Evolution. 4 Units.
An integrative treatment of evolutionary biology that covers evolutionary processes, basic research methods, and the history of life.

Prerequisite: BIO SCI E106.

BIO SCI D170. Applied Human Anatomy. 6 Units.
Systems approach to analyze the form and function of the human body with an emphasis on applying anatomical concepts to evaluate clinical cases. The laboratory will use human models and a simulated cadaver dissection for structure. Materials fee.

Prerequisite: BIO SCI E109 with a grade of C or better.

Overlaps with BIO SCI D136.

BIO SCI E170. Mechanical Physiology. 4 Units.
Explores the mechanics of animal physiology. Basic biomechanical principles are introduced and illustrated in a variety of physiological systems. Topics include the fluid and structural mechanics of muscles, skeletons, circulation, insect flight, biomaterials, and fish swimming.

Prerequisite: BIO SCI E109.

BIO SCI E172. Plant Diversity in a Changing World. 4 Units.
Investigation of planet diversity in California and throughout the world, including basic systematic concepts, an introduction to major groups of flowering plants, and the effects of global biological change on plant diversity.

Prerequisite: BIO SCI E106.

Concurrent with ECO EVO 272.

BIO SCI E172L. Plant Systematics Laboratory. 4 Units.
Diversity of flowering plants is investigated in the laboratory and field. Familiarity with flowering plant families, particularly those prominent in the California flora, is emphasized.

Prerequisite: BIO SCI E106 and BIO SCI 100 and BIO SCI 194S. Prerequisite or corequisite: BIO SCI E172.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

Concurrent with ECO EVO 273.

(Ib)

BIO SCI N172. Regenerative Neurobiology. 4 Units.
Explores the field of regenerative neurobiology. Both basic stem cell discoveries and their potential clinical application to brain disorders examined. Opportunities, challenges, and implications of this research also discussed.

Prerequisite: BIO SCI N110.

Overlaps with BIO SCI 44, BIO SCI D133.

BIO SCI E175. Restoration Ecology. 4 Units.
Theoretical and practical aspects of habitat restoration and mitigation. Design, implementation, and monitoring of restoration projects in local habitats. Collection of seed and cuttings, planting and maintenance presented. Control of exotics in natural areas discussed. Environmental ethics of restoration emphasized. Materials fee.

Prerequisite: Prerequisite or corequisite: BIO SCI E106.

BIO SCI E176. Evolution of Infectious Disease. 4 Units.
Introduction to the major human pathogens, and the ecological and evolutionary processes affecting their impact on public health. Topics include the evolution of drug resistance, problems in vaccine development, diseases emerging from animals, and bioterrorism.

Prerequisite: BIO SCI 94.

BIO SCI E179. Limnology and Freshwater Biology. 4 Units.
Biology of freshwater environments: lakes, ponds, rivers, their biota, and the factors which influence distribution of organisms.

Prerequisite: BIO SCI 94.

BIO SCI E179L. Field Freshwater Ecology. 4 Units.
Analytical techniques for common water-quality variables of lakes, streams, rivers. Benthic fauna, vertebrates and invertebrates, algae, and aquatic plants. Emphasis on field methods with an experimental approach; laboratory exercises. Field trips to marshes, vernal pools, rivers and streams. Materials fee.

Corequisite: BIO SCI E179.
Prerequisite: BIO SCI 100 and BIO SCI 194S. Prerequisite or corequisite: BIO SCI E179.

Restriction: Students who require this lab for completion of their degree have first consideration for enrollment.

(Ib)

BIO SCI E181. Conservation in the American West. 4 Units.
Critical examination of contemporary conservation issues in the American West, with particular attention to water in California, grazing on public lands, and species decline and extinctions.

Prerequisite: BIO SCI E106.

BIO SCI E182. Mediterranean Ecosystems: Biodiversity and Conservation. 4 Units.
Biodiversity, history of human impacts, and conservation efforts are examined in the five Mediterranean-type ecosystems. Remaining natural habitat, approaches to ecological habitat restoration, control of exotic species, and predicted consequences of global climate change are described. Field trip required.

Prerequisite: BIO SCI 94.

BIO SCI N182. Vision. 4 Units.
Visual perception and the anatomy and physiology of the visual system. Topics include: the retina and the visual pathway; visual sensitivity; color vision; spatial vision; motion perception; and the development of the visual system.

Same as PSYCH 131A.
Overlaps with PSYCH 130A.

Restriction: Upper-division students only. Psychology majors have first consideration for enrollment.

BIO SCI E183. Exercise Physiology. 4 Units.
Focus upon critical topics in the area of exercise biology using the comparative physiological approach. Specifically examine the physiological factors that limit the capacity of an organism to sustain high levels of aerobic metabolism.

Prerequisite: BIO SCI 98 and BIO SCI E109.

BIO SCI E184. Ecology and Diversity of Insects. 4 Units.
Insects—representing two-thirds of all species—play fundamental roles in human health, agriculture, and natural ecosystems. Topics include insect morphology, development, physiology, taxonomy, ecology, and insects in human affairs. Lecture includes interactive demonstrations and an optional weekend trip. Materials fee.

Prerequisite: BIO SCI E106.

BIO SCI E186. Population and Community Ecology. 4 Units.
Population structure, function, development, and evolution. Topics include population structure, population growth and regulation, metapopulations, predation, competition, species diversity, ecosystem function, macroecology, and island biogeography. Offered every other Winter.

Prerequisite: BIO SCI E106.

BIO SCI E188. Introduction to Insect Physiology. 4 Units.
Physiology of insects. Insect respiration, digestion, excretion, and neurobiology, including sensory systems and effectors.

Prerequisite: BIO SCI E109.

BIO SCI E189. Environmental Ethics. 4 Units.
History of evolution of environmental ethics in America. Management problems in national parks, wilderness areas, wild and scenic rivers, national forests. Contemporary and historical aspects/contributors to the field. Mitigation, endangered species, habitat restoration, biodiversity, and environmental activism. Field trips required.

Restriction: Upper-division students only.

BIO SCI 190. Transfer Student Seminar. 1 Unit.
Weekly meetings consisting of presentations by faculty, professional staff, and New Student Peer Academic Advisors provide information about the School of Biological Sciences, campus resources, and special programs/opportunities.

Grading Option: Pass/no pass only.

Restriction: New transfer students only.

BIO SCI D190. Topics in Developmental and Cell Biology. 2-4 Units.
Studies in selected areas of developmental and cell biology.

Prerequisite: BIO SCI D103.

Repeatability: May be taken for credit 3 times as topics vary.

Restriction: School of Biological Sciences majors only. Upper-division students only.

BIO SCI E190. Topics in Ecology and Evolutionary Biology. 2-4 Units.
Studies in selected areas of ecology and evolutionary biology.

Prerequisite: BIO SCI E106.

Repeatability: May be taken for credit 3 times as topics vary.

BIO SCI M190. Topics in Molecular Biology and Biochemistry. 2-4 Units.
Studies in selected areas of Molecular Biology and Biochemistry.

Prerequisite: BIO SCI 98.

Repeatability: May be taken for credit 3 times as topics vary.

BIO SCI N190. Topics in Neurobiology and Behavior. 2-4 Units.
Studies in selected areas of neurobiology and behavior.

Prerequisite: BIO SCI N110.

Repeatability: May be taken for credit 3 times as topics vary.

BIO SCI 191A. Senior Seminar on Global Sustainability I. 2 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze forum presentations. Prepare bibliography.

Prerequisite: BIO SCI 65 and ENVIRON E20 and EARTHSS 10.

Grading Option: In progress only.

Same as SOCECOL 186A, EARTHSS 190A.

Restriction: Seniors only.

BIO SCI 191B. Senior Seminar on Global Sustainability II. 2 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze forum presentations. Prepare research proposal.

Prerequisite: BIO SCI 191A or SOCECOL 186A or EARTHSS 190A.

Grading Option: In progress only.

Same as SOCECOL 186B, EARTHSS 190B.

Restriction: Seniors only.

BIO SCI 191CW. Writing/Senior Seminar on Global Sustainability III. 4 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze Forum presentations and to prepare senior research paper. Prepare/write research paper under direction of faculty member.

Prerequisite: BIO SCI 191B or EARTHSS 190B or SOCECOL 186B. Satisfactory completion of the Lower-Division Writing requirement.

Same as EARTHSS 190CW, SOCECOL 186CW.

Restriction: Seniors only.

(Ib)

BIO SCI 192. Tutoring in Biology. 2 Units.
Tutoring program with Biological Sciences student peers.

Repeatability: May be taken for credit 6 times.

Restriction: Biological Sciences Peer Tutoring Program students only.

BIO SCI 194. Current Topics in Biology. 1 Unit.
A seminar designed to discuss recent research findings and experimental issues in biology.

Corequisite: BIO SCI 199.

Grading Option: Pass/no pass only.

Repeatability: Unlimited as topics vary.

BIO SCI 194S. Safety and Ethics for Research. 1 Unit.
Introduces students to the concepts, techniques, and ethics involved in biological sciences laboratory work.

Grading Option: Pass/no pass only.

BIO SCI H195A. Honors Writing for Biological Research. 4 Units.
Science writing and critical reasoning. Work, research, and writing exercises are conducted in a computer laboratory. Preliminary writing exercises and further development of Excellence in Research to a full scientific senior thesis. This forms the basis for an oral defense.

Prerequisite: BIO SCI 199. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Excellence in Research Program students only.

BIO SCI H195B. Honors Physiology. 4 Units.
Contemporary research problems in physiology using insects as model systems. Topics include digestion, osmoregulation, development, and neurobiology, including sensory systems and behavior. Participating students present papers in a journal club-style format and write short essays summarizing research findings.

Restriction: Biological Sciences Honors Program students only. Graduate students only.

BIO SCI H195C. Honors Virus Evolution. 4 Units.
Viruses infect all domains of life and have had profound consequences on the development and survival of life. Examines virus emergence and evolution in a broad context. Weekly overview is followed by student presentations and essays based on contemporary literature.

Prerequisite: BIO SCI M124A.

BIO SCI 197. Special Study in Biological Sciences. 1-5 Units.
Individualized instruction dealing with conceptual or theoretical problems in the biological sciences, rather than technical problems.

Prerequisite: BIO SCI 94 and BIO SCI 194S.

Repeatability: May be repeated for credit unlimited times.

Restriction: Maximum of 5 units (per quarter) between BIO SCI 197, BIO SCI 198, and BIO SCI 199.

BIO SCI 198. Directed Group Studies. 1-5 Units.
Small group experimental laboratory or field work performed under the direction of a faculty member.

Prerequisite: BIO SCI 94 and BIO SCI 194S.

Repeatability: May be repeated for credit unlimited times.

BIO SCI 199. Independent Study in Biological Sciences Research. 1-5 Units.
Individual experimental laboratory or field research under a professor's direction. Required for participation in the Excellence in Research Program. Further information and a booklet describing many prospective projects are available in the Biological Sciences Student Affairs Office.

Prerequisite: BIO SCI 194S and BIO SCI 94.

Repeatability: Unlimited as topics vary.

Developmental and Cell Biology Courses

DEV BIO 200A. Research in Developmental and Cell Biology. 2-12 Units.
Independent research with Developmental and Cell Biology faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 200B. Research in Developmental and Cell Biology. 2-12 Units.
Independent research with Developmental and Cell Biology faculty.

Prerequisite: DEV BIO 200A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 200C. Research in Developmental and Cell Biology . 2-12 Units.
Independent research with Developmental and Cell Biology faculty.

Prerequisite: DEV BIO 200B.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 200R. Research in Developmental & Cell Biology for First-year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in the Department of Developmental and Cell Biology for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

DEV BIO 201A. Advanced Topics in Developmental Biology. 2 Units.
Advanced study in various fields of organismic biology.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

DEV BIO 203A. Graduate Tutorial in Developmental and Cell Biology. 4 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through discussion, reading, and composition. Time and subject matter arranged individually.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 203B. Graduate Tutorial in Developmental and Cell Biology. 4 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through discussion, reading, and composition. Time and subject matter arranged individually.

Prerequisite: DEV BIO 203A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 203C. Graduate Tutorial in Developmental and Cell Biology. 4 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through discussion, reading, and composition. Time and subject matter arranged individually.

Prerequisite: DEV BIO 203B.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 206A. Developmental and Cell Biology Journal Club. 2 Units.
Advanced study of various topics in cell biology.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 206B. Developmental and Cell Biology Journal Club. 2 Units.
Advanced study of various topics in cell biology.

Prerequisite: DEV BIO 206A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 206C. Developmental and Cell Biology Journal Club. 2 Units.
Advanced study of various topics in cell biology.

Prerequisite: DEV BIO 206B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 207. Mouse Developmental Genetics. 4 Units.
Introduction to using the mouse in contemporary biomedical research. The biology and development of the laboratory mouse, methods for manipulation of the mouse genome and embryos, and examples of application of these methods to understand mammalian development and homeostasis.

Same as BIOCHEM 215.

Restriction: Graduate students only.

DEV BIO 208. Balancing the Academic Workload. 2 Units.
Students receive formal training in pedagogy and balancing graduate-level biology research with concurrent teaching commitment. Recommended for graduate students who have an active research program and are teaching in the same quarter.

DEV BIO 209. Molecular Genetics Journal Club. 2 Units.
Advanced topics of current interest in molecular and developmental genetics.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

DEV BIO 210. Advanced Developmental Genetics. 4 Units.
Focuses on discussion of critical concepts in developmental biology and regeneration, with emphasis on model organisms such as Drosophila, Zebrafish, and murine systems. Molecular mechanisms underlying key developmental decisions also discussed.

Repeatability: May be taken for credit 2 times.

Restriction: Graduate students only.

DEV BIO 212. Topics in Systems Biology. 2 Units.
Studies in selected areas of Systems Biology.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

DEV BIO 231B. Cell Biology. 4 Units.
A broadly based course including topics in extracellular matrix, cytoskeleton, organelle biogenesis, receptor-mediated endocytosis, signal transduction, cell cycle, and developmental biology.

Concurrent with BIO SCI D154.

DEV BIO 232. Systems Cell and Developmental Biology. 4 Units.
Introduces concepts needed to understand cell and developmental biology at the systems level, i.e., how the parts (molecules) work together to create a complex output. Emphasis on using mathematical/computational modeling to expand/modify insights provided by intuition.

Same as BME 213.

Restriction: Graduate students only.

DEV BIO 245. Stem Cell Biology. 4 Units.
The basic characteristics and development roles of embryonic, adult, and cancer stem cells in the human body and in model systems and the use of experimental and genetic methods to analyze and manipulate their properties.

Restriction: Graduate students only.

DEV BIO 290A. Colloquium in Developmental and Cell Biology. 2 Units.
Contemporary research problems. Research students, faculty, and other invited speakers introduce research and review topics.

Restriction: Graduate students only.

DEV BIO 290B. Colloquium in Developmental and Cell Biology. 2 Units.
Contemporary research problems. Research students, faculty, and other invited speakers introduce research and review topics.

Prerequisite: DEV BIO 290A.

Restriction: Graduate students only.

DEV BIO 290C. Colloquium in Developmental and Cell Biology. 2 Units.
Contemporary research problems. Research students, faculty, and other invited speakers introduce research and review topics.

Prerequisite: DEV BIO 290B.

Restriction: Graduate students only.

DEV BIO 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Prerequisite: DEV BIO 292A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Prerequisite: DEV BIO 292B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 293. Seminar in Interactive Teaching in Biology. 2 Units.
Students receive formal training in use and assessment of interactive teaching strategies in university-level biology classes. Additional aspects of course design and implementation are covered. Recommended for graduate students who have or will be teaching discussion sections.

Repeatability: May be taken for credit 2 times.

DEV BIO 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Ecology and Evolutionary Biology Courses

ECO EVO 200A. Research in Ecology and Evolutionary Biology. 2-12 Units.
Individual research with Ecology and Evolutionary Biological faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 200B. Research in Ecology and Evolutionary Biology. 2-12 Units.
Individual research with Ecology and Evolutionary Biological faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 200C. Research in Ecology and Evolutionary Biology. 2-12 Units.
Individual research with Ecology and Evolutionary Biological faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 201. Seminar in Ecology and Evolutionary Biology. 2 Units.
Invited speakers, graduate students, and faculty present current research in ecology and evolutionary biology.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with BIO SCI E107.

ECO EVO 203A. Graduate Tutorial in Ecology and Evolutionary Biology. 2-12 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through reading, discussion, and composition.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 203B. Graduate Tutorial in Ecology and Evolutionary Biology. 2-12 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through reading, discussion, and composition.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 203C. Graduate Tutorial in Ecology and Evolutionary Biology. 2-12 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through reading, discussion, and composition.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 204. Writing Grant Proposals. 4 Units.
Provides students with hands-on experience writing proposals in the research areas of ecology, evolution, or physiology.

Restriction: Graduate students only.

ECO EVO 205. Special Topics in Ecology. 4 Units.
Survey of special topics in Ecology.

Restriction: Graduate students only.

ECO EVO 206. Special Topics in Evolution. 4 Units.
Extensive introduction to the primary literature of evolutionary biology. Topics include population genetics, quantitative genetics, neutralism, molecular evolution, evolution of genetic systems, genetic architecture of fitness, speciation, and macroevolution.

Restriction: Graduate students only.

ECO EVO 207. Quantitative Methods in Ecology and Evolutionary Biology. 4 Units.
Statistics for ecologists and evolutionary biologists. Emphasis on specific applications and underlying assumptions rather than on methods of calculation. Topics include experimental design, parametric and nonparametric methods, analysis of variance and covariance, and multiple regression.

Prerequisite: Completion of at least one quarter of statistics including regression and analysis of variance.

Restriction: Graduate students only.

ECO EVO 208. Ecological and Evolutionary Physiology. 4 Units.
A summary of information in organismal biology, comparative and ecological physiology, and the biophysical basis of organismal function. Course offered every other fall.

Restriction: Graduate students only.

ECO EVO 210. Foundations of Physiology. 4 Units.
Physical and functional principles common to many living forms. Course forms a basis for subsequent specialization in any of the subdisciplines of physiology. Course offered in even years.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 218. Advanced Topics in Evolutionary Biology. 4 Units.
Content and instructor will vary from quarter to quarter. Possible topics include quantitative genetics, experimental methods of evolutionary studies, mathematical modeling in evolutionary studies, and the evolution of genetic systems.

Repeatability: May be repeated for credit unlimited times.

ECO EVO 219. Advanced Topics in Ecological Genetics. 4 Units.
Content and instructor will vary from year to year. Possible topics include coevolution, sex-ratio evolution, evolution senescence, plant population biology, and density-dependent selection.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 221. Advanced Topics in Ecology. 2-4 Units.
Weekly discussion of current topics in ecology at the graduate level.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

ECO EVO 227. Plant Physiological Ecology. 4 Units.
Provides a summary of information on plant organismal biology, comparative and ecological physiology, and functional ecology. Offered every other fall.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 228. Seminar in Conservation Biology. 2 Units.
Devoted to the application of basic ecological principles to the understanding and resolution of environmental problems of both local and global natures. Current problems approached through a combination of readings, group discussions, and visiting speakers.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 230. Topics in Microbial Ecology. 2-4 Units.
Weekly discussion of current topics in ecology, biogeochemistry, evolution, and physiology of microbial organisms.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

ECO EVO 235. Experimental Evolution. 2 Units.
Explores experimental evolution, which is now a well-established part of evolutionary biology. With the advent of genomics, it is now one of the most powerful tools for studying the genetic foundations of biology.

Prerequisite: BIO SCI E106.

Repeatability: May be repeated for credit unlimited times.

Restriction: Biological Sciences graduate students only.

ECO EVO 246. Seminar in Ecology and Evolution Education. 2 Units.
Weekly discussion of teaching techniques and challenges that are specific to courses in ecology and evolutionary biology. Emphasis will be on using evidence-based pedagogy techniques. There will be a combination of readings, group discussions and speakers.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 251. Population Dynamics in Ecology, Epidemiology, and Medicine. 4 Units.
Explore the dynamics of populations on an ecological, epidemiological, and medical level. Considers the dynamics of competition, predation, and parasitism; the spread and control of infectious diseases; and the in vivo dynamics of viral infections and the immune system.

Restriction: Graduate students only.

Concurrent with BIO SCI E151.

ECO EVO 253. Functional and Structural Evolutionary Genomics. 4 Units.
Function and organization of genomes analyzed from an evolutionary perspective. Review of some of the most recent experimental approaches in genome analysis and comparative genomics. Relevant software to analyze DNA and expression data is used.

Concurrent with BIO SCI E153.

ECO EVO 272. Plant Diversity in a Changing World. 4 Units.
Investigation of plant diversity in California and throughout the world, including basic systematic concepts, introduction to major groups of flowering plants, and the effects of global biological change on plant diversity. Students carry out a phylogenetic analysis using appropriate software.

Concurrent with BIO SCI E172.

ECO EVO 273. Plant Systematics Laboratory. 4 Units.
Diversity of flowering plants is investigated in the laboratory and field. Familiarity with flowering plant families, particularly those prominent in the California flora, is emphasized.

Concurrent with BIO SCI E172L.

ECO EVO 285. Topics in Evolutionary Genetics. 2 Units.
Weekly discussion of recent research on evolutionary genetics.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 299. Independent Study. 1-4 Units.
Individual research or investigation under the direction of an individual faculty.

Grading Option: Satisfactory/unsatisfactory only.

ECO EVO 323. Curriculum and Methods for Elementary School Science. 4 Units.
Prospective elementary teachers learn how to teach science in grades K-8. Covers States science requirements, a variety of teaching methods, criteria for selecting science curriculum materials, and how to plan science lessons, units, experiments, projects, and demonstrations.

Same as EDUC 323.

ECO EVO 341. Teaching Science in Secondary School. 4 Units.
Prospective secondary science teachers learn how to teach science in grades 7-12. Covers State science requirements, a variety of teaching methods, criteria for selecting science curricular materials, and how to plan science lessons, units, experiments, projects, and demonstrations.

Same as EDUC 341.

Restriction: Teacher Credential Program students only.

ECO EVO 344. Applied Instructional Strategies in Secondary School Sciences. 4 Units.
Application of pedagogy and research to practice science teaching experiences in the secondary schools. A continuation of the Education 340 series with an emphasis on the needs of students with culturally diverse backgrounds.

Repeatability: May be taken for credit 2 times.

Same as EDUC 344.

Restriction: Teacher Credential Program students only.

ECO EVO 398. Teaching Assistant Seminar. 2 Units.
Readings, lectures, workshops, and student presentations designed to help develop teaching skills of graduate students teaching university-level biology classes. Topics vary and may include: course organization, presentation styles, exam design, grading, motivating students, and commonly encountered problems.

Repeatability: May be repeated for credit unlimited times.

ECO EVO 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Molecular Biology and Biochemistry Courses

MOL BIO 200A. Research in Molecular Biology and Biochemistry. 2-12 Units.
Individual research with Molecular Biology and Biochemistry faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

MOL BIO 200B. Research in Molecular Biology and Biochemistry. 2-12 Units.
Individual research with Molecular Biology and Biochemistry faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

MOL BIO 200C. Research in Molecular Biology and Biochemistry. 2-12 Units.
Individual research with Molecular Biology and Biochemistry faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

MOL BIO 200R. Research in Developmental & Cell Biology for First-year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in the Department of Molecular Biology and Biochemistry for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

MOL BIO 201A. Seminars in Molecular Biology & Biochemistry. 2 Units.
Presentation of research from department laboratories or, when pertinent, of other recent developments.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 201B. Seminars in Molecular Biology & Biochemistry. 2 Units.
Presentation of research from department laboratories or, when pertinent, of other recent developments.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 201C. Seminars in Molecular Biology & Biochemistry. 2 Units.
Presentation of research from department laboratories or, when pertinent, of other recent developments.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 202A. Tutorial in Molecular Biology and Biochemistry. 2 Units.
Tutorials in the area of research of a particular professor which relate current research to the literature. May be conducted as journal clubs.

Repeatability: Unlimited as topics vary.

MOL BIO 202B. Tutorial in Molecular Biology and Biochemistry. 2 Units.
Tutorials in the area of research of a particular professor which relate current research to the literature. May be conducted as journal clubs.

Repeatability: Unlimited as topics vary.

MOL BIO 202C. Tutorial in Molecular Biology and Biochemistry. 2 Units.
Tutorials in the area of research of a particular professor which relate current research to the literature. May be conducted as journal clubs.

Repeatability: Unlimited as topics vary.

MOL BIO 203. Nucleic Acid Structure and Function. 4 Units.
Structure and chemistry of nucleic acids. Relationship between these properties and the mechanisms of fundamental processes such as replication and repair, RNA-mediated catalysis, formation and regulation of higher order chromatin structure and recombination.

Prerequisite: BIO SCI 98 and BIO SCI 99 and CHEM 51A and CHEM 51B and CHEM 51C.

MOL BIO 204. Protein Structure and Function. 4 Units.
The structure and properties of proteins, enzymes, and their kinetic properties.

Prerequisite: BIO SCI 98 and BIO SCI 99 and CHEM 51C.

MOL BIO 205. Molecular Virology. 4 Units.
Primary research data on the major DNA and RNA viruses emphasizing strategies of regulation of gene expression. Utilization of viruses as molecular biological tools. Graduate-level knowledge of the biochemistry and molecular biology of macromolecules is required.

Prerequisite: MOL BIO 203 and MOL BIO 204.

Restriction: Graduate students only.

MOL BIO 211. High-Resolution Structures: NMR and X-ray. 4 Units.
Basic principles of magnetic resonance and x-ray crystallography toward the determination of high-resolution biomolecular structures.

Prerequisite: MATH 2B.

Restriction: Graduate students only.

Concurrent with BIO SCI M133.

MOL BIO 213. Literature in Nucleic Acid Structure and Function. 2 Units.
Exploration and critical analysis of recent primary scientific literature in structure, properties, and biological mechanisms involving nucleic acids.

Corequisite: MOL BIO 203.

Grading Option: Satisfactory/unsatisfactory only.

MOL BIO 214. Literature in Protein Structure and Function. 2 Units.
Exploration and critical analysis of recent primary scientific literature in structure and properties of proteins, enzymes, and their kinetic properties.

Corequisite: MOL BIO 204.

Grading Option: Satisfactory/unsatisfactory only.

MOL BIO 215. Integrative Immunology. 4 Units.
Lectures and student presentations of primary literature. The main goal is to achieve a basic understanding of the cellular and molecular basis of innate and adaptive immunity, and how immune function is coordinated at a systems level.

Same as M&MG 215.

MOL BIO 217A. Principles of Cancer Biology I. 4 Units.
Oncogenes and tumor suppressor genes are studied from molecular viewpoints. Also studies their role in cancer; viral carcinogenesis. Designed for graduate students interested in cancer research. Format includes lectures and student-led discussions.

Prerequisite: MOL BIO 203 and MOL BIO 204.

Restriction: Graduate students only.

MOL BIO 217B. Principles of Cancer Biology II. 4 Units.
Topics include cancer cell growth and metastasis, chemical carcinogenesis, and cancer genetics and epidemiology. Designed for graduate students interested in cancer research. Format includes lectures and student-led discussions.

Prerequisite: MOL BIO 203 and MOL BIO 204.

Restriction: Graduate students only.

MOL BIO 218. Clinical Cancer. 3 Units.
Designed to acquaint students in basic life science with clinical cancer.

Restriction: Graduate students and Postdocs only.

MOL BIO 220. Structure & Synthesis of Biological Macromolecules Journal Club. 2 Units.
Advanced topics in macromolecular struture and synthesis as related to biological problems.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

MOL BIO 221. Advanced Topics in Immunology. 4 Units.
Literature-based, interactive discussions focused on review of seminal historic and recent immunology literature. Student responsibilities include reading, critical evaluation, and discussion of manuscripts.

Prerequisite: M&MG 215.

Restriction: Graduate students only.

MOL BIO 221L. Advanced Immunology Laboratory. 4 Units.
An advanced course in immunology for graduate students enrolled in the Biotechnology master's program. Emphasis is placed on learning modern techniques in immunology such as ELISAs, western blotting, immunofluorescent staining assays.

Restriction: Graduate students only.

Concurrent with BIO SCI M121L.

MOL BIO 223. Introduction to Computational Biology. 4 Units.
The use of theories and methods based on computer science, mathematics, and physics in molecular biology and biochemistry. Basics in biomolecular modeling. Analysis of sequence and structural data of biomolecules. Analysis of biomolecular functions.

Concurrent with BIO SCI M123.

MOL BIO 224. Virus Engineering Laboratory. 4 Units.
An advanced laboratory for graduate students enrolled in the Biotechnology master's program. Students learn to engineer recombinant eukuryotic viruses and express genes in mouse tissue.

Restriction: Graduate students only.

MOL BIO 227. Immunlology Journal Club. 2 Units.
Advanced topics in immunology as related to an understanding of human disease.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 15 times.

Restriction: Graduate students only.

MOL BIO 227L. Virology and Immunology Laboratory. 5 Units.
Introductory laboratory course in virology and immunology designed for Biological Sciences graduate students. Curriculum includes plasmid preparation, plasmid characterization, microscopy, cell culture, transfection and infection of cells, cell counting, plaque assays, ELISA, Western blot, mixed lymphocyte reactions.

Restriction: Graduate students only.

MOL BIO 228. Genetic Engineering and Biotechnology. 4 Units.
An advanced course in genetic engineering and biotechnology for graduates enrolled in the Biotechnology Master's Program. Emphasis will be placed on learning advanced methods in assembling the gene for expression in bacteria, yeast and human cells.

Restriction: Graduate students only.

MOL BIO 229. Research-in-Progress Seminars. 1 Unit.
Two half-hour presentations by graduate students and postdoctorals to the department on their current research projects.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 15 times.

Restriction: Graduate students only.

MOL BIO 250. Advanced Topics in Biotechnology - Nucleic Acids. 2 Units.
Supplements laboratory curriculum with scientific background behind experimental methods. Format consists of lectures and the presentation and analysis of relevant papers from the scientific literature.

Corequisite: MOL BIO 250L.

Restriction: Biotechnology graduate students only.

MOL BIO 250L. Biotechnology Laboratory - Nucleic Acids. 8 Units.
Nucleic acid techniques and recombinant DNA technology. Extraction and purification of nucleic acids, cloning and subcloning, PCR, site-directed mutagenesis, nucleic acid hybridization, additional associated procedures. Students must demonstrate accurate documentation of data (laboratory notebook) detailing experience and results.

Corequisite: MOL BIO 250.

Restriction: Biotechnology graduate students only.

MOL BIO 251. Advanced Topics in Biotechnology - Protein Purification and Characterization. 2 Units.
Supplements laboratory curriculum with scientific background behind experimental methods. Format consists of lectures and the presentation and analysis of relevant papers from the scientific literature.

Corequisite: MOL BIO 251L.
Prerequisite: MOL BIO 250L and MOL BIO 250.

Restriction: Biotechnology graduate students only.

MOL BIO 251L. Biotechnology Laboratory - Protein Purification and Characterization. 8 Units.
Major techniques of handling proteins and antibodies. Protein engineering, expression and large-scale purification of recombinant proteins from bacteria, HPLC, antibody purification, western blotting, additional associated procedures. Students must demonstrate accurate documentation of data (laboratory notebook) detailing experience and results.

Corequisite: MOL BIO 251.
Prerequisite: MOL BIO 250L and MOL BIO 250.

Restriction: Biotechnology graduate students only.

MOL BIO 252L. Biotechnology Management Laboratory. 8 Units.
Overview of current methods in biotechnology, designed specifically for biotechnology graduate students. Organized into four distinct sections (nucleic acids, proteins, virology, and immunology). Students must demonstrate accurate documentation of data (laboratory notebooks) detailing experience and results.

Restriction: Biotechnology graduate students only.

MOL BIO 253. Biotech Management . 5 Units.
Taught jointly by Biological Sciences and Merage School faculty, the course addresses fundamental aspects within, and associated with, the biotechnology industry. Curriculum is focused largely on management issues, including finance, product development, pharmaceuticals, project management, regulatory affairs, and ethics.

Same as MGMTMBA 293.

Restriction: Master's Program in Biotechnology Management students only.

MOL BIO 253L. Stem Cell Laboratory. 4 Units.
Designed to prepare M.S. Biotechnology program students for a career in stem cell research. Laboratory training utilizes tissue culture, mouse and human embryonic stem cells, and is enhanced with didactic material and discussion.

Prerequisite: MOL BIO 250L and MOL BIO 251L.

Restriction: Biotechnology graduate students only.

MOL BIO 255. Structure-Function Relationships of Integral Membrane Proteins. 4 Units.
Integral membrane proteins such as voltage and ligand-gated ion channels, water channels, pumps, cotransporters, and receptors (e.g., GPCRs). The emphasis is on the relationship between atomic structure and the functional properties of these proteins.

Prerequisite: BIO SCI 98 and BIO SCI 99. BIO SCI 98 with a grade of B or better. BIO SCI 99 with a grade of B or better.

Concurrent with BIO SCI M160.

MOL BIO 280. Advanced Topics in Biochemistry and Molecular Biology. 3 Units.
Selected topics in specified areas of concentration, e.g., nucleic acids, protein biochemistry, genetic expression, biochemical genetics. Specific topics announced in advance.

Restriction: Graduate students only.

MOL BIO 291. Graduate School Fundamentals. 2 Units.
Lectures and discussions providing basic skills needed for success in Ph.D. graduate studies. Topics include formulating a hypothesis, experimental design, literature review, grant writing, oral communication, biostatistics, time management, and professional development.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: First-year students in the Cellular and Molecular Biosciences gateway Ph.D. program.

MOL BIO 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 293A. Cancer Biology Journal Club. 1 Unit.
Focuses on molecular mechanisms that underlie the development and progression of cancers. Covers a variety of cancer-related research areas, such as cell cycle control, apoptosis, DNA repair, metastasis, angiogenesis, and others.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

MOL BIO 293B. Cancer Biology Journal Club. 1 Unit.
Focuses on molecular mechanisms that underlie the development and progression of cancers. Covers a variety of cancer-related research areas, such as cell cycle control, apoptosis, DNA repair, metastasis, angiogenesis, and others.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

MOL BIO 293C. Cancer Biology Journal Club. 1 Unit.
Focuses on molecular mechanisms that underlie the development and progression of cancers. Covers a variety of cancer-related research areas, such as cell cycle control, apoptosis, DNA repair, metastasis, angiogenesis, and others.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

MOL BIO 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Restriction: Graduate students only.

Neurobiology and Behavior Courses

NEURBIO 200A. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 200B. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Prerequisite: NEURBIO 200A.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 200C. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Prerequisite: NEURBIO 200B.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 201A. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 201B. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Prerequisite: NEURBIO 201A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 201C. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Prerequisite: NEURBIO 201B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 202A. Foundations of Neuroscience. 2 Units.
Intended to expose students to critical reading and analysis of the primary neuroscience literature. Instructors from departments associated with the Interdepartmental Neuroscience Program participate and discuss topics of current interest.

Grading Option: Satisfactory/unsatisfactory only.

NEURBIO 202B. Foundations of Neuroscience. 2 Units.
Intended to expose students to critical reading and analysis of the primary neuroscience literature. Instructors from departments associated with the Interdepartmental Neuroscience Program participate and discuss topics of current interest.

Prerequisite: NEURBIO 202A.

Grading Option: Satisfactory/unsatisfactory only.

NEURBIO 202C. Foundations of Neuroscience. 2 Units.
Intended to expose students to critical reading and analysis of the primary neuroscience literature. Instructors from departments associated with the Interdepartmental Neuroscience Program participate and discuss topics of current interest.

Prerequisite: NEURBIO 202B.

Grading Option: Satisfactory/unsatisfactory only.

NEURBIO 206. Molecular Neuroscience. 5 Units.
Surveys molecular and cellular mechanisms involved in neuronal function, including control of gene expression, post-transcriptional and post-translational processing, RNA and protein targeting, cell death mechanisms, and molecular genetic basis of neurological disorders. Overview of the molecular aspects of developmental neurobiology.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 207. Cellular Neuroscience. 5 Units.
Neurophysiological and neurochemical mechanisms of electrical and chemical signaling in neurons. Topics include generation of resting- and action-potentials, voltage- and ligand-gated ion channels, second messenger systems, and synaptic transmission and integration.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 207L. Cellular Neuroscience Laboratory. 2 Units.
Intensive hands-on laboratory experience of contemporary techniques for studying ion channels and synaptic function. Experiments include microelectrode recording, patch clamp, quantal analysis of synaptic transmission, heterologous expression of genes for channels and receptors, brain slice, and fluorescence calcium imaging.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 208A. Systems Neuroscience. 5 Units.
Study of the mammalian nervous system at the systems level. Anatomy and physiology of sensory, motor, and integrative functions.

Repeatability: May be taken for credit 2 times.

Same as ANATOMY 210A.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 208B. Systems Neuroscience. 5 Units.
Study of the mammalian nervous system at the systems level. Anatomy and physiology of sensory, motor, and integrative functions.

Prerequisite: NEURBIO 208A.

Repeatability: May be taken for credit 2 times.

Same as ANATOMY 210B.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 209. Behavioral Neuroscience. 5 Units.
Overview of fundamental conceptual and experimental issues in the neurobiology of learning and memory. The approach is a cross-level integration of research in molecular-genetic, cellular, circuit, systems, and behavioral analyses.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 230. Chromatin Structure and Function. 4 Units.
Focuses on the role of chromatin/nuclear structure organization in eukaryotic genome regulation. The effects of histone and DNA modification, chromatin remodeling, higher order chromatin structure and nuclear organization on gene regulation, DNA replication, and repair are discussed.

Prerequisite: MOL BIO 203 or MOL BIO 204 or NEUROBIO 206.

Same as BIOCHEM 225.

Restriction: Graduate students only.

NEURBIO 231. Clinical and Epidemiological Aspects of Neurodegenerative Diseases. 4 Units.
Clinical and epidemiological aspects of neurodegenerative disorders causing dementia will be reviewed, including AD, PD, FTD, HD and cerebrovascular disease. Seminar format will include student presentations and group discussion.

Restriction: Graduate students only.

NEURBIO 232. Regenerative Neurobiology. 4 Units.
Surveys the latest research on regenerative neurobiology. Both basic stem cell discoveries and their potential clinical application to brain disorders will be examined.

NEURBIO 235. Balancing Research and Teaching. 1 Unit.
The goal of this course is to offer graduate students who have commitments outside of their research program (such as teaching) an opportunity to learn to balance these commitments.

NEURBIO 236. Cortex: Structure, Function, and Plasticity. 4 Units.
Structured to include lectures and presentation of papers about cortex with emphasis on sensory-motor cortex. Both historical and current perspectives on cortical structure-function relationship will be critically evaluated.

NEURBIO 237. Neurobiology of Brain Aging. 4 Units.
Outlines some of the significant changes that occur in the aging brain, with a special emphasis on risk factors and protective strategies that promote successful brain aging. Topics include changes in synaptic plasticity, neurotrophic factors, and molecular mechanisms in aging.

Prerequisite: NEURBIO 209.

NEURBIO 238. Neurobiology of Memory as a Multidisciplinary Science. 4 Units.
The study of memory is a highly multidisciplinary science ranging from molecular and cellular studies in reduced studies in reduced preparations to functional imaging studies in humans. The focus is to integrate across approaches and levels of analysis to better understand how the hippocampus, and its constituent elements, subserves memory. Emphasis on the challenges of this multidisciplinary field.

Restriction: Majors only

NEURBIO 239. Functional Imaging of the Nervous System. 4 Units.
Overview of technical and applied aspects of imaging techniques available for studying the nervous system. The areas emphasized are cellular and subcellular imaging of neural function, systems-level imaging of brain function, and imaging of the human brain.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 240. Advanced Analysis of Learning and Memory. 4 Units.
Advanced analysis of contemporary research concerning the nature and neurobiological bases of learning and memory. Special emphasis is given to time-dependent processes involved in memory storage.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 244. Cognitive Neuroscience of Human Memory. 4 Units.
In-depth treatment of current topics of interest in the cognitive neuroscience of human long-term memory. Topics include methods of investigation of human memory, functional architecture of memory, implicit vs. explicit distinction, and control processes in memory, among others.

Prerequisite: NEURBIO 209.

NEURBIO 248. Topics in Neurobiology and Behavior. 4 Units.
Studies in selected areas of Neurobiology and Behavior. Topics addressed vary each quarter.

Repeatability: May be taken for credit 3 times.

NEURBIO 249. Electronics for Biologists. 4 Units.
Basic principles of electricity; properties and use of discrete components and integrated circuits; circuit analysis and design. Intended for advanced students in the life sciences.

Same as PHYSIO 205.

NEURBIO 250. Basal Ganglia and Movement Disorders. 4 Units.
Principles underlying the organization and functions of the basal ganglia and amygdala are considered. The circuitry, neurotransmitters, and influences on cortex and brainstem motor regions are discussed. Clinical disorders of the basal ganglia, including parkinsonism and ballism, are included.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 254. Molecular Neurobiology. 4 Units.
The application of genetic and recombinant DNA technology to neurobiology. Topics include the study of neuronal proteins which play important roles in the formation of synapses and synaptic transmission.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 255. History of Neuroscience. 4 Units.
An overview of the conceptual and technical foundations of contemporary neuroscience from ancient times to the present. The subjects include synapses, neurons, brain organization, sensory, motor and regulatory systems, learning and memory, human brain function and dysfunction.

Repeatability: May be taken for credit 2 times.

Restriction: Neurobiology and Behavior graduate students only.

Concurrent with BIO SCI N119.

NEURBIO 257. Statistics for Neurobiologists. 4 Units.
IIntroduction to common methods for statistical analysis used in neurobiology. Topics covered include t-tests, ANOVAs, correlations and regressions, general linear model, power analysis, and non-parametric tests.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 260. Auditory Neuroscience. 4 Units.
Multidisciplinary overview of brain mechanisms of hearing. Emphasizes breath of auditory function and research: single neurons to psychoacoustics, the chochlea to the cortex, and basic science to clinic.

NEURBIO 261. Advanced Topics in Neurodegeneration. 4 Units.
Neurodegenerative disorders represent one of the most devastating illnesses to afflict humans, and usually occur in an age-dependent fashion. Course reviews the basic mechanisms that underlie cognitive and motor dysfunction in the major disorders of the brain.

Prerequisite: NEURBIO 206.

NEURBIO 265. Developmental Neurobiology—Wiring the Brain. 4 Units.
The development of the nervous system is discussed with particular emphasis on the processes that underlie the appearance of complex and highly ordered neural circuits. Topics include neuronal migration, axon guidance, and formation and maintenance of synaptic connections.

NEURBIO 290. Colloquium in Neurobiology and Behavior. 1.3 Unit.
Presentation of contemporary research problems in neurobiology and behavior and related areas by invited speakers.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 292. Scientific Communication. 4 Units.
Students learn how to effectively communicate scientific ideas and results. Activities include learning how to effectively write a scientific manuscript, how to perform a coherent slide presentation, and how to run-through a poster presentation.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 399. University Teaching. 1-4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Developmental and Cell Biology

2212 Biological Sciences III; 949-824-2458
http://devcell.bio.uci.edu/
Diane K. O'Dowd, **Department Chair**
Kavita Arora, **Department Vice Chair**

Research programs of the Department of Developmental and Cell Biology focus on molecular aspects of the development of eukaryotic organisms, on the molecular interaction of cells in tissue differentiation, and expression and function of genes related to the biogenesis of organelles and cellular constituents. The main emphasis of research training is in the molecular aspects of cells and development, and the utilization of biotechnology. The Department maintains facilities for research that include genetic, molecular, and biochemical techniques and also has facilities in advanced electron optics, microsurgery, microinjection, and neurophysiology.

The Department offers graduate study in conjunction with the program in Cellular and Molecular Biosciences (CMB), the Interdepartmental Neuroscience Program (INP), and the program in Mathematical and Computational Biology (MCB), which are described in a previous section. Students admitted into the combined program who select a research advisor in the Department begin following the departmental requirements for the Ph.D. at the beginning of their second year. Students participate in the Developmental or Cell Biology Journal Club and the departmental seminar series, which meet weekly during the academic year. Students must complete the advancement-to-candidacy examination by the end of the third year of graduate study by presenting and defending a proposal for specific dissertation research. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Faculty

Dritan Agalliu, Ph.D. Columbia University, *Assistant Professor of Developmental and Cell Biology* (molecular, cellular, and genetic analysis of mammalian blood-brain barrier development, the role of the barrier in disease pathogenesis)

Joseph Arditti, Ph.D. University of Southern California, *Professor Emeritus of Developmental and Cell Biology* (developmental physiology of orchids)

Kavita Arora, Ph.D. University of Bombay, *Professor of Developmental and Cell Biology* (Drosophila development; TGF-ß signal transduction; cell signaling)

Pierre F. Baldi, Ph.D. California Institute of Technology, *UCI Chancellor's Professor of Computer Science; Biological Chemistry; Biomedical Engineering; Developmental and Cell Biology* (bioinformatics, computational biology)

Lee Bardwell, Ph.D. Stanford University, *Professor of Developmental and Cell Biology* (intracellular signaling in development and disease)

Michael W. Berns, Ph.D. Cornell University, *Arnold and Mabel Beckman Chair in Laser Biomedicine* and *Professor of Surgery; Biomedical Engineering; Developmental and Cell Biology* (photomedicine, laser microscopy, biomedical devices)

Bruce Blumberg, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering; Environmental Health Sciences; Pharmaceutical Sciences* (gene regulation by nuclear hormone receptors in vertebrate development physiology, endocrine disruption)

Hans R. Bode, Ph.D. Yale University, *Professor Emeritus of Developmental and Cell Biology* (molecular basis of pattern formation in Hydra)

Peter J. Bryant, Ph.D. University of Sussex, *Research Professor and Professor Emeritus of Developmental and Cell Biology* (tumor-suppressor genes of Drosophila and humans)

Susan V. Bryant, Ph.D. University of London, *Professor Emerita of Developmental and Cell Biology* (molecular basis of limb development and regeneration)

Anne L. Calof, Ph.D. University of California, San Francisco, *Professor of Anatomy and Neurobiology; Developmental and Cell Biology* (neurogenesis and neuronal differentiation)

Richard D. Campbell, Ph.D. The Rockefeller University, *Professor Emeritus of Developmental and Cell Biology* (Morphogenesis; biology of Hydra; fractal geometry of biological forms)

Ken W. Cho, Ph.D. University of Pennsylvania, *Professor of Developmental and Cell Biology* (TGF-ß signaling, gene regulatory networks in development)

Olivier Cinquin, Ph.D. University College London, *Assistant Professor of Developmental and Cell Biology* (mathematical modeling of networks, systems biology)

Olivier Civelli, Ph.D. Swiss Federal Institute of Technology in Zurich, *Department Chair and Eric L. and Lila D. Nelson Chair in Neuropharmacology* and *Professor of Pharmacology; Developmental and Cell Biology; Pharmaceutical Sciences* (novel neuroactive molecules)

Peter J. Donovan, Ph.D. University College London, *Professor of Biological Chemistry; Developmental and Cell Biology* (stem cell biology)

Aimee Lara Edinger, Ph.D. University of Pennsylvania, *Associate Professor of Developmental and Cell Biology* (cancer biology and metabolism, growth control, protein trafficking)

German A. Enciso Ruiz, Ph.D. Rutgers, the State University of New Jersey, *Associate Professor of Mathematics; Developmental and Cell Biology* (applied and computational mathematics, mathematical and computational biology)

Donald E. Fosket, Ph.D. University of Idaho, *Professor Emeritus of Developmental and Cell Biology* (regulation of cytoskeleton formation and function)

David M. Gardiner, Ph.D. University of California, San Diego, *Professor of Developmental and Cell Biology* (limb development and regeneration)

Enrico Gratton, Ph.D. University of Rome, *Professor of Biomedical Engineering; Developmental and Cell Biology; Physics and Astronomy* (design of new fluorescence instruments, protein dynamics, single molecule, fluorescence microscopy, photon migration in tissues)

Steven P. Gross, Ph.D. University of Texas at Austin, *Professor of Developmental and Cell Biology; Biomedical Engineering; Physics and Astronomy* (force generation by molecular motors in living cells)

Patrick L. Healey, Ph.D. University of California, Berkeley, *Professor Emeritus of Developmental and Cell Biology* (plant cellular differentiation and morphogenesis, ultrastructure and histochemistry of secretory systems, early reproductive development)

Franz J. Hoffmann, Ph.D. University of Hohenheim, *Senior Lecturer with Security of Employment Emeritus of Developmental and Cell Biology* (regeneration of cultured plant cells, somatic cell genetics)

Daniel J. Knauer, Ph.D. University of Nebraska, *Professor Emeritus of Developmental and Cell Biology* (human antithrombins and related serine protease inhibitors)

Stuart M. Krassner, SCE Johns Hopkins University, *Professor Emeritus of Developmental and Cell Biology* (developmental transitions of hemoflagellates)

Arthur D. Lander, Ph.D. University of California, San Francisco, *Donald Bren Professor* and *Professor of Developmental and Cell Biology; Biomedical Engineering; Logic and Philosophy of Science; Pharmacology* (systems biology of development, pattern formation, growth control)

Shin Lin, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering* (combined use of biochemistry, cell biology, molecular biology, molecular biophysics to study the structure and function of proteins involved in cytoskeletal/contractile functions and signal transduction in muscle and nonmuscle cells)

Ulrike Luderer, M.D., Ph.D. Northwestern University, *Professor of Medicine; Developmental and Cell Biology; Environmental Health Sciences; Program in Public Health* (reproductive toxicology, developmental toxicology, developmental basis of ovarian toxicity, ovarian cancer)

Grant R. MacGregor, Ph.D. University of Sussex, *Associate Professor of Developmental and Cell Biology* (mouse reproduction, development, homeostasis)

J. Lawrence Marsh, Ph.D. University of Washington, *Professor of Developmental and Cell Biology* (mechanisms of neurodegeneration and molecular genetics of development)

Debra K. Mauzy-Melitz, Ph.D. Marquette University, *Lecturer with Potential Security of Employment of Developmental and Cell Biology* (role of writing in scientific teaching)

Ronald L. Meyer, Ph.D. California Institute of Technology, *Professor of Developmental and Cell Biology* (development of nerve connections, nerve injury, and regeneration)

Edwin S. Monuki, M.D. University of California, San Diego, *Associate Professor of Pathology and Laboratory Medicine; Developmental and Cell Biology* (cerebral cortex, choroid plexus development, translation)

Seyed Ali Mortazavi, Ph.D. California Institute of Technology, *Assistant Professor of Developmental and Cell Biology* (functional genomics to study transcriptional regulation in development)

R. Michael Mulligan, Ph.D. Michigan State University, *Professor of Developmental and Cell Biology; Ecology and Evolutionary Biology* (RNA editing in plant mitochondria and chloroplasts)

Diane K. O'Dowd, Ph.D. University of California, San Diego, *Professor of Developmental and Cell Biology; Anatomy and Neurobiology* (regulation of activity in developing and adult nervous systems)

Maksim Plikus, Ph.D. University of Southern California, *Assistant Professor of Developmental and Cell Biology* (mechanisms of regeneration, stem cell control)

Susanne M. Rafelski, Ph.D. Stanford University, *Assistant Professor of Developmental and Cell Biology; Biomedical Engineering* (control of mitochondrial network size, topology and function in budding yeast cells)

Thomas F. Schilling, Ph.D. University of Oregon, *Professor of Developmental and Cell Biology* (zebrafish development, vertebrate genetics, craniofacial development)

Justin F. Shaffer, Ph.D. University of Washington, *Lecturer with Potential Security of Employment of Developmental and Cell Biology* (improving teaching and learning in college science classes)

Christine Suetterlin, Ph.D. University of Basel, *Associate Professor of Developmental and Cell Biology* (centrosome and cilia regulation, Golgi, host-pathogen interaction)

Sha Sun, Ph.D. University of Chicago, *Assistant Professor of Developmental and Cell Biology* (long noncoding RNAs in epigenetic programming)

Rahul Warrior, Ph.D. Yale University, *Associate Professor of Developmental and Cell Biology* (developmental genetics of transcription and proteoglycan synthesis)

Xaiohui Xie, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Computer Science; Developmental and Cell Biology* (computational biology, bioinformatics, genomics, neural computation, machine learning)

Courses

DEV BIO 200A. Research in Developmental and Cell Biology. 2-12 Units.
Independent research with Developmental and Cell Biology faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 200B. Research in Developmental and Cell Biology. 2-12 Units.
Independent research with Developmental and Cell Biology faculty.

Prerequisite: DEV BIO 200A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 200C. Research in Developmental and Cell Biology . 2-12 Units.
Independent research with Developmental and Cell Biology faculty.

Prerequisite: DEV BIO 200B.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 200R. Research in Developmental & Cell Biology for First-year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in the Department of Developmental and Cell Biology for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

DEV BIO 201A. Advanced Topics in Developmental Biology. 2 Units.
Advanced study in various fields of organismic biology.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

DEV BIO 203A. Graduate Tutorial in Developmental and Cell Biology. 4 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through discussion, reading, and composition. Time and subject matter arranged individually.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 203B. Graduate Tutorial in Developmental and Cell Biology. 4 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through discussion, reading, and composition. Time and subject matter arranged individually.

Prerequisite: DEV BIO 203A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 203C. Graduate Tutorial in Developmental and Cell Biology. 4 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through discussion, reading, and composition. Time and subject matter arranged individually.

Prerequisite: DEV BIO 203B.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

DEV BIO 206A. Developmental and Cell Biology Journal Club. 2 Units.
Advanced study of various topics in cell biology.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 206B. Developmental and Cell Biology Journal Club. 2 Units.
Advanced study of various topics in cell biology.

Prerequisite: DEV BIO 206A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 206C. Developmental and Cell Biology Journal Club. 2 Units.
Advanced study of various topics in cell biology.

Prerequisite: DEV BIO 206B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 207. Mouse Developmental Genetics. 4 Units.
Introduction to using the mouse in contemporary biomedical research. The biology and development of the laboratory mouse, methods for manipulation of the mouse genome and embryos, and examples of application of these methods to understand mammalian development and homeostasis.

Same as BIOCHEM 215.

Restriction: Graduate students only.

DEV BIO 208. Balancing the Academic Workload. 2 Units.
Students receive formal training in pedagogy and balancing graduate-level biology research with concurrent teaching commitment. Recommended for graduate students who have an active research program and are teaching in the same quarter.

DEV BIO 209. Molecular Genetics Journal Club. 2 Units.
Advanced topics of current interest in molecular and developmental genetics.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

DEV BIO 210. Advanced Developmental Genetics. 4 Units.
Focuses on discussion of critical concepts in developmental biology and regeneration, with emphasis on model organisms such as Drosophila, Zebrafish, and murine systems. Molecular mechanisms underlying key developmental decisions also discussed.

Repeatability: May be taken for credit 2 times.

Restriction: Graduate students only.

DEV BIO 212. Topics in Systems Biology. 2 Units.
Studies in selected areas of Systems Biology.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

DEV BIO 231B. Cell Biology. 4 Units.
A broadly based course including topics in extracellular matrix, cytoskeleton, organelle biogenesis, receptor-mediated endocytosis, signal transduction, cell cycle, and developmental biology.

Concurrent with BIO SCI D154.

DEV BIO 232. Systems Cell and Developmental Biology. 4 Units.
Introduces concepts needed to understand cell and developmental biology at the systems level, i.e., how the parts (molecules) work together to create a complex output. Emphasis on using mathematical/computational modeling to expand/modify insights provided by intuition.

Same as BME 213.

Restriction: Graduate students only.

DEV BIO 245. Stem Cell Biology. 4 Units.
The basic characteristics and development roles of embryonic, adult, and cancer stem cells in the human body and in model systems and the use of experimental and genetic methods to analyze and manipulate their properties.

Restriction: Graduate students only.

DEV BIO 290A. Colloquium in Developmental and Cell Biology. 2 Units.
Contemporary research problems. Research students, faculty, and other invited speakers introduce research and review topics.

Restriction: Graduate students only.

DEV BIO 290B. Colloquium in Developmental and Cell Biology. 2 Units.
Contemporary research problems. Research students, faculty, and other invited speakers introduce research and review topics.

Prerequisite: DEV BIO 290A.

Restriction: Graduate students only.

DEV BIO 290C. Colloquium in Developmental and Cell Biology. 2 Units.
Contemporary research problems. Research students, faculty, and other invited speakers introduce research and review topics.

Prerequisite: DEV BIO 290B.

Restriction: Graduate students only.

DEV BIO 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Prerequisite: DEV BIO 292A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Prerequisite: DEV BIO 292B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

DEV BIO 293. Seminar in Interactive Teaching in Biology. 2 Units.
Students receive formal training in use and assessment of interactive teaching strategies in university-level biology classes. Additional aspects of course design and implementation are covered. Recommended for graduate students who have or will be teaching discussion sections.

Repeatability: May be taken for credit 2 times.

DEV BIO 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Ecology and Evolutionary Biology

321 Steinhaus Hall; 949-824-6006
http://ecoevo.bio.uci.edu/
Laurence D. Mueller, **Department Chair**

Ecology and evolutionary biology deals with the establishment of adaptations over evolutionary time and with the organismal function in ecological time. Faculty in the Department of Ecology and Evolutionary Biology study questions pertinent at a variety of levels of biological organization, from molecular aspects of evolution, to organismal structure and performance, to the ecology of ocean ecosystems. Research is conducted in both the laboratory and field and includes work on a variety of organisms from phages and bacteria, to higher plants and animals. Primary attention is given to evolutionary, ecological, and functional questions rather than to particular habitats or taxa. Faculty and graduate student research is often collaborative and interdisciplinary in approach. Departmental research activities include physiological ecology energetics, plant-herbivore and plant-pollinator interactions, microbial ecology and coevolution, quantitative genetics, life history evolution, population and reproductive ecology, community ecology and biogeography. These research endeavors provide a balance between empirical and theoretical approaches to evolutionary, organismal, and ecological problems.

The graduate program offers both the Plan I M.S. and the Ph.D. in Biological Sciences.

Students are required to complete a minimum of five core courses during their first six academic quarters. Two of those courses are required graduate-level courses that all students must take:	
ECO EVO 204	Writing Grant Proposals (typically in the second year)
ECO EVO 207	Quantitative Methods in Ecology and Evolutionary Biology (typically in the first year)
In addition students must take one course each in the areas of Physiology (P), Ecology (EC), and Evolution (EV). Although all three courses can be taken at the graduate level (G), one of the three courses may be taken as an upper-division undergraduate course (U). The list of acceptable courses is currently limited to:	
ECO EVO 208	Ecological and Evolutionary Physiology (GP)
PHYSIO 206A	Introduction to Medical Physiology (GP)
PHYSIO 206B	Introduction to Medical Physiology (GP)
ANATOMY 201	Human Gross Anatomy (GP)
BIO SCI E109	Human Physiology (UP)
BIO SCI E127	Physiological Plant Ecology (UP)
BIO SCI E138	Comparative Animal Physiology (UP)
BIO SCI E145	Animal Coloration and Vision (UP)
BIO SCI E170	Mechanical Physiology (UP)
ECO EVO 205	Special Topics in Ecology (GEC)
ECO EVO 251	Population Dynamics in Ecology, Epidemiology, and Medicine (GEC)
BIO SCI E118	Ecosystem Ecology (UEC)
BIO SCI E151	Population Dynamics in Ecology, Epidemiology, and Medicine (UEC)
BIO SCI E166L	Field Biology (UEC)
BIO SCI E186	Population and Community Ecology (UEC)
ECO EVO 206	Special Topics in Evolution (GEV)
BIO SCI E135	Molecular Evolution (UEV)
BIO SCI E137	Genetics of Complex Traits (UEV)
BIO SCI E153	Functional and Structural Evolutionary Genomics (UEV)
BIO SCI E154	Genetics and Human History (UEV)
BIO SCI E168	Evolution (UEV)

If a student wishes to request an exception (an exemption or a substitution), the student must submit a written request justifying the reason to the Graduate Advisor. The Graduate Advisor and the student's Advisory Committee (or prior to the formation of the Advisory Committee, the Prescription Committee) will decide whether to grant the request.

Students are required to maintain a grade point average of B or greater in the five core courses required for that student. The grade of B- is not considered a passing grade for a graduate student. Students must pass the five core courses by the end of their second academic year. Students failing to meet this requirement may be asked to leave the program. In the event a student receives an Incomplete in any of the core courses, the deficiency must be cleared by the deadline specified by the Graduate Advisor. Any extensions of this deadline require approval by the Graduate Advisor.

Each entering graduate student chooses a faculty advisor and a three-person advisory committee for guidance, with whom the student meets at least twice each year. A comprehensive proposal is required before the end of the first year for M.S. students and before advancement to candidacy for Ph.D. students. The progress of each student is reviewed by the student's advisory committee, together with the Graduate Advisor, twice each academic year.

The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years. All requirements for the M.S. degree should be completed within two years, with a maximum of three years allowed for completion of the program. Advancement to doctoral candidacy by an oral examination is expected during the third year for students entering with a B.A. or B.S. or during the second year for those entering with an M.A. or M.S.

Applicants for this program should have a solid undergraduate program in biology and ecology, emphasizing both research and fieldwork. In addition, course work in statistics, mathematics, and physical and chemical sciences is expected. All applicants are required to submit GRE scores. The deadline for application is January 1.

Faculty

Nancy M. Aguilar-Roca, Ph.D. University of California, San Diego, *Lecturer with Potential Security of Employment of Ecology and Evolutionary Biology*

Steven D. Allison, Ph.D. Stanford University, *Associate Professor of Ecology and Evolutionary Biology; Earth System Science*

Peter R. Atsatt, Ph.D. University of California, Los Angeles, *Professor Emeritus of Ecology and Evolutionary Biology*

John C. Avise, Ph.D. University of California, Davis, *UCI Distinguished Professor of Ecology and Evolutionary Biology*

Francisco J. Ayala, Ph.D. Columbia University, *Donald Bren Professor* and *University Professor of Ecology and Evolutionary Biology; Logic and Philosophy of Science*

Manny Azizi, Ph.D. University of Massachusetts, *Assistant Professor of Ecology and Evolutionary Biology*

Alan G. Barbour, M.D. Tufts University, *Professor of Microbiology and Molecular Genetics; Ecology and Evolutionary Biology; Medicine*

Albert F. Bennett, Ph.D. University of Michigan, *Professor Emeritus of Ecology and Evolutionary Biology*

Rudi C. Berkelhamer, Ph.D. University of California, Berkeley, *Senior Lecturer of Ecology and Evolutionary Biology*

Peter A. Bowler, Ph.D. University of California, Irvine, *Senior Lecturer of Ecology and Evolutionary Biology*

Matthew E. Bracken, Ph.D. Oregon State University, *Associate Professor of Ecology and Evolutionary Biology*

Timothy J. Bradley, Ph.D. University of British Columbia, *Professor of Ecology and Evolutionary Biology*

Adriana D. Briscoe, Ph.D. Harvard University, *Professor of Ecology and Evolutionary Biology*

Nancy T. Burley, Ph.D. University of Texas at Austin, *Professor of Ecology and Evolutionary Biology*

Robin M. Bush, Ph.D. University of Michigan, *Associate Professor of Ecology and Evolutionary Biology*

Diane R. Campbell, Ph.D. Duke University, *Professor of Ecology and Evolutionary Biology*

F. Lynn Carpenter, Ph.D. University of California, Berkeley, *Professor Emerita of Ecology and Evolutionary Biology*

Michael T. Clegg, Ph.D. University of California, Davis, *Donald Bren Professor* and *Professor of Ecology and Evolutionary Biology*

James J. Emerson, Ph.D. University of Chicago, *Assistant Professor of Ecology and Evolutionary Biology*

Steven A. Frank, Ph.D. University of Michigan, *Professor of Ecology and Evolutionary Biology; Logic and Philosophy of Science*

Brandon S. Gaut, Ph.D. University of California, Riverside, *Professor of Ecology and Evolutionary Biology*

Donovan German, Ph.D. University of Florida, *Assistant Professor of Ecology and Evolutionary Biology*

Michael L. Goulden, Ph.D. Stanford University, *Department Vice Chair and Professor of Earth System Science; Ecology and Evolutionary Biology*

Bradford A. Hawkins, Ph.D. University of California, Riverside, *Professor of Ecology and Evolutionary Biology*

James W. Hicks, Ph.D. University of New Mexico, *Professor of Ecology and Evolutionary Biology*

Bradley S. Hughes, Ph.D. University of California, Irvine, *Lecturer with Security of Employment of Ecology and Evolutionary Biology; Education*

George L. Hunt, Jr., Ph.D. Harvard University, *Professor Emeritus of Ecology and Evolutionary Biology*

Travis E. Huxman, Ph.D. University of Nevada, *Professor of Ecology and Evolutionary Biology*

Mahtab F. Jafari, Ph.D. University of California, San Francisco, *Vice Chair of the Undergraduate Program in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Ecology and Evolutionary Biology; Pharmacology*

Keith E. Justice, Ph.D. University of Arizona, *Professor Emeritus of Ecology and Evolutionary Biology*

Natalia Komarova, Ph.D. University of Arizona, *Professor of Mathematics; Ecology and Evolutionary Biology* (applied and computational mathematics, mathematical and computational biology, mathematics of complex and social phenomena)

Harold Koopowitz, Ph.D. University of California, Los Angeles, *Professor Emeritus of Ecology and Evolutionary Biology*

Anthony D. Long, Ph.D. McMaster University, *Professor of Ecology and Evolutionary Biology; Pharmaceutical Sciences*

Catherine Loudon, Ph.D. Duke University, *Senior Lecturer of Ecology and Evolutionary Biology*

Richard E. MacMillen, Ph.D. University of California, Los Angeles, *Professor Emeritus of Ecology and Evolutionary Biology*

Adam Martiny, Ph.D. Technical University of Denmark, *Associate Professor of Earth System Science; Ecology and Evolutionary Biology*

Jennifer Martiny, Ph.D. Stanford University, *Professor of Ecology and Evolutionary Biology*

Matthew J. McHenry, Ph.D. University of California, Berkeley, *Associate Professor of Ecology and Evolutionary Biology*

Kailen Mooney, Ph.D. University of Colorado Boulder, *Associate Professor of Ecology and Evolutionary Biology*

Laurence D. Mueller, Ph.D. University of California, Davis, *Professor of Ecology and Evolutionary Biology*

R. Michael Mulligan, Ph.D. Michigan State University, *Professor of Developmental and Cell Biology; Ecology and Evolutionary Biology* (RNA editing in plant mitochondria and chloroplasts)

Jessica Pratt, Ph.D. University of California, Irvine, *Lecturer with Potential Security of Employment of Ecology and Evolutionary Biology*

James T. Randerson, Ph.D. Stanford University, *UCI Chancellor's Professor of Earth System Science; Ecology and Evolutionary Biology*

Jose Mari Ranz Navalpotro, Ph.D. Universidad Autónoma de Madrid, *Associate Professor of Ecology and Evolutionary Biology*

Sergio Rasmann, Ph.D. U of Neuchatel, *Assistant Professor of Ecology and Evolutionary Biology*

Michael R. Rose, Ph.D. University of Sussex, *Professor of Ecology and Evolutionary Biology*

Ann K. Sakai, Ph.D. University of Michigan, *Professor of Ecology and Evolutionary Biology*

Cascade J. Sorte, Ph.D. University of California, Davis, *Assistant Professor of Ecology and Evolutionary Biology*

Richard Symanski, Ph.D. Syracuse University, *Senior Lecturer of Ecology and Evolutionary Biology*

Kevin Thornton, Ph.D. University of Chicago, *Associate Professor of Ecology and Evolutionary Biology*

Kathleen K. Treseder, Ph.D. Stanford University, *UCI Chancellor's Fellow* and *Professor of Ecology and Evolutionary Biology*

Arthur Weis, Ph.D. University of Illinois at Urbana-Champaign, *Professor Emeritus of Ecology and Evolutionary Biology*

Stephen G. Weller, Ph.D. University of California, Berkeley, *Professor of Ecology and Evolutionary Biology*

Dominik Franz X. Wodarz, Ph.D. Oxford University, *Professor of Ecology and Evolutionary Biology; Mathematics* (mathematical biology, infectious disease and cancer)

Guiyun Yan, Ph.D. University of Vermont, *Professor of Program in Public Health; Ecology and Evolutionary Biology; Program in Public Health*

Courses

ECO EVO 200A. Research in Ecology and Evolutionary Biology. 2-12 Units.
Individual research with Ecology and Evolutionary Biological faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 200B. Research in Ecology and Evolutionary Biology. 2-12 Units.
Individual research with Ecology and Evolutionary Biological faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 200C. Research in Ecology and Evolutionary Biology. 2-12 Units.
Individual research with Ecology and Evolutionary Biological faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 201. Seminar in Ecology and Evolutionary Biology. 2 Units.
Invited speakers, graduate students, and faculty present current research in ecology and evolutionary biology.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with BIO SCI E107.

ECO EVO 203A. Graduate Tutorial in Ecology and Evolutionary Biology. 2-12 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through reading, discussion, and composition.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 203B. Graduate Tutorial in Ecology and Evolutionary Biology. 2-12 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through reading, discussion, and composition.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 203C. Graduate Tutorial in Ecology and Evolutionary Biology. 2-12 Units.
Advanced study in areas not represented by formal courses. May involve individual or small group study through reading, discussion, and composition.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ECO EVO 204. Writing Grant Proposals. 4 Units.
Provides students with hands-on experience writing proposals in the research areas of ecology, evolution, or physiology.

Restriction: Graduate students only.

ECO EVO 205. Special Topics in Ecology. 4 Units.
Survey of special topics in Ecology.

Restriction: Graduate students only.

ECO EVO 206. Special Topics in Evolution. 4 Units.
Extensive introduction to the primary literature of evolutionary biology. Topics include population genetics, quantitative genetics, neutralism, molecular evolution, evolution of genetic systems, genetic architecture of fitness, speciation, and macroevolution.

Restriction: Graduate students only.

ECO EVO 207. Quantitative Methods in Ecology and Evolutionary Biology. 4 Units.
Statistics for ecologists and evolutionary biologists. Emphasis on specific applications and underlying assumptions rather than on methods of calculation. Topics include experimental design, parametric and nonparametric methods, analysis of variance and covariance, and multiple regression.

Prerequisite: Completion of at least one quarter of statistics including regression and analysis of variance.

Restriction: Graduate students only.

ECO EVO 208. Ecological and Evolutionary Physiology. 4 Units.
A summary of information in organismal biology, comparative and ecological physiology, and the biophysical basis of organismal function. Course offered every other fall.

Restriction: Graduate students only.

ECO EVO 210. Foundations of Physiology. 4 Units.
Physical and functional principles common to many living forms. Course forms a basis for subsequent specialization in any of the subdisciplines of physiology. Course offered in even years.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 218. Advanced Topics in Evolutionary Biology. 4 Units.
Content and instructor will vary from quarter to quarter. Possible topics include quantitative genetics, experimental methods of evolutionary studies, mathematical modeling in evolutionary studies, and the evolution of genetic systems.

Repeatability: May be repeated for credit unlimited times.

ECO EVO 219. Advanced Topics in Ecological Genetics. 4 Units.
Content and instructor will vary from year to year. Possible topics include coevolution, sex-ratio evolution, evolution senescence, plant population biology, and density-dependent selection.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 221. Advanced Topics in Ecology. 2-4 Units.
Weekly discussion of current topics in ecology at the graduate level.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

ECO EVO 227. Plant Physiological Ecology. 4 Units.
Provides a summary of information on plant organismal biology, comparative and ecological physiology, and functional ecology. Offered every other fall.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 228. Seminar in Conservation Biology. 2 Units.
Devoted to the application of basic ecological principles to the understanding and resolution of environmental problems of both local and global natures. Current problems approached through a combination of readings, group discussions, and visiting speakers.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 230. Topics in Microbial Ecology. 2-4 Units.
Weekly discussion of current topics in ecology, biogeochemistry, evolution, and physiology of microbial organisms.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

ECO EVO 235. Experimental Evolution. 2 Units.
Explores experimental evolution, which is now a well-established part of evolutionary biology. With the advent of genomics, it is now one of the most powerful tools for studying the genetic foundations of biology.

Prerequisite: BIO SCI E106.

Repeatability: May be repeated for credit unlimited times.

Restriction: Biological Sciences graduate students only.

ECO EVO 246. Seminar in Ecology and Evolution Education. 2 Units.
Weekly discussion of teaching techniques and challenges that are specific to courses in ecology and evolutionary biology. Emphasis will be on using evidence-based pedagogy techniques. There will be a combination of readings, group discussions and speakers.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 251. Population Dynamics in Ecology, Epidemiology, and Medicine. 4 Units.
Explore the dynamics of populations on an ecological, epidemiological, and medical level. Considers the dynamics of competition, predation, and parasitism; the spread and control of infectious diseases; and the in vivo dynamics of viral infections and the immune system.

Restriction: Graduate students only.

Concurrent with BIO SCI E151.

ECO EVO 253. Functional and Structural Evolutionary Genomics. 4 Units.
Function and organization of genomes analyzed from an evolutionary perspective. Review of some of the most recent experimental approaches in genome analysis and comparative genomics. Relevant software to analyze DNA and expression data is used.

Concurrent with BIO SCI E153.

ECO EVO 272. Plant Diversity in a Changing World. 4 Units.
Investigation of plant diversity in California and throughout the world, including basic systematic concepts, introduction to major groups of flowering plants, and the effects of global biological change on plant diversity. Students carry out a phylogenetic analysis using appropriate software.

Concurrent with BIO SCI E172.

ECO EVO 273. Plant Systematics Laboratory. 4 Units.
Diversity of flowering plants is investigated in the laboratory and field. Familiarity with flowering plant families, particularly those prominent in the California flora, is emphasized.

Concurrent with BIO SCI E172L.

ECO EVO 285. Topics in Evolutionary Genetics. 2 Units.
Weekly discussion of recent research on evolutionary genetics.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECO EVO 299. Independent Study. 1-4 Units.
Individual research or investigation under the direction of an individual faculty.

Grading Option: Satisfactory/unsatisfactory only.

ECO EVO 323. Curriculum and Methods for Elementary School Science. 4 Units.
Prospective elementary teachers learn how to teach science in grades K-8. Covers States science requirements, a variety of teaching methods, criteria for selecting science curriculum materials, and how to plan science lessons, units, experiments, projects, and demonstrations.

Same as EDUC 323.

ECO EVO 341. Teaching Science in Secondary School. 4 Units.
Prospective secondary science teachers learn how to teach science in grades 7-12. Covers State science requirements, a variety of teaching methods, criteria for selecting science curricular materials, and how to plan science lessons, units, experiments, projects, and demonstrations.

Same as EDUC 341.

Restriction: Teacher Credential Program students only.

ECO EVO 344. Applied Instructional Strategies in Secondary School Sciences. 4 Units.
Application of pedagogy and research to practice science teaching experiences in the secondary schools. A continuation of the Education 340 series with an emphasis on the needs of students with culturally diverse backgrounds.

Repeatability: May be taken for credit 2 times.

Same as EDUC 344.

Restriction: Teacher Credential Program students only.

ECO EVO 398. Teaching Assistant Seminar. 2 Units.
Readings, lectures, workshops, and student presentations designed to help develop teaching skills of graduate students teaching university-level biology classes. Topics vary and may include: course organization, presentation styles, exam design, grading, motivating students, and commonly encountered problems.

Repeatability: May be repeated for credit unlimited times.

ECO EVO 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Department of Molecular Biology and Biochemistry

3205 McGaugh Hall; (949) 824-4915
http://mbb.bio.uci.edu/
Christopher C.W. Hughes, **Department Chair**
Donald F. Senear, **Department Vice Chair**

The research interests of faculty in the Department of Molecular Biology and Biochemistry include structure and synthesis of nucleic acids and proteins, regulation, virology, biochemical genetics, gene organization, nucleic acids and proteins, cell and developmental biology, molecular genetics, biomedical genetics, and immunology.

The Department offers graduate study in conjunction with the program in Cellular and Molecular Biosciences (CMB) and the Interdepartmental Neuroscience Program (INP), which are described in a previous section. Students admitted into a combined program who select a research advisor in the Department begin following the departmental requirements for the Ph.D. at the beginning of their second year. Participation in an advanced topics seminar series and completion of at least one course per year for three years are expected of all students. Students must advance to candidacy in their third year. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Graduate Gateway Program in Medicinal Chemistry and Pharmacology (MCP). The one-year MCP graduate gateway program is designed to function in concert with selected graduate programs, including the Ph.D. in Biological Sciences. Detailed information is available at Pharmaceutical Sciences (http://www.cohs.uci.edu/pharm.shtml) website.

Faculty

Dana W. Aswad, Ph.D. University of California, Berkeley, *Professor of Molecular Biology and Biochemistry*

Lbachir Benmohamed, Ph.D. Pasteur Institute, *Associate Professor in Residence of Ophthalmology; Molecular Biology and Biochemistry*

Hans-Ulrich Bernard, Ph.D. University of Goettingen, *Professor of Molecular Biology and Biochemistry; Program in Public Health*

Alexander D. Boiko, Ph.D. University of Illinois at Urbana–Champaign, *Assistant Professor of Molecular Biology and Biochemistry*

Michael J. Buchmeier, Ph.D. McMaster University, *Professor of Medicine; Microbiology and Molecular Genetics; Molecular Biology and Biochemistry*

Melanie Cocco, Ph.D. Pennsylvania State University, *Associate Professor of Molecular Biology and Biochemistry; Pharmaceutical Sciences*

Michael G. Cumsky, Ph.D. University of California, Berkeley, *Senior Lecturer of Molecular Biology and Biochemistry*

Rowland H. Davis, Ph.D. Harvard University, *Professor Emeritus of Molecular Biology and Biochemistry*

Hung Y. Fan, Ph.D. Massachusetts Institute of Technology, *Professor of Molecular Biology and Biochemistry*

David A. Fruman, Ph.D. Harvard University, *Professor of Molecular Biology and Biochemistry*

Paul David Gershon, Ph.D. University of Liverpool, *Professor of Molecular Biology and Biochemistry*

Charles Glabe, Ph.D. University of California, Davis, *Professor of Molecular Biology and Biochemistry*

Celia Goulding, Ph.D. King's College London, *Associate Professor of Molecular Biology and Biochemistry; Pharmaceutical Sciences*

Gale A. Granger, Ph.D. University of Washington, *Professor Emerita of Molecular Biology and Biochemistry*

Barbara A. Hamkalo, Ph.D. University of Massachusetts, *Professor Emerita of Molecular Biology and Biochemistry*

Yilin Hu, Ph.D. Loma Linda University, *Assistant Professor of Molecular Biology and Biochemistry*

Christopher C. Hughes, Ph.D. University of London, *Director of Edwards Lifesciences Cardiovascular Technology Center and Professor of Molecular Biology and Biochemistry; Biomedical Engineering* (tissue engineering, growth and patterning of blood vessels)

Matthew Inlay, Ph.D. University of California, San Diego, *Assistant Professor of Molecular Biology and Biochemistry*

Anthony A. James, Ph.D. University of California, Irvine, *UCI Distinguished Professor of Microbiology and Molecular Genetics; Molecular Biology and Biochemistry*

Pavan Kadandale, Ph.D. Rutgers, The State University of New Jersey, *Lecturer with Potential Security of Employment of Molecular Biology and Biochemistry*

Young Jik Kwon, Ph.D. University of Southern California, *Associate Professor of Pharmaceutical Sciences; Biomedical Engineering; Chemical Engineering and Materials Science; Molecular Biology and Biochemistry* (gene therapy, drug delivery, cancer-targeted therapeutics, combined molecular imaging and therapy, cancer vaccine)

Thomas E. Lane, Ph.D. University of California, Los Angeles, *Professor of Molecular Biology and Biochemistry*

Melissa Lodoen, Ph.D. University of California, San Francisco, *Assistant Professor of Molecular Biology and Biochemistry*

Hartmut Luecke, Ph.D. William Marsh Rice University, *Professor of Molecular Biology and Biochemistry; Molecular Biology and Biochemistry; Physiology and Biophysics*

Ray Luo, Ph.D. University of Maryland, College Park, *Professor of Molecular Biology and Biochemistry; Biomedical Engineering* (protein structure, noncovalent associations involving proteins)

Andrej Luptak, Ph.D. Yale University, *Vice Chair of Graduate Programs in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Chemistry; Molecular Biology and Biochemistry* (chemical biology)

Jerry E. Manning, Ph.D. University of Utah, *Professor Emeritus of Molecular Biology and Biochemistry*

Rachel Martin, Ph.D. Yale University, *Associate Professor of Chemistry; Molecular Biology and Biochemistry* (analytical, chemical biology, physical chemistry and chemical physics)

Alexander McPherson, Ph.D. Purdue University, *Professor of Molecular Biology and Biochemistry*

Kivie Moldave, Ph.D. University of California, Berkeley, *Professor Emeritus of Molecular Biology and Biochemistry*

Naomi Morrissette, Ph.D. University of Pennsylvania, *Associate Professor of Molecular Biology and Biochemistry*

Edward L. Nelson, M.D. University of Oregon, *Associate Professor of Medicine; Molecular Biology and Biochemistry*

Irene Pedersen, Ph.D. University of California, San Diego, *Assistant Professor of Molecular Biology and Biochemistry*

Thomas L. Poulos, Ph.D. University of California, San Diego, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences; Physiology and Biophysics* (chemical biology)

Jennifer A. Prescher, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Molecular Biology and Biochemistry; Pharmaceutical Sciences* (chemical biology, organic and synthetic)

Olga Razorenova, Ph.D. Institute of Molecular Genetics, *Assistant Professor of Molecular Biology and Biochemistry*

Markus W. Ribbe, Ph.D. University of Bayreuth, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry* (chemical biology, inorganic and organometallic)

Brian Sato, Ph.D. University of California, San Diego, *Lecturer with Potential Security of Employment of Molecular Biology and Biochemistry*

Donald F. Senear, Ph.D. University of Washington, *Professor of Molecular Biology and Biochemistry*

Andrea Tenner, Ph.D. University of California, San Diego, *Professor of Molecular Biology and Biochemistry; Neurobiology and Behavior*

Krishna K. Tewari, Ph.D. University of Lucknow, *Professor Emeritus of Molecular Biology and Biochemistry*

Shiou-Chuan (Sheryl) Tsai, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences*

Luis P. Villarreal, Ph.D. University of California, San Diego, *Professor of Molecular Biology and Biochemistry*

Craig Walsh, Ph.D. University of California, Los Angeles, *Associate Professor of Molecular Biology and Biochemistry*

Gregory A. Weiss, Ph.D. Harvard University, *Professor of Chemistry; Molecular Biology and Biochemistry* (analytical, chemical biology, organic and synthetic, polymer, materials, nanoscience)

Clifford A. Woolfolk, Ph.D. University of Washington, *Professor Emeritus of Molecular Biology and Biochemistry*

Courses

MOL BIO 200A. Research in Molecular Biology and Biochemistry. 2-12 Units.
Individual research with Molecular Biology and Biochemistry faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

MOL BIO 200B. Research in Molecular Biology and Biochemistry. 2-12 Units.
Individual research with Molecular Biology and Biochemistry faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

MOL BIO 200C. Research in Molecular Biology and Biochemistry. 2-12 Units.
Individual research with Molecular Biology and Biochemistry faculty.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

MOL BIO 200R. Research in Developmental & Cell Biology for First-year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in the Department of Molecular Biology and Biochemistry for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

MOL BIO 201A. Seminars in Molecular Biology & Biochemistry. 2 Units.
Presentation of research from department laboratories or, when pertinent, of other recent developments.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 201B. Seminars in Molecular Biology & Biochemistry. 2 Units.
Presentation of research from department laboratories or, when pertinent, of other recent developments.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 201C. Seminars in Molecular Biology & Biochemistry. 2 Units.
Presentation of research from department laboratories or, when pertinent, of other recent developments.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 202A. Tutorial in Molecular Biology and Biochemistry. 2 Units.
Tutorials in the area of research of a particular professor which relate current research to the literature. May be conducted as journal clubs.

Repeatability: Unlimited as topics vary.

MOL BIO 202B. Tutorial in Molecular Biology and Biochemistry. 2 Units.
Tutorials in the area of research of a particular professor which relate current research to the literature. May be conducted as journal clubs.

Repeatability: Unlimited as topics vary.

MOL BIO 202C. Tutorial in Molecular Biology and Biochemistry. 2 Units.
Tutorials in the area of research of a particular professor which relate current research to the literature. May be conducted as journal clubs.

Repeatability: Unlimited as topics vary.

MOL BIO 203. Nucleic Acid Structure and Function. 4 Units.
Structure and chemistry of nucleic acids. Relationship between these properties and the mechanisms of fundamental processes such as replication and repair, RNA-mediated catalysis, formation and regulation of higher order chromatin structure and recombination.

Prerequisite: BIO SCI 98 and BIO SCI 99 and CHEM 51A and CHEM 51B and CHEM 51C.

MOL BIO 204. Protein Structure and Function. 4 Units.
The structure and properties of proteins, enzymes, and their kinetic properties.

Prerequisite: BIO SCI 98 and BIO SCI 99 and CHEM 51C.

MOL BIO 205. Molecular Virology. 4 Units.
Primary research data on the major DNA and RNA viruses emphasizing strategies of regulation of gene expression. Utilization of viruses as molecular biological tools. Graduate-level knowledge of the biochemistry and molecular biology of macromolecules is required.

Prerequisite: MOL BIO 203 and MOL BIO 204.

Restriction: Graduate students only.

MOL BIO 211. High-Resolution Structures: NMR and X-ray. 4 Units.
Basic principles of magnetic resonance and x-ray crystallography toward the determination of high-resolution biomolecular structures.

Prerequisite: MATH 2B.

Restriction: Graduate students only.

Concurrent with BIO SCI M133.

MOL BIO 213. Literature in Nucleic Acid Structure and Function. 2 Units.
Exploration and critical analysis of recent primary scientific literature in structure, properties, and biological mechanisms involving nucleic acids.

Corequisite: MOL BIO 203.

Grading Option: Satisfactory/unsatisfactory only.

MOL BIO 214. Literature in Protein Structure and Function. 2 Units.
Exploration and critical analysis of recent primary scientific literature in structure and properties of proteins, enzymes, and their kinetic properties.

Corequisite: MOL BIO 204.

Grading Option: Satisfactory/unsatisfactory only.

MOL BIO 215. Integrative Immunology. 4 Units.
Lectures and student presentations of primary literature. The main goal is to achieve a basic understanding of the cellular and molecular basis of innate and adaptive immunity, and how immune function is coordinated at a systems level.

Same as M&MG 215.

MOL BIO 217A. Principles of Cancer Biology I. 4 Units.
Oncogenes and tumor suppressor genes are studied from molecular viewpoints. Also studies their role in cancer; viral carcinogenesis. Designed for graduate students interested in cancer research. Format includes lectures and student-led discussions.

Prerequisite: MOL BIO 203 and MOL BIO 204.

Restriction: Graduate students only.

MOL BIO 217B. Principles of Cancer Biology II. 4 Units.
Topics include cancer cell growth and metastasis, chemical carcinogenesis, and cancer genetics and epidemiology. Designed for graduate students interested in cancer research. Format includes lectures and student-led discussions.

Prerequisite: MOL BIO 203 and MOL BIO 204.

Restriction: Graduate students only.

MOL BIO 218. Clinical Cancer. 3 Units.
Designed to acquaint students in basic life science with clinical cancer.

Restriction: Graduate students and Postdocs only.

MOL BIO 220. Structure & Synthesis of Biological Macromolecules Journal Club. 2 Units.
Advanced topics in macromolecular struture and synthesis as related to biological problems.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

MOL BIO 221. Advanced Topics in Immunology. 4 Units.
Literature-based, interactive discussions focused on review of seminal historic and recent immunology literature. Student responsibilities include reading, critical evaluation, and discussion of manuscripts.

Prerequisite: M&MG 215.

Restriction: Graduate students only.

MOL BIO 221L. Advanced Immunology Laboratory. 4 Units.
An advanced course in immunology for graduate students enrolled in the Biotechnology master's program. Emphasis is placed on learning modern techniques in immunology such as ELISAs, western blotting, immunofluorescent staining assays.

Restriction: Graduate students only.

Concurrent with BIO SCI M121L.

MOL BIO 223. Introduction to Computational Biology. 4 Units.
The use of theories and methods based on computer science, mathematics, and physics in molecular biology and biochemistry. Basics in biomolecular modeling. Analysis of sequence and structural data of biomolecules. Analysis of biomolecular functions.

Concurrent with BIO SCI M123.

MOL BIO 224. Virus Engineering Laboratory. 4 Units.
An advanced laboratory for graduate students enrolled in the Biotechnology master's program. Students learn to engineer recombinant eukuryotic viruses and express genes in mouse tissue.

Restriction: Graduate students only.

MOL BIO 227. Immunlology Journal Club. 2 Units.
Advanced topics in immunology as related to an understanding of human disease.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 15 times.

Restriction: Graduate students only.

MOL BIO 227L. Virology and Immunology Laboratory. 5 Units.
Introductory laboratory course in virology and immunology designed for Biological Sciences graduate students. Curriculum includes plasmid preparation, plasmid characterization, microscopy, cell culture, transfection and infection of cells, cell counting, plaque assays, ELISA, Western blot, mixed lymphocyte reactions.

Restriction: Graduate students only.

MOL BIO 228. Genetic Engineering and Biotechnology. 4 Units.
An advanced course in genetic engineering and biotechnology for graduates enrolled in the Biotechnology Master's Program. Emphasis will be placed on learning advanced methods in assembling the gene for expression in bacteria, yeast and human cells.

Restriction: Graduate students only.

MOL BIO 229. Research-in-Progress Seminars. 1 Unit.
Two half-hour presentations by graduate students and postdoctorals to the department on their current research projects.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 15 times.

Restriction: Graduate students only.

MOL BIO 250. Advanced Topics in Biotechnology - Nucleic Acids. 2 Units.
Supplements laboratory curriculum with scientific background behind experimental methods. Format consists of lectures and the presentation and analysis of relevant papers from the scientific literature.

Corequisite: MOL BIO 250L.

Restriction: Biotechnology graduate students only.

MOL BIO 250L. Biotechnology Laboratory - Nucleic Acids. 8 Units.
Nucleic acid techniques and recombinant DNA technology. Extraction and purification of nucleic acids, cloning and subcloning, PCR, site-directed mutagenesis, nucleic acid hybridization, additional associated procedures. Students must demonstrate accurate documentation of data (laboratory notebook) detailing experience and results.

Corequisite: MOL BIO 250.

Restriction: Biotechnology graduate students only.

MOL BIO 251. Advanced Topics in Biotechnology - Protein Purification and Characterization. 2 Units.
Supplements laboratory curriculum with scientific background behind experimental methods. Format consists of lectures and the presentation and analysis of relevant papers from the scientific literature.

Corequisite: MOL BIO 251L.
Prerequisite: MOL BIO 250L and MOL BIO 250.

Restriction: Biotechnology graduate students only.

MOL BIO 251L. Biotechnology Laboratory - Protein Purification and Characterization. 8 Units.
Major techniques of handling proteins and antibodies. Protein engineering, expression and large-scale purification of recombinant proteins from bacteria, HPLC, antibody purification, western blotting, additional associated procedures. Students must demonstrate accurate documentation of data (laboratory notebook) detailing experience and results.

Corequisite: MOL BIO 251.
Prerequisite: MOL BIO 250L and MOL BIO 250.

Restriction: Biotechnology graduate students only.

MOL BIO 252L. Biotechnology Management Laboratory. 8 Units.
Overview of current methods in biotechnology, designed specifically for biotechnology graduate students. Organized into four distinct sections (nucleic acids, proteins, virology, and immunology). Students must demonstrate accurate documentation of data (laboratory notebooks) detailing experience and results.

Restriction: Biotechnology graduate students only.

MOL BIO 253. Biotech Management . 5 Units.
Taught jointly by Biological Sciences and Merage School faculty, the course addresses fundamental aspects within, and associated with, the biotechnology industry. Curriculum is focused largely on management issues, including finance, product development, pharmaceuticals, project management, regulatory affairs, and ethics.

Same as MGMTMBA 293.

Restriction: Master's Program in Biotechnology Management students only.

MOL BIO 253L. Stem Cell Laboratory. 4 Units.
Designed to prepare M.S. Biotechnology program students for a career in stem cell research. Laboratory training utilizes tissue culture, mouse and human embryonic stem cells, and is enhanced with didactic material and discussion.

Prerequisite: MOL BIO 250L and MOL BIO 251L.

Restriction: Biotechnology graduate students only.

MOL BIO 255. Structure-Function Relationships of Integral Membrane Proteins. 4 Units.
Integral membrane proteins such as voltage and ligand-gated ion channels, water channels, pumps, cotransporters, and receptors (e.g., GPCRs). The emphasis is on the relationship between atomic structure and the functional properties of these proteins.

Prerequisite: BIO SCI 98 and BIO SCI 99. BIO SCI 98 with a grade of B or better. BIO SCI 99 with a grade of B or better.

Concurrent with BIO SCI M160.

MOL BIO 280. Advanced Topics in Biochemistry and Molecular Biology. 3 Units.
Selected topics in specified areas of concentration, e.g., nucleic acids, protein biochemistry, genetic expression, biochemical genetics. Specific topics announced in advance.

Restriction: Graduate students only.

MOL BIO 291. Graduate School Fundamentals. 2 Units.
Lectures and discussions providing basic skills needed for success in Ph.D. graduate studies. Topics include formulating a hypothesis, experimental design, literature review, grant writing, oral communication, biostatistics, time management, and professional development.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: First-year students in the Cellular and Molecular Biosciences gateway Ph.D. program.

MOL BIO 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MOL BIO 293A. Cancer Biology Journal Club. 1 Unit.
Focuses on molecular mechanisms that underlie the development and progression of cancers. Covers a variety of cancer-related research areas, such as cell cycle control, apoptosis, DNA repair, metastasis, angiogenesis, and others.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

MOL BIO 293B. Cancer Biology Journal Club. 1 Unit.
Focuses on molecular mechanisms that underlie the development and progression of cancers. Covers a variety of cancer-related research areas, such as cell cycle control, apoptosis, DNA repair, metastasis, angiogenesis, and others.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

MOL BIO 293C. Cancer Biology Journal Club. 1 Unit.
Focuses on molecular mechanisms that underlie the development and progression of cancers. Covers a variety of cancer-related research areas, such as cell cycle control, apoptosis, DNA repair, metastasis, angiogenesis, and others.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

MOL BIO 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Restriction: Graduate students only.

Department of Neurobiology and Behavior

2205 McGaugh Hall; (949) 824-8519
http://neurobiology.uci.edu/
Marcelo Wood, **Department Chair**
Raju Metherate, **Department Vice Chair**

The Department of Neurobiology and Behavior Ph.D. program provides a broad foundation in neuroscience combined with a technical proficiency in a specific area of research. Faculty members in the Department address neuroscience at the molecular, cellular, systems, and behavioral levels. Research focuses on a range of topics including learning and memory, neurodegenerative disorders, addiction, sensory neurobiology, developmental neurobiology, and neural plasticity.

The Department of Neurobiology and Behavior also participates in the Interdepartmental Neuroscience Program, described in a previous section.

The Department of Neurobiology and Behavior offers the Ph.D. degree in Biological Sciences. Graduate students must complete a sequence of core courses (lectures and laboratories) during their first year, and maintain an overall GPA of 3.3 or better. They also must take a minimum of four advanced courses before graduation and participate in directed research each year and teaching during their first, second, third, and fourth years. Students will advance to candidacy for the Ph.D. at the end of their third year by means of a written critical review of the literature in the area in which they plan to do their dissertation, a research proposal, and an oral examination. Graduation depends on successful preparation and oral defense of a dissertation based on the student's research. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Ideally, applicants for this program should have taken undergraduate courses in biology (one introductory year plus some advanced work), and/or psychology (experimental, physiological, and learning), chemistry through biochemistry, introductory physics, calculus, and statistics. They also must submit GRE Aptitude test scores. Because graduate training emphasizes research, preference is given to applicants having laboratory research

experience as undergraduates. Applicants with substantial outside commitments that would curtail laboratory research or prolong the time to degree are not accepted. The deadline for application is December 2.

Faculty

Mathew M. Blurton-Jones, Ph.D. University of California, San Diego, *Assistant Professor of Neurobiology and Behavior*

Timothy Bredy, Ph.D McGill University, *Assistant Professor of Neurobiology and Behavior*

Jorge A. Busciglio, Ph.D. Universidad Nacional de Córdoba, *Professor of Neurobiology and Behavior*

Lawrence F. Cahill, Ph.D. University of California, Irvine, *Professor of Neurobiology and Behavior; Cognitive Sciences*

Susana Cohen-Cory, Ph.D. The Rockefeller University, *Professor of Neurobiology and Behavior*

Carl W. Cotman, Ph.D. Indiana University, *Professor of Neurology; Biomedical Engineering; Neurobiology and Behavior* (amyloid, C1q, Alzheimer's disease, apoptosis, successful aging, dementia)

Karina S. Cramer, Ph.D. California Institute of Technology, *Associate Professor of Neurobiology and Behavior*

Norbert Fortin, Ph.D. Boston University, *Assistant Professor of Neurobiology and Behavior*

Christie Fowler, Ph.D. Florida State University, *Assistant Professor of Neurobiology and Behavior*

Ron D. Frostig, Ph.D. University of California, Los Angeles, *Professor of Neurobiology and Behavior; Biomedical Engineering* (optical methods for brain imaging, functional organization of the cortex)

Christine M. Gall, Ph.D. University of California, Irvine, *Professor of Anatomy and Neurobiology; Neurobiology and Behavior*

Sunil P. Gandhi, Ph.D. University of California, San Diego, *Assistant Professor of Neurobiology and Behavior*

Kim Green, Ph.D. University of Leeds, *Assistant Professor of Neurobiology and Behavior*

John F. Guzowski, Ph.D. University of California, Irvine, *James L. McGaugh Chair in the Neurobiology of Learning and Memory* and *Associate Professor of Neurobiology and Behavior*

Claudia H. Kawas, M.D. University of Louisville, *Nichols Term Chair in Neuroscience* and *Professor of Neurology; Epidemiology; Neurobiology and Behavior*

Frank M. Laferla, Ph.D. University of Minnesota, *Dean of the Francisco J. Ayala School of Biological Sciences* and *Professor of Neurobiology and Behavior; Neurology*

Michael Leon, Ph.D. University of Chicago, *Professor of Neurobiology and Behavior*

John F. Marshall, Ph.D. University of Pennsylvania, *Professor Emeritus of Neurobiology and Behavior*

James L. McGaugh, Ph.D. University of California, Berkeley, *Research Professor and Professor Emeritus of Neurobiology and Behavior; Logic and Philosophy of Science*

Bruce L. McNaughton, Ph.D. Carleton University, *UCI Distinguished Professor of Neurobiology and Behavior*

Raju Metherate, Ph.D. McGill University, *Professor of Neurobiology and Behavior*

John Middlebrooks, Ph.D. University of California, San Francisco, *Professor of Otolaryngology; Biomedical Engineering; Cognitive Sciences; Neurobiology and Behavior* (hearing research, neurophysiology, auditory prosthesis, computational neuroscience, auditory cortex)

Ricardo Miledi, M.D. Universidad Nacional Autonoma De Mexico, *Professor Emeritus of Neurobiology and Behavior*

Andrea C. Nicholas, Ph.D. University of Chicago, *Lecturer with Potential Security of Employment of Neurobiology and Behavior*

Ian Parker, Ph.D. University College London, *Professor of Neurobiology and Behavior; Physiology and Biophysics*

Steven L. Small, M.D. University of Rochester, *Dr. Stanley van den Noort Endowed Chair* and *Professor of Neurology; Cognitive Sciences; Neurobiology and Behavior*

Ivan Soltesz, Ph.D. Eötvös Loránd University, *UCI Chancellor's Professor of Anatomy and Neurobiology; Neurobiology and Behavior; Physiology and Biophysics*

George Sperling, Ph.D. Harvard University, *UCI Distinguished Professor of Cognitive Sciences; Neurobiology and Behavior*

Craig Stark, Ph.D. Carnegie Mellon University, *Professor of Neurobiology and Behavior*

Oswald Steward, Ph.D. University of California, Irvine, *Reeve-Irvine Chair in Spinal Cord Injury Research* and *Professor of Anatomy and Neurobiology; Neurobiology and Behavior*

Georg F. Striedter, Ph.D. University of California, San Diego, *Professor of Neurobiology and Behavior*

Katumi Sumikawa, Ph.D. Imperial College London, *Professor of Neurobiology and Behavior*

Andrea Tenner, Ph.D. University of California, San Diego, *Professor of Molecular Biology and Biochemistry; Neurobiology and Behavior*

Leslie M. Thompson, Ph.D. University of California, Irvine, *Professor of Psychiatry and Human Behavior; Biological Chemistry; Neurobiology and Behavior*

Norman M. Weinberger, Ph.D. Case Western Reserve University, *Professor Emeritus of Neurobiology and Behavior; Logic and Philosophy of Science*

Marcelo A. Wood, Ph.D. Princeton University, *UCI Chancellor's Fellow and Department Chair* and *Associate Professor of Neurobiology and Behavior*

Michael Yassa, Ph.D. University of California, Irvine, *Assistant Professor of Neurobiology and Behavior*

Courses

NEURBIO 200A. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 200B. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Prerequisite: NEURBIO 200A.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 200C. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Prerequisite: NEURBIO 200B.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 201A. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 201B. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Prerequisite: NEURBIO 201A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 201C. Research in Neurobiology and Behavior. 2-12 Units.
Individual research with Neurobiology and Behavior faculty.

Prerequisite: NEURBIO 201B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 202A. Foundations of Neuroscience. 2 Units.
Intended to expose students to critical reading and analysis of the primary neuroscience literature. Instructors from departments associated with the Interdepartmental Neuroscience Program participate and discuss topics of current interest.

Grading Option: Satisfactory/unsatisfactory only.

NEURBIO 202B. Foundations of Neuroscience. 2 Units.
Intended to expose students to critical reading and analysis of the primary neuroscience literature. Instructors from departments associated with the Interdepartmental Neuroscience Program participate and discuss topics of current interest.

Prerequisite: NEURBIO 202A.

Grading Option: Satisfactory/unsatisfactory only.

NEURBIO 202C. Foundations of Neuroscience. 2 Units.
Intended to expose students to critical reading and analysis of the primary neuroscience literature. Instructors from departments associated with the Interdepartmental Neuroscience Program participate and discuss topics of current interest.

Prerequisite: NEURBIO 202B.

Grading Option: Satisfactory/unsatisfactory only.

NEURBIO 206. Molecular Neuroscience. 5 Units.
Surveys molecular and cellular mechanisms involved in neuronal function, including control of gene expression, post-transcriptional and post-translational processing, RNA and protein targeting, cell death mechanisms, and molecular genetic basis of neurological disorders. Overview of the molecular aspects of developmental neurobiology.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 207. Cellular Neuroscience. 5 Units.
Neurophysiological and neurochemical mechanisms of electrical and chemical signaling in neurons. Topics include generation of resting- and action-potentials, voltage- and ligand-gated ion channels, second messenger systems, and synaptic transmission and integration.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 207L. Cellular Neuroscience Laboratory. 2 Units.
Intensive hands-on laboratory experience of contemporary techniques for studying ion channels and synaptic function. Experiments include microelectrode recording, patch clamp, quantal analysis of synaptic transmission, heterologous expression of genes for channels and receptors, brain slice, and fluorescence calcium imaging.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 208A. Systems Neuroscience. 5 Units.
Study of the mammalian nervous system at the systems level. Anatomy and physiology of sensory, motor, and integrative functions.

Repeatability: May be taken for credit 2 times.

Same as ANATOMY 210A.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 208B. Systems Neuroscience. 5 Units.
Study of the mammalian nervous system at the systems level. Anatomy and physiology of sensory, motor, and integrative functions.

Prerequisite: NEURBIO 208A.

Repeatability: May be taken for credit 2 times.

Same as ANATOMY 210B.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 209. Behavioral Neuroscience. 5 Units.
Overview of fundamental conceptual and experimental issues in the neurobiology of learning and memory. The approach is a cross-level integration of research in molecular-genetic, cellular, circuit, systems, and behavioral analyses.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 230. Chromatin Structure and Function. 4 Units.
Focuses on the role of chromatin/nuclear structure organization in eukaryotic genome regulation. The effects of histone and DNA modification, chromatin remodeling, higher order chromatin structure and nuclear organization on gene regulation, DNA replication, and repair are discussed.

Prerequisite: MOL BIO 203 or MOL BIO 204 or NEUROBIO 206.

Same as BIOCHEM 225.

Restriction: Graduate students only.

NEURBIO 231. Clinical and Epidemiological Aspects of Neurodegenerative Diseases. 4 Units.
Clinical and epidemiological aspects of neurodegenerative disorders causing dementia will be reviewed, including AD, PD, FTD, HD and cerebrovascular disease. Seminar format will include student presentations and group discussion.

Restriction: Graduate students only.

NEURBIO 232. Regenerative Neurobiology. 4 Units.
Surveys the latest research on regenerative neurobiology. Both basic stem cell discoveries and their potential clinical application to brain disorders will be examined.

NEURBIO 235. Balancing Research and Teaching. 1 Unit.
The goal of this course is to offer graduate students who have commitments outside of their research program (such as teaching) an opportunity to learn to balance these commitments.

NEURBIO 236. Cortex: Structure, Function, and Plasticity. 4 Units.
Structured to include lectures and presentation of papers about cortex with emphasis on sensory-motor cortex. Both historical and current perspectives on cortical structure-function relationship will be critically evaluated.

NEURBIO 237. Neurobiology of Brain Aging. 4 Units.
Outlines some of the significant changes that occur in the aging brain, with a special emphasis on risk factors and protective strategies that promote successful brain aging. Topics include changes in synaptic plasticity, neurotrophic factors, and molecular mechanisms in aging.

Prerequisite: NEURBIO 209.

NEURBIO 238. Neurobiology of Memory as a Multidisciplinary Science. 4 Units.
The study of memory is a highly multidisciplinary science ranging from molecular and cellular studies in reduced studies in reduced preparations to functional imaging studies in humans. The focus is to integrate across approaches and levels of analysis to better understand how the hippocampus, and its constituent elements, subserves memory. Emphasis on the challenges of this multidisciplinary field.

Restriction: Majors only

NEURBIO 239. Functional Imaging of the Nervous System. 4 Units.
Overview of technical and applied aspects of imaging techniques available for studying the nervous system. The areas emphasized are cellular and subcellular imaging of neural function, systems-level imaging of brain function, and imaging of the human brain.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 240. Advanced Analysis of Learning and Memory. 4 Units.
Advanced analysis of contemporary research concerning the nature and neurobiological bases of learning and memory. Special emphasis is given to time-dependent processes involved in memory storage.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 244. Cognitive Neuroscience of Human Memory. 4 Units.
In-depth treatment of current topics of interest in the cognitive neuroscience of human long-term memory. Topics include methods of investigation of human memory, functional architecture of memory, implicit vs. explicit distinction, and control processes in memory, among others.

Prerequisite: NEURBIO 209.

NEURBIO 248. Topics in Neurobiology and Behavior. 4 Units.
Studies in selected areas of Neurobiology and Behavior. Topics addressed vary each quarter.

Repeatability: May be taken for credit 3 times.

NEURBIO 249. Electronics for Biologists. 4 Units.
Basic principles of electricity; properties and use of discrete components and integrated circuits; circuit analysis and design. Intended for advanced students in the life sciences.

Same as PHYSIO 205.

NEURBIO 250. Basal Ganglia and Movement Disorders. 4 Units.
Principles underlying the organization and functions of the basal ganglia and amygdala are considered. The circuitry, neurotransmitters, and influences on cortex and brainstem motor regions are discussed. Clinical disorders of the basal ganglia, including parkinsonism and ballism, are included.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 254. Molecular Neurobiology. 4 Units.
The application of genetic and recombinant DNA technology to neurobiology. Topics include the study of neuronal proteins which play important roles in the formation of synapses and synaptic transmission.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 255. History of Neuroscience. 4 Units.
An overview of the conceptual and technical foundations of contemporary neuroscience from ancient times to the present. The subjects include synapses, neurons, brain organization, sensory, motor and regulatory systems, learning and memory, human brain function and dysfunction.

Repeatability: May be taken for credit 2 times.

Restriction: Neurobiology and Behavior graduate students only.

Concurrent with BIO SCI N119.

NEURBIO 257. Statistics for Neurobiologists. 4 Units.
IIntroduction to common methods for statistical analysis used in neurobiology. Topics covered include t-tests, ANOVAs, correlations and regressions, general linear model, power analysis, and non-parametric tests.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 260. Auditory Neuroscience. 4 Units.
Multidisciplinary overview of brain mechanisms of hearing. Emphasizes breath of auditory function and research: single neurons to psychoacoustics, the chochlea to the cortex, and basic science to clinic.

NEURBIO 261. Advanced Topics in Neurodegeneration. 4 Units.
Neurodegenerative disorders represent one of the most devastating illnesses to afflict humans, and usually occur in an age-dependent fashion. Course reviews the basic mechanisms that underlie cognitive and motor dysfunction in the major disorders of the brain.

Prerequisite: NEURBIO 206.

NEURBIO 265. Developmental Neurobiology—Wiring the Brain. 4 Units.
The development of the nervous system is discussed with particular emphasis on the processes that underlie the appearance of complex and highly ordered neural circuits. Topics include neuronal migration, axon guidance, and formation and maintenance of synaptic connections.

NEURBIO 290. Colloquium in Neurobiology and Behavior. 1.3 Unit.
Presentation of contemporary research problems in neurobiology and behavior and related areas by invited speakers.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 292. Scientific Communication. 4 Units.
Students learn how to effectively communicate scientific ideas and results. Activities include learning how to effectively write a scientific manuscript, how to perform a coherent slide presentation, and how to run-through a poster presentation.

Restriction: Neurobiology and Behavior graduate students only.

NEURBIO 399. University Teaching. 1-4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

The Paul Merage School of Business

Eric Spangenberg, **Dean**

Offices of Admission

Executive M.B.A (http://merage.uci.edu/ExecutiveMBA)**. and Health Care Executive M.B.A** (http://merage.uci.edu/HealthCareExecutiveMBA)**.:**
E-mail: coni.zingarelli@uci.edu
Phone: 949-824-0561
Fax: 949-824-2944

Full-Time M.B.A. (http://merage.uci.edu/FullTimeMBA)**:**
E-mail: mba@merage.uci.edu
Phone: 949-824-4622
Fax: 949-824-2235

Fully Employed M.B.A (http://merage.uci.edu/FullyEmployedMBA)**.:**
E-mail: mcoburn@merage.uci.edu
Phone: 949-824-4565
Fax: 949-824-2944

Master of Professional Accountancy (http://merage.uci.edu/go/mpac)**:**
E-mail: mpac@merage.uci.edu
Phone: 949-824-8153

Ph.D. (http://merage.uci.edu/PhD)**:**
E-mail: phd@merage.uci.edu
Phone: 949-824-8318
Fax: 949-725-2816

Undergraduate Major (http://www.admissions.uci.edu)**:**
Office of Admissions and Relations with Schools (http://www.admissions.uci.edu)
Phone: 949-824-6703
Fax: 949-824-2951

Overview

The Paul Merage School of Business (http://merage.uci.edu) offers the B.A. degree in Business Administration, the B.S. degree in Business Information Management (offered jointly with the Donald Bren School of Information and Computer Sciences), the M.B.A. (Master of Business Administration) degree, the M.P.Ac. degree in Accounting, the M.S. degree in Biotechnology Management (offered jointly with the Francisco J. Ayala School of Biological Sciences and The Henry Samueli School of Engineering), the M.S. degree in Engineering Management (offered jointly with The Henry Samueli School of Engineering), the Ph.D. degree in Management, and undergraduate minors in Management and Accounting. The Master's degree is professional in nature and is intended to provide future managers with a firm foundation in the basic disciplines and in management tools and techniques; the Ph.D. in Management is for those who wish to pursue a career in scholarly research. The undergraduate minor in Management is designed for those who wish to gain some insight into issues of modern management, as well as those who anticipate future graduate work in management. In establishing the undergraduate minor in Accounting, the faculty anticipated two types of students to be drawn to courses in accounting: (1) students preparing for careers in accounting or in other fields that require some knowledge of accounting, and (2) students planning to pursue a graduate degree in accounting who wish early guidance and undergraduate work appropriate to this career objective.

Degrees

Accountancy	M.P.Ac.
Biotechnology Management[1]	M.S.
Business Administration	B.A., M.B.A.
Business Information Management[2]	B.S.
Engineering Management[3]	M.S.
Management	Ph.D.

1 Offered jointly with the Department of Molecular Biology and Biochemistry (MB&B) in the Francisco J. Ayala School of Biological Sciences and the Department of Biomedical Engineering in The Henry Samueli School of Engineering.

[2] Offered jointly with the Donald Bren School of Information and Computer Sciences.

[3] Offered jointly with The Henry Samueli School of Engineering.

Honors

Graduation with Honors. Honors at graduation, e.g., *cum laude, magna cum laude, summa cum laude,* are awarded to approximately the top 12 percent of the graduating seniors. To be eligible for honors, a general criterion is that students must have completed at least 72 units in residence at the University of California. The student's cumulative record at the end of the final quarter is the basis for consideration for awarding Latin honors. Other important factors are considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext).

Faculty

Dennis Aigner, Ph.D. University of California, Berkeley, *Professor Emeritus of Paul Merage School of Business*

Alpesh N. Amin, M.D. Northwestern University, *Thomas and Mary Cesario Endowed Chair in Medicine* and *Professor of Medicine; Biomedical Engineering; Paul Merage School of Business; Program in Nursing Science* (hospital medicine, quality/safety, new technologies in healthcare)

Christopher Bauman, Ph.D. University of Illinois at Chicago, *Assistant Professor of Paul Merage School of Business*

Christine Beckman, Ph.D. Stanford University, *Associate Professor of Paul Merage School of Business; Sociology*

David Blake, Ph.D. Rutgers, The State University of New Jersey, *Professor Emeritus of Paul Merage School of Business*

Philip Bromiley, Ph.D. Carnegie Mellon University, *Professor of Paul Merage School of Business*

Nai-Fu Chen, Ph.D. University of California, Los Angeles, *Professor Emeritus of Paul Merage School of Business*

Vidyanand Choudhary, Ph.D. Purdue University, *Associate Professor of Paul Merage School of Business*

Imran Currim, Ph.D. Stanford University, *Professor of Paul Merage School of Business*

Sanjeev Dewan, Ph.D. University of Rochester, *Professor of Paul Merage School of Business*

Joseph Di Mento, Ph.D. University of Michigan, *Professor of School of Law; Criminology, Law and Society; Paul Merage School of Business; Planning, Policy, and Design* (planning, land use and environmental law, use of social science in policy making, legal control of corporate behavior)

Robert Dubin, Ph.D. University of Chicago, *Professor Emeritus of Paul Merage School of Business*

Lucile Faurel, Ph.D. New York University, *Assistant Professor of Paul Merage School of Business*

Martha S. Feldman, Ph.D. Stanford University, *Roger W. and Janice M. Johnson Chair in Civic Governance and Public Management* and *Professor of Planning, Policy, and Design; Paul Merage School of Business; Political Science; Sociology*

Paul Feldstein, Ph.D. University of Chicago, *Professor Emeritus of Paul Merage School of Business; Economics*

Mary Gilly Graham, Ph.D. University of Houston, *Professor of Paul Merage School of Business*

Yan Gong, Ph.D. University of Wisconsin-Madison, *Assistant Professor of Paul Merage School of Business*

John Graham, Ph.D. University of California, Berkeley, *Professor Emeritus of Paul Merage School of Business*

Luyi Gui, Ph.D. Georgia Institute of Technology, *Assistant Professor of Paul Merage School of Business*

Vijay Gurbaxani, Ph.D. University of Rochester, *Taco Bell Chair in Information Technology Management* and *Professor of Paul Merage School of Business; Informatics* (economics of information systems management, impact of information technology on organization and market structure)

David Hirshleifer, Ph.D. University of Chicago, *Paul Merage Chair in Business Growth* and *Professor of Paul Merage School of Business; Economics*

Siew Hong Teoh Hirshleifer, Ph.D. University of Chicago, *Professor of Paul Merage School of Business*

Joanna Ho, Ph.D. University of Texas at Austin, *Professor of Paul Merage School of Business*

Chong Huang, Ph.D. University of Pennsylvania, *Assistant Professor of Paul Merage School of Business*

Matthew L. Huffman, Ph.D. University of California, Santa Barbara, *Professor of Sociology; Paul Merage School of Business* (race/gender inequality, organizations, labor markets)

Mireille Jacobson, Ph.D. Harvard University, *Associate Professor of Paul Merage School of Business*

Philippe Jorion, Ph.D. University of Chicago, *Professor of Paul Merage School of Business; Economics*

Lynn Robin Keller, Ph.D. University of California, Los Angeles, *Professor of Paul Merage School of Business*

Sreya Kolay, Ph.D. University of Rochester, *Assistant Professor of Paul Merage School of Business*

Kenneth Kraemer, Ph.D. University of Southern California, *Research Professor and Professor Emeritus of Paul Merage School of Business*

Loraine Lau, Ph.D. University of California, Los Angeles, *Associate Professor of Paul Merage School of Business*

Radhika Lunawat, Ph.D. University of Minnesota, *Assistant Professor of Paul Merage School of Business*

Newton Margulies, Ph.D. University of California, Los Angeles, *Professor Emeritus of Paul Merage School of Business*

Joseph McGuire, Ph.D. Columbia University, *Professor Emeritus of Paul Merage School of Business*

Richard B. McKenzie, Ph.D. Virginia Polytechnic Institute and State University, *Professor Emeritus of Economics; Paul Merage School of Business*

Peter Navarro, Ph.D. Harvard University, *Professor of Paul Merage School of Business*

Alexander Nekrasov, Ph.D. University of Minnesota, *Assistant Professor of Paul Merage School of Business*

David Neumark, Ph.D. Harvard University, *UCI Chancellor's Professor of Economics; Paul Merage School of Business*

Gerardo Okhuysen, Ph.D. Standford University, *Professor of Paul Merage School of Business*

Judith Olson, Ph.D. University of Michigan, *Donald Bren Professor of Information & Computer Sciences* and *Professor of Informatics; Paul Merage School of Business; Planning, Policy, and Design* (interactive and collaborative technology, human-computer interaction, computer-supported cooperative work)

Jone Pearce, Ph.D. Yale University, *Professor of Paul Merage School of Business*

Cornelia Pechmann, Ph.D. Vanderbilt University, *Professor of Paul Merage School of Business*

Morton Pincus, Ph.D. Washington University, *Professor of Paul Merage School of Business*

Andrew Policano, Ph.D. Brown University, *Dean's Leadership Circle Endowed Professorship* and *Professor of Paul Merage School of Business; Economics*

Lyman Porter, Ph.D. Yale University, *Professor Emeritus of Paul Merage School of Business*

Judy Rosener, Ph.D. Claremont Graduate University, *Senior Lecturer with Security of Employment Emerita of Paul Merage School of Business*

Claudia Schoonhoven, Ph.D. Stanford University, *Professor Emerita of Paul Merage School of Business*

Christopher Schwarz, Ph.D. University of Massachusetts, *Assistant Professor of Paul Merage School of Business*

Carlton Scott, Ph.D. University of New South Wales, *Professor of Paul Merage School of Business*

Devin Shanthikumar, Ph.D. Stanford University, *Assistant Professor of Paul Merage School of Business*

Terrence Shevlin, Ph.D. Stanford University, *Paul Merage Chair in Business Growth* and *Professor of Paul Merage School of Business*

Shivendu Shivendu, Ph.D. University of Southern California, *Assistant Professor of Paul Merage School of Business*

Kut So, Ph.D. Stanford University, *Professor of Paul Merage School of Business*

Eric Spangenberg, Ph.D. University of Washington, M.B.A. Portland State University, *Dean of The Paul Merage School of Business* and *Professor of Paul Merage School of Business; Psychology and Social Behavior* (sensory cues in the retail environment and the effects of self-prediction on behavior)

Zheng Sun, Ph.D. New York University, *Assistant Professor of Paul Merage School of Business*

Eli Talmor, Ph.D. University of North Carolina at Chapel Hill, *Professor Emeritus of Paul Merage School of Business*

Denis Trapido, Ph.D. Stanford University, *Assistant Professor of Paul Merage School of Business; Sociology*

John Turner, Ph.D. Carnegie Mellon University, *Assistant Professor of Paul Merage School of Business*

Rajeev Tyagi, Ph.D. University of Pennsylvania, *Walter B. Gerken Chair in Enterprise and Society* and *Professor of Paul Merage School of Business*

Kerry Vandell, Ph.D. Massachusetts Institute of Technology, *Professor of Paul Merage School of Business; Planning, Policy, and Design; School of Law*

Alladi Venkatesh, Ph.D. Syracuse University, *Professor of Paul Merage School of Business; Informatics* (social impacts of information technology, Internet and the New Economy, Smart Home technologies, children and multimedia)

Libby Weber, Ph.D. University of Southern California, *Assistant Professor of Paul Merage School of Business*

Margarethe Wiersema, Ph.D. University of Michigan, *Professor of Paul Merage School of Business*

Mingdi Xin, Ph.D. New York University, *Assistant Professor of Paul Merage School of Business*

Shuya Yin, Ph.D. University of British Columbia, *Associate Professor of Paul Merage School of Business*

Yu Zhang, Ph.D. Insead University, *Assistant Professor of Paul Merage School of Business*

Lu Zheng, Ph.D. Yale University, *Professor of Paul Merage School of Business*

Merage School Undergraduate Programs

Bachelor of Arts in Business Administration

The undergraduate Business Administration program at The Paul Merage School of Business educates students to understand and apply the theories and concepts of effective business and management and prepares students for a wide variety of careers and life experiences. Business Administration majors can pursue careers in the for-profit and not-for-profit sectors or can proceed on to graduate school in several disciplines including business, economics, and law. The program provides a broad learning experience in a multidisciplinary and global context and focuses on the development of essential managerial skills, especially critical thinking, quantitative and qualitative analysis, and effective communication skills.

The Business Administration major at The Paul Merage School of Business offers a traditional business curriculum similar to those at other top business schools in the country. The major is broad, drawing on the social sciences more generally to study organizations, interpersonal communication skills, individual and group behavior, leadership, strategy, financial and accounting issues, ethics, information technology, marketing, and a variety of other topics in the context of a rapidly changing global environment.

The faculty strongly encourages majors to create an educational program composed of courses within and outside the Merage School that provide substance and focus to their careers and enable them to pursue their own personal interests. While preparing students for careers in management, the Merage School, through academic advising, will help students fashion an undergraduate program that they can tailor to their own unique career objectives. Examples of programs of study that allow Business Administration majors to blend management education with specific industry areas include (but are not limited to) bioscience business, government service, international commerce, arts management, entrepreneurship in computer gaming, and other combinations. Through appropriate choice of courses, students can prepare to pursue a law degree, a master's degree in a variety of areas including accounting, or a doctoral program in business or related disciplines.

Students are required to complete 10 business courses that provide a foundation in essential core business competencies, followed by a minimum of 10 business electives to include one emphasis. Students select a minimum of one of seven emphases in Accounting, Finance, Health Care Management, Information Systems, Marketing, Operations and Decision Technologies, or Organization and Management. This program of study enables students to develop areas of focus as they pursue the Business Administration major. Because much business is conducted on a global scale, students are required to either participate in the University's Education Abroad Program or to take one of a number of designated courses that stresses the international dimension of a business area. Students interested in learning more about the full array of requirements for professional licensing in Accounting are encouraged to visit the California Board of Accountancy (http://www.dca.ca.gov/cba) and American Institute of CPAs (http://www.aicpa.org/BecomeACPA/CPAExam/Pages/CPAExam.aspx) websites.

While academic course content is crucial to an undergraduate business major, auxiliary noncurricular programs also are important to students' academic experience. The Merage School incorporates a cocurricular element into the classroom experience. Drawing from Merage School and University resources, students are exposed to opportunities to enhance communication and presentations skills, attend formal speaker events, and engage in mentoring. The Merage faculty is committed to ensuring that undergraduate majors have ample opportunity to enhance their writing and presentation skills through class assignments and a business communication course.

Students are strongly encouraged to become involved with the Merage Undergraduate Student Association and with the many affiliated business clubs. These high-profile student groups promote interaction between students and the surrounding business community through their Corporate Speaker Series, social activities, and student/employer receptions. Students with an entrepreneurial interest are invited to participate in the annual Merage School Business Plan Competition offered by the Don Beall Center for Innovation and Entrepreneurship.

Work experience is an important way to learn about business and management. UCI's Internship Program, sponsored by the Career Center, can assist students in finding opportunities to work in either voluntary or paid positions in business, nonprofit, or industrial settings. Students who plan to enter business or apply to a graduate school of business or management in the future will find it necessary to supplement their academic work with a variety

of practical experiences. A new Field Studies in Business course provides those with internships an opportunity to potentially participate in a seminar for academic credit.

Another opportunity is UCI's Undergraduate Administrative Intern Program, which offers selected students the opportunity to assume one-year positions under the guidance of University administrators. Students can choose from a range of offices in which they will be asked to undertake special projects specifically related to the management and administration of UCI and higher education in general. These internships are supplemented by a two-quarter management seminar and by field trips to administrative conferences such as meetings of The Regents of the University of California.

Admission to the Major in Business Administration

In the event that the number of students who elect Business Administration as a major exceeds the number of positions available, applicants may be subject to screening beyond minimum University of California admissions requirements.

Freshmen: Preference will be given to those who rank the highest using the selection criteria as stated in the Undergraduate Admissions (p. 52) section of the *Catalogue*.

Transfer students: Junior-level applicants with the highest grades overall (minimum cumulative GPA of 3.0) and who satisfactorily complete lower-division courses equivalent to UCI's calculus (MATH 2A-MATH 2B), economics (ECON 20A-ECON 20B), and statistics and accounting (MGMT 7, MGMT 30A, MGMT 30B) will be given preference for admission. MGMT 1 may be completed at UCI. Admission to the major will be competitive due to limited space availability.

Change of Major

Students who wish to declare the Business Administration major should contact The Paul Merage School of Business Undergraduate Programs Office, 226 MPAA Building, for information about change-of-major requirements, procedures, and policies. Information can also be found at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. Review of applications and selection to the major is governed by the Undergraduate Programs Committee. Admission to the major is very competitive due to limited space availability. Completion of the prerequisite courses does not guarantee admission into the major.

Requirements for the B.A. Degree in Business Administration

All students must meet the University Requirements.

Major Requirements

A. Lower-Division:	
MATH 2A	Single-Variable Calculus
MATH 2B	Single-Variable Calculus
ECON 20A	Basic Economics I
ECON 20B	Basic Economics II
MGMT 1	Introduction to Business and Management
MGMT 7	Statistics for Business Decision Making
MGMT 30A	Principles of Accounting I
MGMT 30B	Principles of Accounting II
B. Upper-Division Core:	
MGMT 101	Management Science
MGMT 102	Managing Organizational Behavior
MGMT 105	Introduction to Marketing
MGMT 107	Introduction to Management Information Systems
MGMT 109	Introduction to Managerial Finance
MGMT 110	Strategic Management
C. Business Electives: Select 10 upper-division Merage School electives numbered 113–196, to include completion of one of the defined emphases below: [1]	
Emphasis in Accounting:	
MGMT 131A	Intermediate Accounting I
MGMT 131B	Intermediate Accounting II
MGMT 132A	Individual Taxation
Emphasis in Finance:	
MGMT 141	Investments
and select two of the following:	

MGMT 144	Multinational Finance
MGMT 147	Case Studies in Corporate Finance
MGMT 149	Derivatives
Emphasis in Health Care Management:	
Select three of the following:	
MGMT 160	Introduction to Business and Government
MGMT 165	US Healthcare Systems
MGMT 166	Business of Medicine
MGMT 167	Business of Science
Emphasis in Information Systems:	
Select three of the following:	
MGMT 171	Social Media
MGMT 173	Business Intelligence for Analytical Decisions
MGMT 174	Database Management and Applications
MGMT 178	Management of Information Technology
Emphasis in Marketing:	
Select three of the following:	
MGMT 150	Consumer Behavior
MGMT 151	Marketing Research
MGMT 152	New Product Development
MGMT 153	Integrated Marketing Communication
MGMT 154	International Marketing
MGMT 155	Brand Management
MGMT 157	Marketing on the Internet
MGMT 158	Micromarketing
MGMT 159	Design Management
Emphasis in Operations and Decision Technologies:	
MGMT 189	Operations Management
and select two of the following:	
MGMT 180	Business Forecasting
MGMT 182	Supply Chain Management
MGMT 196	Decision Analysis
Emphasis in Organization and Management:	
Select three of the following:	
MGMT 122	Communication in Organizations
MGMT 125	Negotiations
MGMT 126	Foundations of Teams
MGMT 128	International Management
MGMT 129	Leadership
D. International Business Requirement: Fulfillment of the International Business requirement by:	
1. Selecting one of the following (which may also be used for specified category C requirements above): [1]	
MGMT 119	Global Strategies
MGMT 128	International Management
MGMT 144	Multinational Finance
MGMT 154	International Marketing
2. or, participating in select UC Education Abroad Program options, with prior approval of the Associate Dean.	

1 By exception, students may petition the Associate Dean to accept an upper-division elective that has business content equivalent to a stated Merage elective.

NOTE: Students majoring in Business Administration may not minor in either Management or Accounting, or double major in Business Information Management. Students may pursue more than one Merage School emphasis via the Business Electives in the category C requirements above. Students are strongly advised to work closely with faculty, staff, and career advisors to tailor a course of study optimal for their educational and career plans. Pairing of particular emphases could be beneficial; examples include Accounting and Finance, Marketing and Information Systems, Operations and

Decision Technologies and Information Systems, or Health Care Management and Organization and Management. Students are permitted to pursue additional courses within an area of emphasis to exceed the required three.

Bachelor of Science in Business Information Management

As the business environment becomes increasingly global and information-centric, the need has increased for graduates who understand and can use technology that gathers and provides information, who are able to distill and recognize patterns in that information, and who can apply those analyses to achieve business objectives.

The undergraduate Business Information Management major administered by the Donald Bren School of Information and Computer Sciences is a collaborative, interdisciplinary degree program between the Bren School and The Paul Merage School of Business. The program seeks to educate students to understand and then apply the theories and concepts of a broad, integrated curriculum covering computing, informatics, business fundamentals, and analytical decision-making. The major prepares students for a wide variety of careers and life experiences. Business Information Management majors can pursue careers in the for-profit and not-for-profit sectors or can proceed to graduate school in several disciplines, including information systems, computing, economics, business, and law.

The curriculum is presented across three general academic areas: Computing (computer science, informatics, and software); Business Foundations (accounting, finance, marketing, strategy, and operations); and Analytical Methods (mathematics, statistics, economics, management science, and decision analysis). The fundamentals of information and computer science, including the rudiments of software design and construction with an emphasis on data management, provide the foundation for understanding, describing, and evaluating the technology through which most business information is gathered and presented. The business fundamentals, covering all the functional areas in the Merage School, provide a background and context in which information and its analysis will be applied.

For complete information about the major, see the Interdisciplinary Studies (p. 1099) section of the *Catalogue.*

Undergraduate Minor in Accounting

The Paul Merage School of Business faculty offers an undergraduate minor in Accounting consisting of seven upper-division courses. In addition, two lower-division introductory accounting courses, one lower-division microeconomics course, and one lower-division single variable calculus course are prerequisites to the minor program.

In establishing the undergraduate minor in Accounting, the faculty anticipated two types of students to be drawn to courses in accounting: (1) students preparing for careers in accounting or in other fields that require some knowledge of accounting, and (2) students planning to pursue a graduate degree in accounting who wish early guidance and undergraduate work appropriate to this career objective.

Students are eligible to apply for the minor in Accounting if they have upper-division standing and have completed MGMT 30A and MGMT 30B with a grade no lower than B (3.0) and all other prerequisite courses with a grade no lower than C (2.0). Completion of the prerequisite courses does not guarantee admission to the minor in Accounting. Admission is on a competitive basis and students must submit an application, transcripts, and a statement of purpose. Applications are accepted on a quarterly basis. Interested students are encouraged to obtain further information from the Undergraduate Programs Office, 226 MPAA Building; or visit the Undergraduate Programs (http://merage.uci.edu/undergrad) website.

Prerequisite Courses

The following are prerequisites for enrolling in the upper-division undergraduate minor courses:

ECON 20A	Basic Economics I
MATH 2A	Single-Variable Calculus
MGMT 30A	Principles of Accounting I
MGMT 30B	Principles of Accounting II

Transfer students should check with their college counselor for established equivalencies for these prerequisite courses. Students not taking MGMT 30A and MGMT 30B at UCI during regular session or summer session must complete MGMT 131A with a minimum grade of B.

NOTE: Individual courses that students may select within the minor may require additional prerequisites.

Requirements for the Undergraduate Minor in Accounting

Completion of seven courses:

A. Three core accounting courses:

MGMT 131A	Intermediate Accounting I
MGMT 131B	Intermediate Accounting II
MGMT 132A	Individual Taxation

B. Select two accounting elective courses from the following:

MGMT 132B	Special Topics in Taxation
MGMT 133	Corporate and Partnership Taxation
MGMT 136	Accounting Information Systems & Spreadsheets
MGMT 137	Advanced Accounting
MGMT 138	Auditing
MGMT 194	Financial Statement Analysis
MGMT 195	Strategic Cost Management and Management Control
C. Select two additional courses from the following:	
an upper-division accounting elective course list above	
MGMT 1	Introduction to Business and Management
MGMT 101	Management Science
MGMT 102	Managing Organizational Behavior
MGMT 105	Introduction to Marketing
MGMT 107	Introduction to Management Information Systems
MGMT 109	Introduction to Managerial Finance
MGMT 113–129, 141–184	
MGMT 189	Operations Management
MGMT 192	Business Law
MGMT 193	The Ethical Environment of Business
MGMT 196	Decision Analysis
MGMT 197	Probability Models in Management
MGMT 190	Special Topics in Management (provided topics have not been covered in other accounting courses)

With Merage School faculty approval, a student may substitute a maximum of one minor course.

NOTE: Students may not receive both the minor in Accounting and the minor in Management.

Undergraduate Minor in Management

The Paul Merage School of Business faculty offers an undergraduate minor in Management which consists of seven courses. In addition, prerequisites include one lower-division microeconomics course, and one course or one sequence selected from the statistics courses outlined below. MGMT 1 serves as a prerequisite, and also counts as one of the seven courses required for the minor.

In establishing the undergraduate minor, the faculty anticipated three types of students to be drawn to courses in administration: (1) students who wish to learn about the management of organizations as a way of preparing for a career in business, (2) students preparing for careers in other fields that require some knowledge of management, and (3) students who expect to go on to graduate work in management who wish early guidance and undergraduate work appropriate to this career objective.

Students are eligible to apply for the minor in Management if they have completed all prerequisite courses (including MGMT 1) with a grade no lower than C (2.0) and have upper-division standing. Completion of the prerequisite courses does not guarantee admission to the minor in Management. Admission is on a competitive basis and students must submit an application, transcripts, and a statement of purpose. Applications are accepted on a quarterly basis. Interested students are encouraged to obtain further information from the Undergraduate Programs Office, 226 MPAA Building; or visit the Undergraduate Programs (http://merage.uci.edu/undergrad) website.

Prerequisite Courses

The following are prerequisites for enrolling in the upper-division undergraduate minor courses:

MGMT 1	Introduction to Business and Management
ECON 20A	Basic Economics I
and one course or one sequence selected from:	
ANTHRO 10A- 10B- 10C	Probability and Statistics and Probability and Statistics and Probability and Statistics
ENGRCEE 11	Methods II: Probability and Statistics
ECON 15A- 15B	Probability and Statistics in Economics I and Probability and Statistics in Economics II
MGMT 7	Statistics for Business Decision Making

STATS 7	Basic Statistics
STATS 8	Introduction to Biological Statistics
STATS 67	Introduction to Probability and Statistics for Computer Science
SOCECOL 13	Statistical Analysis in Social Ecology
PSYCH 10A- 10B- 10C	Probability and Statistics in Psychology I and Probability and Statistics in Psychology II and Probability and Statistics in Psychology III
SOC SCI 9A- 9B- 9C	General Statistics and Probability I and General Statistics and Probability II and General Statistics and Probability III
SOC SCI 10A- 10B- 10C	Probability and Statistics in Social Sciences I and Probability & Statistics in Social Sciences II and Probability & Statistics in Social Sciences III
SOCIOL 10A- 10B- 10C	Probability and Statistics and Probability and Statistics and Probability and Statistics

Transfer students should check with their college counselor for established equivalencies for these prerequisite courses.

NOTE: Individual courses that students may select within the minor may require additional prerequisites, including MATH 2A.

Requirements for the Undergraduate Minor in Management

Completion of seven courses:

A. One lower-division core course:	
MGMT 1	Introduction to Business and Management
B. Select four core courses from the following:	
MGMT 30A	Principles of Accounting I
MGMT 101	Management Science
MGMT 102	Managing Organizational Behavior
MGMT 105	Introduction to Marketing
MGMT 107	Introduction to Management Information Systems
MGMT 109	Introduction to Managerial Finance
C. Select two of the following:	
a course from the core course list above	
MGMT 113–129, 141–184	
MGMT 189	Operations Management
MGMT 192	Business Law
MGMT 193	The Ethical Environment of Business
MGMT 196	Decision Analysis
MGMT 197	Probability Models in Management
MGMT 190	Special Topics in Management (provided specific topics have not been covered in other courses)

With Merage School faculty approval, a student may substitute a maximum of one course. Students participating in the UC Education Abroad Program may substitute a maximum of two courses, with Merage School faculty approval.

NOTE: Students may not receive both the minor in Management and the minor in Accounting.

Courses

MGMT 1. Introduction to Business and Management. 4 Units.
Rigorous overview of major business functions and management topics. Addresses the global and fast-changing environment in which modern business enterprises operate as well as the challenges posed by concerns about sustainable growth, ethics, and social responsibility. Course may be offered online.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 5. Management of Contemporary Organizations. 4 Units.
Equips students with working knowledge of several major subject areas within the context of business and society studies. Topics include: role of management in organizations, corporate social responsibility and responsiveness, ethics and values in business, government regulation, and international business.

MGMT 7. Statistics for Business Decision Making. 4 Units.
Basics of data analysis and the fundamental notion of statistical inference emphasizing applications to administrative and management decision problems. Classical estimation and hypotheses testing, regression, correlation, analysis of variance, nonparametric methods and statistical probability. Course may be offered online.

Overlaps with MATH 7, STATS 7, BIO SCI 7, STATS 8, ECON 15A, ECON 15B.

Restriction: Business Administration majors have first consideration for enrollment. MGMT 7 may not be taken for credit if taken after ECON 15A-B. MGMT 7 may not be used to substitute for ECON 15A-B.

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MGMT 10. Business Management in the World Today. 4 Units.
Accounting scandals, e-commerce, and globalization are only a few examples that show the profound impact of business practices on individuals and on society at large. Provides students with a broad overview of business functions and management practices.

MGMT 30A. Principles of Accounting I. 4 Units.
First in a two course introductory series. Emphasis on financial accounting concepts and practices essential to the administration of business enterprises; including recording and valuation of financial transactions, and preparation, analysis, and interpretation of financial statements. Course may be offered online.

Overlaps with ECON 25.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 30B. Principles of Accounting II. 4 Units.
Second in a two course introductory series. Emphasis on the introduction of managerial accounting concepts and techniques as tools to aid management in carrying out the primary internal functions of planning, control, and decision-making. Course may be offered online.

Prerequisite: MGMT 30A.

Overlaps with ECON 26A.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 90. Special Topics in Management. 1 Unit.
Studies in selected areas of management. Topics addressed vary each quarter. Course may be offered online.

Repeatability: Unlimited as topics vary.

MGMT 101. Management Science. 4 Units.
Concepts and methods of management science, which applies mathematical modeling and analysis to management problems. Topics include linear and integer programming, project scheduling, inventory management, queuing analysis, decision analysis, and simulation.

Prerequisite: MGMT 7.

Restriction: Business Administration majors have first consideration for enrollment. Upper-division students only.

MGMT 102. Managing Organizational Behavior. 4 Units.
Basic theory and concepts which provide the manager with tools for understanding behavior of people in organizations. Areas such as individual, group, and organizational determinants of attitudes, turnover, and job performance.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 105. Introduction to Marketing. 4 Units.
Basic marketing concepts; discussion of the role marketing plays in modern society. Topics: Industrial and consumer marketing, promotion, distribution, and pricing theory.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 107. Introduction to Management Information Systems. 4 Units.
Information Technology (IT) continues to drive rapid productivity growth and structural changes in the economy. This course covers what IT is, and how companies can use IT to improve business processes, enhance customer services, and gain competitive advantage over rivals.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 109. Introduction to Managerial Finance. 4 Units.
Basics of financial administration. Capital budgeting, cost of capital, cash budgeting, working capital management, and long-term sources of funds. Provides a basic understanding of issues and techniques involved in financial decision making.

Prerequisite: MATH 2B and MGMT 30A.

Overlaps with ECON 134A.

Restriction: Upper-division students only. Business Administration majors have first consideration for enrollment.

MGMT 110. Strategic Management. 4 Units.
Addresses management of the entire business. Role of the general manager in organizations, industry analysis, core competencies, growth through vertical integration, innovation, acquisition and diversification, globalization, strategy implementation, and the ethical and moral responsibility of a manager.

Prerequisite: MGMT 102 and MGMT 105 and MGMT 109.

Overlaps with ECON 147B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 113. New Ventures: A Course in Entrepreneurship. 4 Units.
Introduction to the survival and growth of new ventures. Methods include analysis of live cases, guest speakers, discussion, and field projects with contemporary new ventures to learn about new venture management and surviving the liabilities of newness.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 119. Global Strategies. 4 Units.
Examines the phenomena of technology and globalization and the impact on global business strategy. Macro approach considers implications for development of flexible yet focused business strategy and creative and agile execution of policies. Class discussions are stimulated by case analyses.

Prerequisite: MGMT 102.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 122. Communication in Organizations. 4 Units.
Addressing communication at three levels - interpersonal, group or meeting, and organizational. Focuses on dealing with conflict, interpersonal problems, being effective in meetings, and getting your message heard. Experiential course.

Prerequisite: MGMT 102.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 123. Critical Thinking and Creativity in Organizational Problem Solving. 4 Units.
Learn about your own thinking process; develop the ability to think both logically and creatively and to understand how emotions affect your thinking. Class sessions involve discussion and experiential exercises. Business problems and issues are used for discussion and exercises.

Prerequisite: MGMT 102.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 124. Human Resources Management. 4 Units.
Theory and practice of managing human resources. Students will identify and analyze HR dilemmas, apply labor law, and design systems and processes to develop the human resources needed to help organizations achieve their goals.

Restriction: Business Administration and Business Information Management majors have first consideration for enrollment.

MGMT 125. Negotiations. 4 Units.
The objective is to assist students in developing an understanding of different theoretical perspectives and develop their skills in negotiating. Exploration of feelings and beliefs about negotiation, negotiation skills, and putting theory into action by practicing new negotiation skills.

Prerequisite: MGMT 102.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 126. Foundations of Teams. 4 Units.
Social and psychological processes that detract from effective teamwork and collaboration. Tools to understand how to be a better team member are introduced. Provides the foundation for students to become effective team leaders and to manage difficult team situations.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 128. International Management. 4 Units.
Impact of different cultures and political/economic systems on assumptions, expectations, and organizational practices relevant to conducting business in different national settings. Understanding of the challenges of cross-national management and resources utilized to work and conduct business outside the United States.

Prerequisite: MGMT 102.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 129. Leadership. 4 Units.
Case analyses, free-form discussion, and written assignments designed to develop critical thinking skills, as well as knowledge of approaches to differing leadership challenges. Experiential exercises encourage students to develop their ability to innovate, foster collaboration, manage conflict, and value diversity.

Prerequisite: MGMT 102.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 131A. Intermediate Accounting I. 4 Units.
First course in a series of two intermediate-level courses in financial accounting theory and practice. Concepts include the measurement, valuation and reporting of current and long-term assets, current liabilities, and revenue recognition issues.

Prerequisite: MGMT 30A and MGMT 30B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 131B. Intermediate Accounting II. 4 Units.
Second in a two-course series. Concepts include the measurement, valuation, and reporting of long-term liabilities and contingencies, accounting for stockholders' equity, and the Statement of Cash Flows.

Prerequisite: MGMT 131A.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 132A. Individual Taxation. 4 Units.
Fundamentals of federal income taxation pertaining to individuals. Topics include income, deductions, credits, property transactions, and the impact of taxes on business and investment decisions.

Prerequisite: MGMT 30B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 132B. Special Topics in Taxation. 4 Units.
Taxation topics of particular interest to undergraduate students. Course content may vary each term depending on the interests of the instructors and the students.

Prerequisite: MGMT 132A.

Repeatability: Unlimited as topics vary.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 133. Corporate and Partnership Taxation. 4 Units.
Fundamentals of federal income taxation pertaining to partnerships and corporations, including subchapter S corporations. Emphasis on the tax issues associated with formation, operation, and termination of these entities.

Prerequisite: MGMT 132A.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 136. Accounting Information Systems & Spreadsheets. 4 Units.
Fundamentals of accounting information systems including internal controls and transaction processing cycles. Development of efficient spreadsheets as applied to financial and managerial accounting concepts.

Prerequisite: MGMT 30B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 137. Advanced Accounting. 4 Units.
A course covering advanced concepts in accounting theory and practice. Topics include business combinations, consolidated financial statements, foreign exchange transactions, international and governmental/nonprofit accounting standards.

Prerequisite: MGMT 131B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 138. Auditing. 4 Units.
An introduction to auditing practice with emphasis on the verification of financial statements and related information. Topics include professional ethics, assessment of audit risk, study and evaluation of internal control, gathering and evaluating audit evidence, and audit reporting.

Prerequisite: MGMT 131B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 141. Investments. 4 Units.
Foundations of investment management. Theory and empirical evidence related to portfolio theory, market efficiency, asset pricing models, factor models, and option pricing theory. Students are expected to combine market research results and electronic information sources to create optimal investment strategies.

Prerequisite: MGMT 109.

Overlaps with ECON 132A.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 144. Multinational Finance. 4 Units.
Focuses on financial issues facing multinational corporations, the most important of which is the management of foreign exchange risk. Introduction to investments and financing decisions in international capital markets.

Prerequisite: MGMT 109 and ECON 20A and ECON 20B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 147. Case Studies in Corporate Finance. 4 Units.
A case study course using the principles of financial value creation for optimum performance. Introduction to venture capital, IPOs, real options, mergers and acquisition, stock buybacks, dividends, and recapitalizations.

Prerequisite: MGMT 109 and MGMT 141.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 149. Derivatives. 4 Units.
Introduction to financial derivatives. Covers forward contracts, futures, swaps, and options. Applications of these instruments, including pricing and risk management, are emphasized.

Prerequisite: MGMT 109.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 150. Consumer Behavior. 4 Units.
Application of the behavioral sciences to understanding buyer behavior. Topics include perception, memory, affect, learning, persuasion, motivation, behavioral decision theory, social and culture influences, and managerial implications.

Prerequisite: MGMT 105.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 151. Marketing Research. 4 Units.
Research to aid managerial decisions for products and services; problem formulation, research design, data collection, sampling, statistical analyses, managerial recommendations, and implementation in several real-world settings.

Prerequisite: MGMT 105.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 152. New Product Development. 4 Units.
Identifying markets, developing product ideas, measuring consumer preferences, positioning and designing products, and forecasting their sales. Hands-on experience with software to conduct various analyses useful in new product development, such as cluster analysis, factor analysis, and conjoint analysis.

Prerequisite: MGMT 105.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 153. Integrated Marketing Communication. 4 Units.
Management of the communication aspect of marketing strategy. Emphasis on emotional experiences, persuasive appeals, sales promotion, public relations, and direct marketing. Topics include setting communications objectives and budgets, media selection, creative strategy, and sales promotion techniques.

Prerequisite: MGMT 101.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 154. International Marketing. 4 Units.
Students are exposed to the challenges and opportunities facing marketers in the international marketplace. Special attention is given to the management of cultural differences in product development, distribution systems, pricing, and promotion.

Prerequisite: MGMT 105.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 155. Brand Management. 4 Units.
Introduction to issues in planning, implementing, and evaluating brand strategies, relevant theories, models, and tools for the making of brand decisions; application of these principles.

Prerequisite: MGMT 105.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 157. Marketing on the Internet. 4 Units.
Recent developments in interactive technologies indicate that "Marketing on the Internet" is becoming a serious business activity, with exponential growth. How to do marketing on the Internet and to identify the key issues pertaining to the marketing process.

Prerequisite: MGMT 105.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 158. Micromarketing. 4 Units.
Develop marketing plans for specific retail locations and neighborhoods based on past purchases and demographics. Retail site selection, product category management, promotion management, shelf space allocation, targeted advertising. Hands-on experience with Retail Sales Analysis and Geographic Information Systems software.

Prerequisite: MGMT 105.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 159. Design Management. 4 Units.
Design of products and services, particularly in consumer- and technology-oriented industries where design is viewed as a strategic resource. User-oriented design, design as a strategic tool, the role of design aesthetics, and the management of design.

Prerequisite: MGMT 105.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 160. Introduction to Business and Government. 4 Units.
Introduces undergraduate students to the study of public administration. Designed for those expecting to take further courses in the field or considering a public service career.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 165. US Healthcare Systems. 4 Units.
Providers, suppliers, payers, and consumers, and the unique market dynamics among these players. Structure, organization, and financing of health care. The health care industry's relationship to the overall economy will be explored.

Restriction: Business Administration and Business Information Management majors have first consideration for enrollment.

MGMT 166. Business of Medicine. 4 Units.
In order to improve the quality and efficiency of health care delivery one must understand the design and management of health care operations. Opportunities for innovation and changes needed to design a simple, accessible, fair, and effective health care system.

Restriction: Business Administration and Business Information Management majors have first consideration for enrollment.

MGMT 167. Business of Science. 4 Units.
Business acumen and strategic planning are determining success. Billions spent on advertising, and the lack of effectiveness of drugs are generally ignored. Considering this is a matter of life and death for many, should there be a "Business" of Science.

Restriction: Business Administration and Business Information Management majors have first consideration for enrollment.

MGMT 168. Economics of Strategy. 4 Units.
Applies key concepts of game theory to the analysis of the strategic behavior of profit-maximizing firms. Simultaneous move games, sequential games, credibility and commitment, repeated games, pure and mixed strategies, signaling, and screening. Lecture and problem sets. Group projects.

Prerequisite: ECON 20A and ECON 20B.

Overlaps with ECON 147B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 169. Applied Econometrics for Business. 4 Units.
Bridge between an introductory statistics course and a course in econometrics. Oriented toward the ways in which economists use data to motivate and test economic theories. How to locate economics data, analyze, and appropriately interpret these data.

Prerequisite: ECON 20A and ECON 20B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 170. Technologies for Business. 4 Units.
Introductory course that include hands-on exposure to powerful, high-level tools for using computers in business situations more effectively. Next-generation graphical user interfaces, Internet applications, client/server technology, information security, and wireless.

Prerequisite: MGMT 107.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 171. Social Media. 4 Units.
Covers theoretical aspects and business applications of social media tools including blogs, wikis, social networking platforms, immersive environments, and other social computing technologies. Also covers business value of social-media-enabled processes.

Restriction: Business Administration and Business Information Management majors have first consideration for enrollment.

MGMT 173. Business Intelligence for Analytical Decisions. 4 Units.
BI from both managerial and technical perspectives. Learn to apply a variety of data mining techniques to learn business intelligence embedded in data, and apply that intelligence to run your business more efficiently. These techniques are useful in different areas.

Prerequisite: MGMT 107.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 174. Database Management and Applications. 4 Units.
Query, manipulate, and understand data and learn about leading edge applications for databases. Database fundamentals including entity relationship design, creating database tables, normalization, and data querying. Contemporary applications of database using case studies. Applications include data warehousing, data mining.

Prerequisite: MGMT 107.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 175. Information Technology (IT) and Strategy. 4 Units.
Strategic and competitive uses of IT and the Internet. Globalization and firm competition; alignment of IT with business strategy; business value of IT; business transformations with IT; implications of offshoring and outsourcing; strategy and IT in the Internet era.

Prerequisite: MGMT 107.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 178. Management of Information Technology. 4 Units.
Strategic use and impact of information technology (IT) in organizations. Covers what IT is, and how it works, business value of IT, and IT strategies that organizations can employ to create value.

Prerequisite: MGMT 107.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 179. Business Data Communications and Security. 4 Units.
Analysis, technology integration, and technology choices involved with deploying, managing, and securing effective data communications systems, local area networks, Internet, intranet, and wide area networks. Fundamental concepts, as well as enabling technologies that can provide a strategic advantage to firms.

Prerequisite: MGMT 107.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 180. Business Forecasting. 4 Units.
Forecasts are critical inputs into the wide range of business decision making. Users include accountants, financial experts, human resource managers, production managers, and marketing people. Methodologies used to support business decision making. Computer-oriented approach.

Prerequisite: MGMT 101.

Overlaps with ECON 125.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 182. Supply Chain Management. 4 Units.
Flows of materials and information among all of the firms that contribute to a product or service. Forecasting, demand management, logistical networks, inventory management, supplier contracting, sourcing, information technology, flexibility, globalization, and performance management.

Prerequisite: MGMT 101.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 184. Optimization in Management. 4 Units.
Firms attempt to maximize profit or minimize cost. Linear, integer, and nonlinear programming models in functional areas of business such as finance, marketing, and operations. Solutions via computer and interpretation of output in a managerially significant way.

Prerequisite: MGMT 101.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 189. Operations Management. 4 Units.
Managing the productive resources, from which raw materials as inputs are being transformed into useful outputs of final products and services. Explanation of issues pertaining to both manufacturing and services-oriented systems.

Prerequisite: MGMT 101.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 190. Special Topics in Management. 1-4 Units.
Special topics courses are offered from time to time, but not on a regular basis.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 191W. Business Communication. 4 Units.
Provides students with a solid foundation in business communication. Emphasis is placed on improving students' written and oral communication skills to help them succeed in (1) upper division Business Administration courses, (2) graduate school, and (3) work and career activities.

Prerequisite: Satisfactory completion of the lower-division Writing requirement.

Restriction: Business Administration majors have first consideration for enrollment.

(Ib)

MGMT 192. Business Law. 4 Units.
A study of the legal environment of business. Topics include contracts, agency, partnerships, corporations, and other basic principles of law as they relate to business transactions.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 193. The Ethical Environment of Business. 4 Units.
The political, social, and ethical environment of business. Topics include the historical development of American business, competitiveness problems, corporate social responsibility, corporate governance, and government regulation of business.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 194. Financial Statement Analysis. 4 Units.
Study of financial statements and their related footnotes; tools and procedures common to financial statement analysis; relationships among business transactions, environmental forces (political, economic, social), and reported financial statement information; how financial statement information can help solve certain business problems.

Prerequisite: MGMT 30A and MGMT 30B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 195. Strategic Cost Management and Management Control. 4 Units.
Study of cost management to strengthen an organization's strategic position; preparation and use of relevant information for management decision making; management control systems design and performance evaluation.

Prerequisite: MGMT 30A and MGMT 30B.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 196. Decision Analysis. 4 Units.
Making good decisions fast is important in world where information is ubiquitous and technologies change at incredible paces. Conceptual framework and information technology tools to approach these situations with clarity and confidence and improve both professional and personal decision-making skills.

Prerequisite: MGMT 101.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 197. Probability Models in Management. 4 Units.
Probability models that characterize random phenomena in real-world applications. Applications of these probability models to business disciplines including operations management and finance. Discrete-time Markov chains, Poison processes, birth and death processes, queuing models, and random walk.

Prerequisite: MGMT 101.

Restriction: Business Administration majors have first consideration for enrollment.

MGMT 198A. Administrative Internship. 4 Units.
Selected undergraduates serve as managers within administrative units on campus with a three-quarter course which complements the intern experience. Topics include: management ethics, study of non and for profit institutions, career management, and the changing nature of the workforce.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

MGMT 198B. Administrative Internship. 4 Units.
Selected undergraduates serve as managers within administrative units on campus with a three-quarter course which complements the intern experience. Topics include: management ethics, study of non and for profit institutions, career management, and the changing nature of the workforce.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

MGMT 198C. Administrative Internship. 4 Units.
Selected undergraduates serve as managers within administrative units on campus with a three-quarter course which complements the intern experience. Topics include: management ethics, study of non and for profit institutions, career management, and the changing nature of the workforce.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

MGMT 199. Independent Study. 1-4 Units.
Individual study under the direction of a selected faculty member.

Repeatability: May be repeated for credit unlimited times.

Merage School Graduate Programs

- **Ph.D.** (p. 385)
- **Full-Time M.B.A** (p. 386)**.**
- **Fully Employed M.B.A.** (p. 389)
- **Executive M.B.A.** (p. 389)
- **Health Care Executive M.B.A.** (p. 389)
- **Master of Professional Accountancy** (p. 390)

Educational Objectives

The Paul Merage School of Business offers a generalist M.B.A. degree and a learning experience that prepares graduates for a lifetime of professional and personal growth with increasingly important enterprise-wide responsibilities. The rigorous curriculum, combined with extensive professional and interpersonal training and opportunities made available through the School's M.B.A. Career Center, allows students to gain theoretical perspectives that are in turn tested and affirmed with practical application. The result is an environment that fosters the development of professional and personal skills vital to contemporary executives or managers. Students are encouraged to develop their ability to lead change by mastering communication skills, to work productively and actively within a team-oriented environment, to gain a solid grasp of quantitative skills, and to appreciate and effectively employ those solutions that involve the integration and implementation of information and technology to offer creatively viable business options.

The School has developed a thematic approach to business education: sustainable growth through strategic innovation. The goal is to graduate leaders with the exceptional ability to grow their organizations through strategic innovation supported by analytic decision making, information technology, and collaborative execution. Although a solid grounding in basic business disciplines provides the foundation for effective management, graduates are encouraged to aim higher. They learn about change as it takes place within the context of a knowledge-based, technology-driven society where information and its effective use are vital to establishing a competitive edge. Students, whether they are interested in finance, marketing, general management, strategic planning, accounting, operations, health care, human resources, international business, or other areas, will be thoroughly imbued and comfortable with the nature and importance of strategic innovation and how crucial it is toward sustaining growth in today's competitive global economy. Further, they will understand the impacts of technology and the technological processes that enable the gathering, analysis, dissemination,

and use of information to change the way business is done. The thematic approach of the School provides a skill-set, core understanding, and depth of knowledge that will enable its graduates to be effective managers who are not only proficient in business procedures but have the leadership qualities and conceptual framework to affect change by transforming conventional business practices or perhaps even inventing new business processes and management techniques.

Additionally, The Paul Merage School of Business has achieved a national reputation for excellence in graduate management education in the health care industry through the Health Care Executive M.B.A. (HCEMBA) program. Industry managers and health care professionals learn about managerial challenges and issues in the health care industry where hundreds of health care providers, medical device and instrumentation companies, and biosciences firms are headquartered. Joint M.D./M.B.A. and J.D./M.B.A. programs are also available.

General Admission Requirements

Evaluation of the applicant's file for admission to the Master's and Ph.D. degree programs will consist of an integrated assessment of all materials (test scores, transcripts of previous academic work, work experience, essays, and letters of recommendation). The University admission standard of a 3.0 or better undergraduate grade point average (on a 4.0 scale) is required. The minimum TOEFL (Test of English as a Foreign Language) score acceptable for study at the School for all M.B.A. programs is 550 on the paper-based test; 250 or better on the computer-based test; or 80 or better on the Internet-based test. (The Ph.D. program minimum acceptable score is 600 on the paper-based test; 250 or better on the computer-based test; or 100 or better on the Internet-based test.) International M.B.A. applicants may also take the Pearson Test of English (PTE), where the minimum score required for admission is 53; or the International English Language Testing System (IELTS), where the minimum score required is 7. Substantive work experience is considered for applicants to M.B.A. programs.

Requests for application material should be addressed to either the Full-Time M.B.A. (SB 220), Fully Employed M.B.A. (SB 202), Executive M.B.A. (SB 230), Health Care Executive M.B.A. (SB 230), or Ph.D. Program (SB 418) at

The Paul Merage School of Business
University of California, Irvine
Irvine, CA 92697-3125

For More Information

Full-Time M.B.A.
E-mail: mba@merage.uci.edu

Fully Employed M.B.A.
E-mail: mcoburn@merage.uci.edu

Executive M.B.A. (http://merage.uci.edu/ExecutiveMBA)**/Health Care Executive M.B.A.** (http://catalogue.uci.edu/thepaulmerageschoolofbusiness/graduatedegreeprograms/%20http://merage.uci.edu/HealthCareExecutiveMBA)
E-mail: coni.zingarelli@uci.edu (mkmorris@merage.uci.edu)

Master of Professional Accountancy
E-mail: mpac@merage.uci.edu

Ph.D.
E-mail: phd@merage.uci.edu

Doctor of Philosophy in Management (http://catalogue.uci.edu/thepaulmerageschoolofbusiness/graduatedegreeprograms/%20http://merage.uci.edu/PhD)

The Paul Merage School of Business admits students for the Ph.D. in the fall quarter only. The deadline for application is January 4. The Ph.D. program requires a commitment to full-time study. In addition to the other requirements, Ph.D. applicants are encouraged to submit a previously prepared paper (research report, research essay, case study) which may be indicative generally of the applicant's interests and capabilities.

The School offers the Ph.D. in Management to students with backgrounds in a variety of disciplines. While a master's degree is preferred, students may be admitted to the doctoral program directly from the baccalaureate degree. There are many appropriate undergraduate majors, including (but not limited to) psychology, political science, business or public administration, mathematics, computer sciences, economics, sociology, and so forth. Students with academic strengths in disciplines not usually considered as precursors for management (e.g., natural sciences, humanities, and the arts) are encouraged to apply. The Ph.D. program is designed to prepare students for academic careers in a number of the fields of management, e.g., organization and management, strategy, operations and decision technologies, management information systems, finance, accounting, and marketing. Requirements of the Ph.D. program include a broad knowledge of core management disciplines. In addition, the Ph.D. student must qualify as a skilled researcher and must complete a dissertation demonstrating these skills.

The Ph.D. program is divided into two phases: qualification and dissertation. In the qualification phase the student prepares for dissertation research in an area of specialization. This phase is completed when an oral qualifying examination is passed and the candidacy committee recommends advancement to candidacy for the Ph.D. The normative time for advancement to candidacy is three years. The dissertation phase involves a significant

original research project which demonstrates the Ph.D. student's creativity and ability to launch and sustain a career of research. The normative time for completion of the Ph.D. is four years, and the maximum time permitted is six years.

Requests for information should be addressed to the University of California, Irvine, The Paul Merage School of Business, Doctoral Program Admissions Office, 418 School of Business, Irvine, CA 92697-3125; phd@merage.uci.edu; or visit the doctoral program (http://merage.uci.edu/PhD) website.

Master's Degree Programs

The Paul Merage School of Business offers a variety of programs leading to the M.B.A. (Master of Business Administration) degree. These include a two-year, Full-Time M.B.A. program, and three part-time M.B.A. programs including: a 21-month Executive M.B.A. program, a 21-month Health Care Executive M.B.A. program, and a three-year Fully Employed M.B.A. program. Additionally, a four-year concurrent J.D./M.B.A. program is offered in conjunction with the School of Law, and a five-year M.D./M.B.A. program is offered in conjunction with the School of Medicine.

The M.P.Ac. (Master of Professional Accountancy) program is offered by the Merage School. A full description of the program is listed below (p. 390) .

The M.S. in Engineering Management is offered jointly with The Henry Samueli School of Engineering (p. 475).

The M.S. in Biotechnology Management is offered jointly with the Department of Molecular Biology and Biochemistry (MB&B) in the Francisco J. Ayala School of Biological Sciences (p. 289) and the Department of Biomedical Engineering in The Henry Samueli School of Engineering.

M.B.A. Program (http://merage.uci.edu/FulltimeMBA)

The Paul Merage School of Business admits students to the two-year, Full-Time M.B.A. program in the fall quarter. Students from a variety of undergraduate disciplines, including liberal arts, social sciences, physical or biological sciences, computer science, and engineering, are encouraged to apply. The final deadline for completion of all phases of the application procedure is generally around April 1. However, since admissions are received on a rolling basis, applicants are encouraged to check with the M.B.A. Admissions Office regarding application submission. In addition to the general University rules governing admission to graduate study, the School normally requires the completion of the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). There are no specific prerequisite requirements for the Full-Time M.B.A. program. However, the Admissions Committee does look for evidence of quantitative proficiency in all applicants.

The evaluation of an applicant's file for admission consists of an integrated assessment of all materials submitted including test scores, transcripts of previous academic work, work experience, essays, and letters of recommendation. The M.B.A. program at The Paul Merage School of Business is distinctive for its focus on providing students the capabilities and skills to succeed in the technology-rich Innovation Economy. Students develop a sophisticated understanding of the new requirements for success in the School's curriculum that emphasizes the critical drivers of the Innovation Economy: Strategic Innovation, Information Technology, Analytical Decision Making, and Collaborative Execution.

This understanding is advanced through experiential learning course work in which teams of students work on challenging assignments for leading companies. Another distinctive feature of the program is the "Edge" capstone course on the future of business where students explore specific industries and companies and discover what actions must be taken today to reap the benefit from long-term trends in technologies, geopolitics, demographics, and macroeconomics.

The Full-Time M.B.A. program requires a minimum of 92 units with a minimum grade point average of 3.0 in the Core and overall. The curriculum consists of courses divided into two groups designed to achieve specific educational objectives. The courses are divided as follows: 13 required Common Core Courses (50 units) and 42 units of elective courses which students select to emphasize career goals and educational interests. A thesis is not required.

Required Course Work. Common Core Courses are Management of Innovative Organizations, Statistics for Management, Management Science, Operations Management, Organizational Analysis, Financial and Managerial Accounting, Microeconomics, Macroeconomics or Business and Government, Information Technology for Management, Marketing Management, Managerial Finance, Business Strategy.

International Requirement. Students must fulfill the requirement in one of the following ways: completion of a Paul Merage School of Business international elective in a functional area; participation in a Paul Merage School of Business international exchange program; or completion of an upper-division or graduate international course offered by another UC school, with the approval of The Paul Merage School of Business Associate Dean.

Electives. In addition to the core courses, 42 more units of elective courses are required. The major emphasis in the elective courses is to develop additional depth in a discipline or interdisciplinary area or specialized competence in the use of a particular set of technical tools and methods. Students select their electives in light of their educational and career goals and interests.

J.D./M.B.A. Degree Program (http://merage.uci.edu/FullTimeMBA/Content/Dual-Degree-Programs/21)

Highly qualified students interested in combining the study of law with professional qualifications in business are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students approved for this concurrent degree program pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with an M.B.A. degree from The Paul Merage School of Business.

The objective of the program is to promote interdisciplinary study of law while also enabling students to obtain both a J.D. and a business degree in less time than would be required to acquire both degrees separately. The normative time for completion of the J.D./M.B.A. program is four years.

UC Irvine's PLGS program is well suited to students interested in professional or academic careers focused on the interdisciplinary or multidisciplinary study of law and legal institutions, policy analysis, and/or applied research in law-related fields (for example, taxation, corporate reporting and governance, regulation and compliance, discrimination, securities, property, real estate, and intellectual property).

Applicants must submit separate applications for admission to the School of Law and to the Merage School. Once admitted for study into both components of the program, concurrent degree students will work with the PLGS director and the director of the Full-Time M.B.A. program to develop a program of study that will permit efficient pursuit of both degrees. Concurrent degree students' law enrollments will include a required 1-unit "Graduate Legal Studies" colloquium and a 3-unit "Interdisciplinary Perspectives on Law" course. Concurrent degree students will be eligible to apply for financial support through the Merage School while pursuing their M.B.A., and through the School of Law while pursuing law studies.

Program Structure. Students in the program complete a four-year combined curriculum leading to a J.D. degree from the UCI School of Law and an M.B.A. degree from the The Paul Merage School of Business. The total number of units required to graduate from each program separately are satisfied by completing the J.D./M.B.A. program. There are several curriculum scheduling options available to complete this program.

Program Overview. The School of Law requires students to complete 86 law semester units of study for the J.D., 68 of which must be classroom units of law instruction. The remaining 18 law units can be completed outside the School of Law, at the student's discretion, and with approval of the School's Dean of Students. Ten of these 18 law units of non-law instruction can be obtained in courses undertaken in the concurrent degree department. The remaining eight law units are typically spent in non-classroom clinical practice.

The Full-Time M.B.A. program operates on a quarter system and requires a minimum of 92 M.B.A. units. The curriculum consists of courses divided into two groups designed to achieve specific educational objectives. The courses are divided as follows: 13 required Common Core Courses (50 M.B.A. units) and 42 M.B.A. units of elective courses which students select to emphasize career goals and educational interests. A maximum number of 120 hours of classroom instruction, or 16 M.B.A. units (normally four 4-unit quarter courses) may be utilized toward the M.B.A. degree, total, from sources outside of UCI's Merage School. This includes any "non-Merage course approvals" taken in other UCI units, intercampus exchange courses, etc.

The M.B.A. component of the J.D./M.B.A. requires that the 16 M.B.A. units of electives permitted from outside the Merage School may be (but are not restricted to be) taken from among appropriate School of Law electives, but may not be counted simultaneously toward satisfying concurrent degree requirements in the School of Law.

Detailed information about J.D./M.B.A curriculum paths is available online at the Dual Degree Program (http://merage.uci.edu/FullTimeMBA/Content/Dual-Degree-Programs/21) website.

M.D./M.B.A. Degree Program (http://merage.uci.edu/FullTimeMBA/Content/Dual-Degree-Programs/21)

The M.D./M.B.A. program requires five or six years for completion. It is aimed at individuals who are exceptional in ability and motivation and who seek a career as physicians with major responsibility for administration and management in health care organizations and institutions. Students in this program pursue a combined curriculum for an M.D. degree from the School of Medicine and an M.B.A. degree from The Paul Merage School of Business.

Students must be currently enrolled in the M.D. program and in good academic standing in order to apply to the combined M.D./M.B.A. program. During their second or third year of medical school, interested students submit an application to The Paul Merage School of Business Admissions Committee, after review by the School of Medicine. Final acceptance to the program is granted by The Paul Merage School of Business, and M.B.A. course work begins following completion of the student's third year of medical school. Students should be aware that enrollment in the M.D. program does not guarantee acceptance into the M.B.A. program.

The MCAT, along with the completion of three years of medical school training in good standing and passage of USMLE Step I, currently serve as a waiver for the GMAT entrance examination usually required for application to the M.B.A. program. The total number of units required to graduate for each program separately are satisfied in the M.D./M.B.A. program. Contact the M.D./M.B.A. Advisor at (949) 824-5388 for more information.

M.S. in Engineering Management Degree Program (http://www.eng.uci.edu/grad/programs/em)

The Master of Science in Engineering Management is a graduate degree offered jointly by The Paul Merage School of Business and The Henry Samueli School of Engineering that will prepare engineers for leadership roles in technology, science, government, and engineering-based companies and organizations. The curriculum includes courses in engineering from The Henry Samueli School of Engineering and courses in business administration from The Paul Merage School of Business. Students will learn to think innovatively as business and engineering project managers to solve complex engineering product development challenges through consulting projects, business plans and exposure to current issues within the engineering sector. Students will develop quantitative and qualitative skills along with business communication skills.

In this competitive program, students will learn about business from the engineering perspective and engineering from the business perspective. Students will be taught to think about their work through the lens of innovation and to develop a crucial view to enhance their careers.

For more information about the program, see The Henry Samueli School of Engineering (p. 475) section of the *Catalogue*.

M.S. in Biotechnology Management Degree Program (http://mbb.bio.uci.edu/MSBTM_Website.htm)

The M.S. in Biotechnology Management is a joint graduate degree that will prepare scientists for leadership roles in biotechnology, science, and engineering-based companies through a curriculum comprised of courses from the Department of Molecular Biology and Biochemistry (MB&B) in the Francisco J. Ayala School of Biological Sciences, the Department of Biomedical Engineering in The Henry Samueli School of Engineering, and The Paul Merage School of Business. Students will receive advanced training in biotechnology through course work, a teaching laboratory, and two quarters of independent research in a faculty laboratory of their choosing. They will also learn to think as a business manager by solving product development challenges through consulting projects, creating business plans, and by exposure to current issues within the biotechnology sector. Students will develop quantitative and qualitative skills along with business communication skills. Students will learn about business from the biotechnology perspective and biotechnology from the business perspective, and will be taught to think about their work through the lens of innovation, a crucial view for their careers.

For more information about the program, see the Francisco J. Ayala School of Biological Sciences (p. 289) section of the *Catalogue.*

Special Opportunities

The Paul Merage School of Business offers course work in health care management within the M.B.A. program. The courses provide training not only in health care and related issues, but also expose students to professionals in the areas of management, finance, marketing, and strategic planning.

In today's interconnected global business world, it has become increasingly important for management students to learn to operate in an international environment. M.B.A. students in the full-time program can gain first-hand knowledge of the culture and management practices of other industrialized countries by participating in an academic exchange with universities located abroad. This experience, combined with course work in international management, prepares students for the demands and complexities of the growing global economic environment. Currently, The Paul Merage School of Business has exchange relationships with Bocconi University, Milan, Italy; Budapest University of Economic Sciences (BUES), Budapest, Hungary; Chinese University of Hong Kong (CUHK), Hong Kong; HEC School of Management, France; ESSEC Graduate School of Management, France; Fudan University, Shanghai, China; Hong Kong University of Science & Technology, Hong Kong; Maastricht University, Netherlands; National University of Singapore (NUS), Singapore; Pontificia Universidad Catolica de Chile (PUC), Santiago, Chile; Vienna University of Economics and Business Administration, Vienna, Austria; and Yonsei University, Seoul, Korea.

Centers of Excellence

Founded in 2007, **The Don Beall Center for Innovation & Entrepreneurship** (http://merage.uci.edu/ResearchAndCenters/Beall) provides thought leadership in the fields of entrepreneurship education and innovation research to both the students and faculty of The Paul Merage School of Business and the greater worldwide academic community. Through the Center and its activities, a campuswide community of involvement for students and researchers passionate about innovation and entrepreneurship has been organized around a nexus of active volunteers, board members, and alumni who provide world-class programs, resources, and relationships to the University in the area of entrepreneurship and new venture creation.

The **Center for Global Leadership** is an important resource for UC Irvine and The Paul Merage School of Business students. This Center seeks to inspire global leadership by being the best place to learn, study, and develop ideas to improve socially responsible global leadership. We will do this by enabling collaboration between leading scholars, students, and the global leadership community to generate innovative ideas and best practices to address the current and future challenges of an increasingly integrated world. The center works with experienced leaders to identify practical global-leadership knowledge needs and then develops systematic research on these questions, sharing that knowledge through conferences and our Research Translations (free on our web page). We use this knowledge to develop co-curricular programs for students such as the Executive Mentoring Program and the Social Responsibility Initiative that connect students with community leaders.

The **Center for Real Estate** at The Paul Merage School of Business is an integral and indispensable component of the program in Real Estate and Urban Development at UC Irvine. In addition to offering eight real estate elective courses, it provides students with a network of connections to the business community, including members of its Advisory Board, industry leaders, and an alumni. The Center offers fellowships, extracurricular activities, and resources that enhance the M.B.A. learning experience.

The **Center for Health Care Management and Policy** at The Paul Merage School of Business advances knowledge through research and education while providing forums for dialogue on crucial challenges and concerns facing the nation's health care system today. This interdisciplinary research institute brings together health care scholars, policy experts, and industry professionals to share vital information and a range of perspectives on such fundamental issues as quality of care, cost, and access. A wide range of programs contribute to the debate on national health care policy and help leaders in government, business, and nonprofit organizations make better-informed decisions. The Center's activities build on the Merage School's health care-oriented educational programs, including its nationally acclaimed Health Care Executive M.B.A. program and its M.D./M.B.A. joint degree program.

The **Center for Digital Transformation (CDT)** generates and disseminates knowledge that helps businesses, governments and society adapt to and leverage the possibilities enabled by emerging digital technologies. Research themes include Digital Economics, Digital Business Models and Processes, Digital Services Delivery and Big Data & Analytics. CDT serves as an interdisciplinary research institute, drawing on economists, behavioral scientists, sociologists and computer scientists. The Center deploys an open innovation model, partnering with companies, nonprofits, experts and the community at large to identify and address critical research questions. CDT hosts several outreach initiatives which support and educate students, as well as connecting them to key industry professionals.

The **Center for Investment and Wealth Management** is dedicated to the mission of educating Merage School M.B.A. students in the area of investment and wealth management. The Center seeks to enhance students' educational experience and help them to advance their professional expertise and growth at the same time. The education that the Center provides is a collaborative effort between UC Irvine's expert faculty and seasoned professionals dedicated to sharing their experience and knowledge. The concept is to create cutting-edge curriculum with the flexibility to teach students topics in real time. This year, a number of the Center's board members have participated as distinguished lecturers. They are prominently known in the wealth management community and speak to students about their career path, the industry, and ways to achieve success. They are from a wide array of backgrounds including financial institutions, investment companies, law firms, accounting firms, and wealth management companies in Orange County and beyond.

The **John S. and Marilyn Long U.S.-China Institute for Business and Law** at UC Irvine is a premier research entity established to facilitate and further develop legal and commercial relationships between the United States and China. The Long Institute is a collaborative effort between The Merage School of Business and the School of Law at UC Irvine, and will involve chaired professors with extensive expertise in the areas of both business and law as it relates to the U.S and China. The Institute serves to promote a bilateral understanding and engagement between the two economic superpowers and will feature events and research involving both scholars and practitioners from various industries engaging in U.S.-China trade. Students and faculty can also be involved by participating in exchange programs with major Chinese universities.

M.B.A. Career Center

The M.B.A. Career Center, located within the School, was established to serve the unique placement needs of M.B.A. students and alumni. It has two main functions: (1) attracting a variety of organizations to interview and hire graduates and (2) counseling students in career opportunities and the techniques necessary to conduct effective job searches, not only for their first jobs but throughout their careers. The relatively small size of the M.B.A. program allows considerable interaction between the Career Center and students.

Fully Employed M.B.A. (http://merage.uci.edu/fullyemployedmba)

The Fully Employed M.B.A. (FEMBA) program gives emerging managers an opportunity to earn an M.B.A. degree with minimal disruption to their professional lives. Students attend classes on weeknights and/or Saturdays during the program. The FEMBA Program admits new students for enrollment in spring or fall. Students beginning the program in spring attend classes nine consecutive quarters and complete the program in 27 months. Students beginning the program in fall attend classes nine non-consecutive quarters (summers off) and complete the program in 33 months.

The program consists of both core courses and electives, allowing students to establish a solid foundation of traditional business skills and then customize their education based on personal interests and goals. The curriculum provides constant interaction between information presented in the classroom and what is being used on the job, reinforcing and enhancing the student's learning experience.

In addition to classroom work, students attend three residential sessions including one abroad focusing on global markets. In this concentrated setting, students and faculty have an opportunity to explore in depth a variety of business challenges and how those challenges can best be met using contemporary management tools.

Further information may be obtained by contacting the University of California, Irvine, Fully Employed M.B.A. Program Office, 202 School of Business, Irvine, CA 92697-3125; (949) 824-4565; or visit the Fully Employed MBA (http://merage.uci.edu/fullyemployedmba) website.

Executive M.B.A. Program (http://merage.uci.edu/ExecutiveMBA)

The Executive M.B.A. (EMBA) program presents a challenging 21-month course of study specifically designed for executives, senior managers, professionals, entrepreneurs, and technical experts throughout Southern California. Participants have significant work experience (with a minimum of eight years), demonstrated leadership abilities, and a proven track record of success. Commencing each fall, students meet for seven consecutive quarters on alternate weekends (Friday and Saturday) at The Paul Merage School of Business. Class size allows students the opportunity to actively participate in class discussions and interact closely with their peers.

The program offers an applications-oriented curriculum with an international focus designed to give the working professional contemporary management tools for successfully doing business in a domestic and global environment. The EMBA program is a 92-unit program and offers a maximum amount of core and elective course material presented in an accelerated timetable and is delivered to students using a lock-step curricular model.

In addition to the two, week-long residentials, students participate in an in-depth academic, week-long international seminar abroad. This provides a unique opportunity to experience global business firsthand from a corporate, academic, and cultural standpoint.

Further information may be obtained by contacting the University of California, Irvine, Executive M.B.A. Programs, SB 230, Irvine, CA 92697-3125; (949) 824-0561; or visit the Executive MBA (http://merage.uci.edu/ExecutiveMBA) website.

Health Care Executive M.B.A. Program (http://merage.uci.edu/HealthCareExecutiveMBA)

The Health Care Executive M.B.A. (HCEMBA) program is a comprehensive academic experience for individuals working in the health care industry. This unique program is designed for professionals who want to expand their business expertise and gain the fundamentals of management as well as develop a better understanding of the economic, political, and social dynamics which shape the global health care industry. Students come from the intersecting industries of pharmaceuticals, medical devices, managed care, insurance, health care services, and health care policy. Participants have significant relevant work experience, demonstrated leadership abilities, and a proven track record of success. This 21-month program begins each fall.

Classes meet one weekend a month, starting Thursday evening and continuing until noon on Sunday. Classes meet for seven consecutive quarters at The Paul Merage School of Business.

The curriculum is a carefully structured program that assures each student exposure to the full range of disciplines which are essential components of a management education. The core and elective courses are specifically customized for application to a health care professional's daily challenges.

In addition to two, week-long residentials, students participate in an in-depth academic, week-long seminar where they meet health care industry leaders to better understand legislative and regulatory processes that affect health care.

Further information may be obtained by contacting the University of California, Irvine, Executive M.B.A. Programs, SB 230, Irvine, CA 92697-3125; (949) 824-0561; or visit the Health Care Executive MBA (http://merage.uci.edu/HealthcareExecutiveMBA) website.

Master of Professional Accountancy (M.P.Ac.) (http://catalogue.uci.edu/thepaulmerageschoolofbusiness/graduatedegreeprograms/%20http://merage.uci.edu/go/mpac)

The Master of Professional Accountancy (M.P.Ac.) program provides an intensive, focused level of training that will prepare graduates for entering positions within an accounting firm, private company, or public/nonprofit organization. Combined with undergraduate preparation in accounting, the M.P.Ac. program will enable student to meet the State of California Board of Accountancy educational standards for licensure as a certified public accountant in California. The program is a one-year, self-supporting terminal master's degree and includes the opportunity for a one-quarter internship.

Students who complete this program will possess the necessary knowledge to solve fundamental and strategic issues in accounting. They will learn to apply both critical thinking and established accounting processes to issues crucial to the audit and accountability of an organization. The course work will have a pedagogical underpinning of ethical behavior and professional conduct. The underlying philosophy in the program's framework is intended to develop a foundational understanding of key accounting principles and concepts while also offering a breadth of broader issues and topics relevant to the discipline.

Admissions

Applicants may apply directly to The Paul Merage School of Business. Applicants to the fall class must meet all prerequisite requirements at the time of matriculation into the program. Specifically, an applicant must have satisfactorily completed the following prerequisite courses (or their equivalent) in accounting (although students lacking up to two upper-division undergraduate accounting courses will be permitted to petition to enroll in those courses as an additional part of the M.P.Ac. program): introductory financial and managerial accounting (two courses) and at least six of the following upper-division U.S. accounting-based courses: intermediate and international accounting (three courses), advanced accounting, individual taxation, corporate and partnership taxation, accounting information systems, and auditing. At the discretion on the Admissions Committee, "provisional admission status" will be offered to highly qualified candidates who have met most, but not all the prerequisite requirements and will satisfy the requirements prior to matriculation.

Other highly qualified applicants who do not meet the entrance requirement to begin the program in the fall quarter will be offered an opportunity to enroll in an intensive summer pre-session at The Paul Merage School of Business. The pre-session will be required of those who possess an excellent undergraduate record of achievement, strong letters of recommendation, and a clear focus relative to a career in accounting; and, who need specific prerequisite course work in accounting and business. The summer pre-session will include four courses. Students must successfully complete all of the pre-session course work to meet the course prerequisites of the M.P.Ac. program in order to enter the program in the fall quarter. Pre-session course work will be done over the two designated Summer Sessions. Students will enroll in a curriculum of two courses in Summer Session I and two courses in Summer Session II.

In session I, students will enroll in the following:

MPAC 200A	Intermediate Accounting Intensive I
MPAC 200B	Foundations of Taxation Intensive

In Session II, students will enroll in the following:

MPAC 200C	Intermediate Accounting Intensive II and Special Topics
MPAC 200D	Auditing Intensive

Admission to graduate standing in The Paul Merage School of Business is accorded to those possessing an undergraduate degree with an acceptable level of scholarship from an institution of recognized standing. Applicants for admission will be evaluated on their academic record and potential for leadership as demonstrated in submitted application materials. These materials will include university transcripts, Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) test scores, two letters of recommendation, a Statement of Purpose, and an essay. A personal interview, by invitation only, will be part of the admission process. Those students educated from a country where English is not the primary language, will be required to possess a minimum score on the Test of English for Foreign Language (TOEFL) of 600 for the paper-based test and 80 for the

Internet-based test. Further, international applicants may also take the Pearson Test of English (PTE). The minimum required score for admission is 53. Scores are valid for two years.

Requirements

The program requires students to complete no less than 11 courses and a minimum of 44 units. Of the minimum of 11 courses needed to complete the program, students must satisfactorily complete 9 required courses. The required courses are as follows:

MPAC 230	Accounting Proseminar: Career and Professional Development (Students must enroll in both Proseminar courses.)
MPAC 231A	Financial Statement Analysis and Valuation I
MPAC 231B	Financial Statement Analysis and Valuation II
MPAC 232	Taxes and Business Strategy
MPAC 235	Advanced Managerial Accounting
MPAC 237	International Accounting
MPAC 238	Advanced Auditing and Forensics
MPAC 239	Ethics in Accounting and Business
MPAC 291	Professional Research and Communication

Students will be expected to enroll and successfully complete at least 8 units of elective coursework in the winter and / or spring quarters. Students can select from a number of elective offerings available through the School's fully employed M.B.A. program and those within the Real Estate program. Students who need to meet the upper-division undergraduate requirements may also enroll in two courses from the undergraduate accounting programs as an additional part of the M.P.Ac. program. Further, students will be encouraged to pursue a formal internship experience in the winter quarter as well as enroll in MPAC 290 Internship in Accounting, a 2-4 unit course.

Executive MBA Courses

MGMT EP 200. Managing of Innovative Organizations for Executives. 7 Units.
Using concepts from organization studies, examines different frameworks for analyzing and designing innovative organizations; the foundations of competitive analysis; alliances and networks as a source of innovation; and key issues in managing innovation effectiveness. Every other weekend course format.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Executive M.B.A. students only.

MGMT EP 201. Operations Research/Operations Management.
Focuses on the application of the quantitative model-building approach to problem solving by integrating modern computer technology with quantitative techniques. Application of methodology to problems of management production and service operations.

MGMT EP 201A. Statistics for Executives . 5 Units.
Methods of statistical inference, emphasizing applications to administrative and management decision problems. Topics include classical estimation, hypothesis testing, regression, correlation, analysis of variance, decision analysis, and forecasting. Every other weekend course format.

Restriction: Executive M.B.A. students only.

MGMT EP 201B. Management Science for Executives . 5 Units.
An introduction to computer-based models for decision making. Topics include optimization (linear programming, integer programming, network flow models) and computer simulation. Uses spreadsheets extensively, including Excel built-in and add-in packages. Every other weekend course format.

Restriction: Executive M.B.A. students only.

MGMT EP 202. Organizational Analysis for Executives . 5 Units.
Develops a better understanding of individual and group behavior in and across organizations, and the frameworks by which to analyze and understand behavior in complex organizations. Enhances the skills required to manage collaboration and lead. Every other weekend course.

Restriction: Executive M.B.A. students only.

MGMT EP 203A. Financial Accounting for Executives . 5 Units.
Involves the development, analysis, and interpretation of financial accounting information for external reporting purposes. Emphasis on measurement and valuation issues in decision-making problems and cases. Every other weekend course format.

Restriction: Executive M.B.A. students only.

MGMT EP 203B. Managerial Accounting for Executives . 5 Units.
Involves developing and using internal financial and non-financial information to help organizations make planning, budgeting, control, operating, and performance evaluation decisions. Every other weekend course format.

Prerequisite: MGMT EP 203A.

Restriction: Executive M.B.A. students only.

MGMT EP 204A. Microeconomics for Executives . 5 Units.
Provides basic tools for analyzing economic decisions of consumers and firms. Topics include demand and supply analysis, production and cost theory, perfect competition, monopoly, market failures, and introductory game theory. Every other weekend course format.

Restriction: Executive M.B.A. students only.

MGMT EP 204B. Macroeconomics for Executives . 5 Units.
Introduces use of macroeconomic analysis to manage the business cycle for competitive advantage. "Business cycle-sensitive" management is explored within the context of marketing, operations management, HRM, merger and acquisition activity, and capital financing and expenditures. Every other weekend course format.

Prerequisite: MGMT EP 204A.

Restriction: Executive M.B.A. students only.

MGMT EP 205. Marketing for Executives . 5 Units.
Introduction to marketing. Topics include developing familiarity with fundamental marketing concepts, theories, and techniques; acquainting students with the type of decisions made by executives including customer targeting, product, pricing, place, promotion, and research. Every other weekend course format.

Restriction: Executive M.B.A. students only.

MGMT EP 207. Information Technology for Executives . 5 Units.
Focuses on how information technology is used to create value in organizations through product, process, and strategy innovation. Aims to help managers understand the strategic role of key information technologies in managing organizations. Every other weekend course format.

Restriction: Executive M.B.A. students only.

MGMT EP 208. Operations Management for Executives . 5 Units.
Introduction to strategic and tactical issues in production and operations management. A blend of quantitative and qualitative considerations. Topics include product planning, process design, capacity management, production planning, inventory control, just-in-time manufacturing, and quality management. Every other weekend course format.

Restriction: Executive M.B.A. students only.

MGMT EP 209A. Managerial Finance for Executives . 5 Units.
Introduces students to financial theory and concepts. Topics include time value of money, valuation of stocks and bonds, capital budgeting, portfolio theory, and capital structure choice. Every other weekend course format.

Prerequisite: MGMT EP 201A and MGMT EP 203A and MGMT EP 204A.

Restriction: Executive M.B.A. students only.

MGMT EP 210. Business Strategy for Executives . 5 Units.
Provides conceptual frameworks and techniques to analyze and develop firm strategies. Through case analysis/discussion, helps improve strategic thinking by developing frameworks by which to assess, evaluate, and respond to different business situations. Every other weekend course format.

Prerequisite: MGMT EP 200 and MGMT EP 202 and MGMTMBA 205 and MGMT 209A.

Restriction: Executive M.B.A. students only.

MGMT EP 213. New Venture Management: A Course in Entrepreneurship. 5 Units.
Focuses on survival and growth of new ventures. Involves a mix of live cases, guest speakers, discussion, and field projects with contemporary entrepreneurs to learn about successful new venture management and surviving the liabilities of newness.

Prerequisite: MGMT EP 202 and MGMT 205 and MGMT 210.

Restriction: Master of Business Administration students only.

MGMT EP 218. Business Dynamics for Executives . 5 Units.
Business Dynamics aims to improve both the ability to analyze sudden challenges to organizational survival and to quickly implement a winning response. Enhances competitive analytical skills by dissecting the complex challenges businesses face. Every other weekend format.

Prerequisite: MGMT EP 200 and MGMT EP 202 and MGMT EP 210.

Restriction: Master of Business Administration students only.

MGMT EP 225. Negotiations For Executives . 5 Units.
Using a combination of theory and practice via negotiation simulations, students expand their repertoire of negotiating skills and develop their ability to analyze different negotiation situations and contexts. Every other weekend course format.

Prerequisite: MGMT EP 200 and MGMT EP 202.

Restriction: Master of Business Administration students only.

MGMT EP 248. Corporate Valuation. 5 Units.
Studies cases that expand concepts covered in the introductory corporate finance course and focuses on estimating the value of firms and projects in diverse settings.

Prerequisite: MGMT EP 209A and MGMT EP 209B.

Restriction: Master of Business Administration students only.

MGMT EP 283. Decision Analysis for Executives . 5 Units.
Models of preferences and uncertainty; exercises in creative problem solving. Assessment and use of preference models for private, public, and not-for-profit decision making. Assessment and use of subjective probabilities in decision making. Every other weekend course format.

Restriction: Master of Business Administration students only.

MGMT EP 290. Special Topics in Business. 2-5 Units.
Studies in selected areas of business. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

Restriction: Masters of Business Administration students only.

MGMT EP 295A. Global Business I for Executives . 5 Units. 5 Workload Units.
Fundamentals of global strategy, economics, and financial issues. Topics include global manager's environment, global strategy, impact of national culture on business systems, strategies and practices, foreign direct investment, corporate governance, human resources, and international marketing. Every other weekend course format.

Restriction: Executive M.B.A students only

MGMT EP 295B. Global Business II for Executives. 8 Units.
Emphasizes and reinforces international perspectives contained in the M.B.A. curriculum by providing a week-long intensive seminar abroad in the second year. Scholars and business people from the host country instruct Executive M.B.A. students in designed class sessions and company visits.

Restriction: Executive M.B.A students only.

MGMT EP 296. Executive Leadership . 7 Units.
Focuses on the conceptual, practical, and personal dimensions of executive leadership. Past and current leadership theories are addressed. Individual personal assessment and diagnosis. Every other weekend course format.

Prerequisite: Admission to the Executive MBA program.

Restriction: Executive M.B.A students only.

MGMT EP 299. Individual Study. 1-8 Units.
Individual Study under the direction of a selected faculty member.

Repeatability: May be repeated for credit unlimited times.

Restriction: Masters of Business Administration students only.

Fully Employed MBA Courses

MGMT FE 200. Managing of Innovative Organizations . 6 Units.
Using concepts from organization studies, students examine different frameworks for analyzing and designing innovative organizations, the foundations of competitive analysis, alliances and networks as a source of innovation, and key issues in managing innovation effectiveness. Evening or weekend course format.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 201A. Statistics for Managers . 4 Units.
Methods of statistical inference, emphasizing applications to administrative and management decision problems. Topics include classical estimation, hypothesis testing, regression, correlation, analysis of variance, decision analysis, and forecasting. Evening or weekend course format.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 202. Organizational Analysis for Managers . 4 Units.
Develops a better understanding of individual and group behavior in and across organizations, the frameworks by which to analyze and understand behavior in complex organizations; and enhances the skills required to manage collaboration and lead. Evening or weekend course format.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 203A. Financial Accounting for Managers . 4 Units.
Involves the development, analysis, and interpretation of financial accounting information for external reporting purposes. Emphasis on measurement and valuation issues in decision-making problems and cases. Evening or weekend course format.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 203B. Managerial Accounting for Managers . 4 Units.
Involves developing and using internal financial and non-financial information to help organizations make planning, budgeting, control, operating, and performance evaluation decisions. Evening or weekend course format.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 204A. Microeconomics for Managers . 4 Units.
Provides basic tools for analyzing economic decisions, the determinants and consequences of market structure and market failure. Topics include demand and supply analysis, production and cost theory, perfect competition, monopoly, and introductory game theory. Evening and weekend course format.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 204B. Macroeconomics for Managers . 4 Units.
Introduces use of macroeconomic analysis to manage the business cycle for competitive advantage. "Business cycle-sensitive" management is explored within the context of marketing, operations management, HRM, merger and acquisition activity, and capital financing and expenditures. Evening and weekend course format. Course may be offered online.

Prerequisite: MGMT FE 204A.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 205. Marketing for Managers . 4 Units.
Introduction to marketing. Develops familiarity with fundamental concepts, theories, and techniques in marketing and acquaints students with the type of decisions made by marketing managers including customer targeting, product, pricing, placement, promotion, and research. Evening or weekend course format.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 206. Business and Government for Managers . 4 Units.
Introduces students to the many non-market issues that affect today's managers, such as: environment protection, health and safety, intellectual property protection, antitrust, and lobbying. Takes an interdisciplinary approach using economics, political science, public policy, and law. Evening and weekend course.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 207. Information Technology for Managers . 4 Units.
Focuses on the technological and managerial issues surrounding the development and use of IT in organizations. Examines how technology can be used to execute an organization's business strategy and to enable new, innovative business strategies. Evening or weekend course format.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 208. Operations Management for Managers . 4 Units.
Introduction to strategic and tactical issues in production and operations management. Blend of quantitative and qualitative considerations. Topics include product planning, process design, capacity management, production planning, inventory control, distribution management, just-in-time manufacturing, quality management. Evening or weekend course format.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 209A. Managerial Finance for Managers . 4 Units.
Introduces students to financial theory and concepts. Topics include time value of money, valuation of stocks and bonds, capital budgeting, portfolio theory, and capital structure choice. Evening or weekend course format.

Prerequisite: MGMT FE 201A and MGMT FE 203A and MGMT FE 204A.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 209B. Investments for Managers . 4 Units.
Foundations of investment management. Theory and empirical evidence related to portfolio theory, market efficiency, and valuation models for equities, bonds, and options. Emphasis on practical applications, including optimal investment strategies. Evening or weekend course format.

Prerequisite: MGMT FE 209A.

Restriction: Masters of Business Administration students only.

MGMT FE 210. Business Strategy for Managers . 4 Units.
Provides conceptual frameworks and techniques to analyze and develop firm strategies. Through case analysis and discussion, improves analytical and strategic thinking. Evening or weekend course format.

Prerequisite: MGMT FE 200 and MGMT FE 202 and MGMT FE 205 and MGMT FE 209A.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 213. Managing New Ventures: A Course in Entrepreneurship. 4 Units.
Focuses on how to launch a new business by providing an overview of the start-up process, including how to identify new business opportunities and how to develop a sound operating model. Evening or weekend course format.

Prerequisite: MGMT FE 202 and MGMT FE 205 and MGMT FE 210.

Restriction: Masters of Business Administration students only.

MGMT FE 214. Entrepreneurship: Planning the New Venture. 4 Units.
Student teams develop a business plan to launch a new venture. The final business plan is presented to an expert panel. Evening or weekend course format.

Prerequisite: MGMT FE 210.

Restriction: Masters of Business Administration students only.

MGMT FE 218. Business Dynamics for Managers . 4 Units.
Business Dynamics enhance analytical skills by analyzing complex challenges that businesses face and to quickly implement a winning response. Evening or weekend course format.

Prerequisite: MGMT FE 210.

Restriction: Masters of Business Administration students only.

MGMT FE 220. Organizational Change for Managers . 4 Units.
Focuses on the implementation of change. Identifies the features of successful changes in organizations of varying sizes and configurations, with an emphasis on the reasons why individuals resist or embrace change. Evening or weekend course format.

Prerequisite: MGMT FE 200 and MGMT FE 202.

Restriction: Masters of Business Administration students only.

MGMT FE 225. Negotiations For Managers . 4 Units.
Using a combination of theory and practice via negotiation simulations, students expand their repertoire of negotiating skills and develop their ability to analyze different negotiation situations and contexts. Evening or weekend course format.

Prerequisite: MGMT FE 200 and MGMT FE 202.

Restriction: Masters of Business Administration students only.

MGMT FE 228. International Management for Managers . 4 Units.
Introduction to the effects of different national cultures, and political and economic systems on the assumptions, expectations, organizational practices, and organizational forms needed to conduct cross-national organizational work. Evening or weekend course format.

Prerequisite: MGMT FE 200 and MGMT FE 202.

Restriction: Masters of Business Administration students only.

MGMT FE 231A. FSA-Earnings Quality and Asset Analysis for Managers . 4 Units.
Develops skills essential to using financial statements for business analysis by examining financial information quality, profitability and risk analysis, earnings management, revenue recognition, asset recognition and valuation, and how financial reporting is related to the business environment and managerial incentives.

Prerequisite: MGMT FE 203A.

Restriction: Masters of Business Administration students only.

MGMT FE 231B. Liability and Equity Analysis for Managers . 4 Units.
Focuses on the financial statement analysis of liabilities and stockholders' equity. Topics include forecasting financial statements, earnings-based valuation models, accounting analysis of mergers and acquisitions, leases, bankruptcy prediction, and derivatives. Evening or weekend course format.

Prerequisite: MGMT FE 203A.

Restriction: Masters of Business Administration students only.

MGMT FE 242. Portfolio Management for Managers. 4 Units.
Advanced portfolio decision making. Topics include index models, portfolio performance measures, bond portfolio management and interest immunization, stock market anomalies, and market efficiency. Evening or weekend course format.

Prerequisite: MGMT FE 209A and MGMT FE 209B.

Restriction: Masters of Business Administration students only.

MGMT FE 248. Corporate Valuation for Managers. 4 Units.
Studies cases that expand concepts covered in the introductory corporate finance course and focuses on estimating the value of firms and projects in diverse settings. Evening or weekend course format.

Prerequisite: MGMT FE 209A and MGMT FE 209B.

Restriction: Masters of Business Administration students only.

MGMT FE 249. Derivatives for Managers . 4 Units.
Studies financial derivatives instruments including forward contracts, futures, swaps, and options. Advanced applications of these instruments, including pricing and risk management, are emphasized. Evening or weekend course format.

Prerequisite: MGMT FE 209A and MGMT FE 209B.

Restriction: Masters of Business Administration students only.

MGMT FE 250. Consumer Behavior for Managers . 4 Units.
Examines consumer decision-making processes with emphasis on application of concepts and research findings from behavioral sciences for solution of marketing problems. Includes models of consumer decision-making, information processing theories, and sociological influences on consumer decision-making. Evening or weekend course format.

Prerequisite: MGMT FE 205.

Restriction: Masters of Business Administration students only.

MGMT FE 251A. Marketing Research for Managers . 4 Units.
Qualitative and quantitative marketing techniques that generate customer insights. Discusses problem formulation, data collection, statistical analyses, formulating managerial recommendations, implementation, and how research is used by companies. Evening or weekend course format.

Prerequisite: MGMT FE 205.

Restriction: Masters of Business Administration students only.

MGMT FE 252A. Managing Advertising and Communications . 4 Units.
Integrated marketing communications, including advertising, sale promotions, public relations, and direct mail. Exposure to elements of a communications plan; marketing research including copy testing and tracking; creating brand value; media strategies; metrics. Evening or weekend course format.

Prerequisite: MGMT FE 205.

Restriction: Masters of Business Administration students only.

MGMT FE 252D. New Product Development for Managers . 4 Units.
Designed to introduce the new product development process and techniques to identify markets, develop new product ideas, measure consumer preferences, position and design new products as well as test them prior to launch. Evening or weekend course format.

Prerequisite: MGMT FE 205.

Restriction: Masters of Business Administration students only.

MGMT FE 253. Advanced Micromarketing. 4 Units.
Develop marketing plans for retailers and neighborhoods based on past purchases and demographics. Covers retail site selection, category management, promotion management, shelf space allocation, pricing, promotions, targeted advertising, consumer segmentation, media selection, list management, and GIS software.

Prerequisite: MGMT FE 205.

Restriction: Masters of Business Administration students only.

MGMT FE 256. Managing Design and Innovation . 4 Units.
Presents a design-driven approach, from design as organizational vision to strategic innovation to managing the design process. Students are exposed to design fundamentals and work in teams that involve creativity workshops and real-world projects. Evening or weekend course format.

Restriction: Masters of Business Administration students only.

MGMT FE 257. Marketing on the Internet for Managers . 4 Units.
Examines impact of the Internet on traditional methods of marketing. Discusses how to capitalize on and increase the Internet's utility as a tool that can increase marketing effectiveness, efficiency, and competitiveness. Evening or weekend course format.

Prerequisite: MGMT FE 205.

Restriction: Masters of Business Administration students only.

MGMT FE 258. Marketing Strategies for High Technology for Managers. 4 Units.
Framework and tools for managing technology-intensive businesses. Product and pricing policies; Network externalities; Compatibility concerns; Systems competitions; Technological and market uncertainty; Technology licensing strategies; Contracting in high-tech markets; Product line design; Product bundling strategies; Usage-based pricing; Pricing of networks; Auctions.

Prerequisite: MGMT FE 205.

Restriction: Masters of Business Administration students only.

MGMT FE 259. Strategic Brand Management for Managers . 4 Units.
Addresses important branding decisions faced by organizations. A computer simulation allows students hands-on experience in making decisions about their brand and seeing the results of those decisions. Evening or weekend course format.

Prerequisite: MGMT FE 205.

Restriction: Masters of Business Administration students only.

MGMT FE 272. Critical IT Decisions for Business Managers . 4 Units.
Develops frameworks to help business executives make critical IT decisions. Examples include how much to invest in IT, how to maximize return on IT investment, sourcing and business process outsourcing, strategies for digital environments. Evening or weekend course format.

Prerequisite: MGMT FE 207.

Restriction: Masters of Business Administration graduate students only.

MGMT FE 273. Business Intelligence for Analytical Decisions for Managers. 4 Units.
Introduces methods to mine data repositories for business intelligence to facilitate analytical decision-making. Topics include clustering for market segmentation; association rules to discover relationships between different purchase decisions; Naive-Bayes classification techniques for decision making using decision-trees. Evening or weekend format. Course may be offered online.

Restriction: Masters of Business Administration students only.

MGMT FE 274. Managing Database and Strategic Applications . 4 Units.
Examines contemporary business applications of databases including CRM, knowledge management, data-warehousing, and data-mining. Also provides overview of the database design process and data retrieval (querying) to enable analytics and business decision making. Evening or weekend course format.

Prerequisite: MGMT FE 207.

Restriction: Masters of Business Administration students only.

MGMT FE 279. Digital Strategies and Markets. 4 Units.
Examines how online social media are impacting organizations and markets. Topics include collective intelligence, online social influence, social networks, and social media monetization. The target audience consists of students interested in IT consulting, competitive strategy, marketing, and entrepreneurship.

Restriction: Masters of Business Administration students only.

MGMT FE 280. Forecasting for Managers . 4 Units.
Basic theory and techniques used to forecast future activities in technological, economic, social, and political arenas. Impact of forecasting on managerial decision making. Evening or weekend course format.

Restriction: Masters of Business Administration students only.

MGMT FE 281. Analytical Decision Models for Managers . 4 Units.
An introduction to Excel spreadsheet-based models for decision making. Topics include linear and non-linear optimization and simulation models. Excel Solver will be used as the optimization tool and Crystal Ball will be used as the simulation tool. Evening or weekend.

Restriction: Masters of Business Administration students only.

MGMT FE 283. Decision Analysis for Managers . 4 Units.
Models of preferences and uncertainty; exercises in creative problem solving. Assessment and use of preference models for private, public, and not-for-profit decision making. Assessment and use of subjective probabilities in decision making. Evening or weekend course format.

Restriction: Masters of Business Administration students only.

MGMT FE 285. Managing Supply Chains . 4 Units.
Introduces students to the tools and strategies to effectively match supply and demand. Focuses on the coordination of material and information flows in supply chains. Recent innovations are also discussed, including globalization, the impact of electronic commerce, and sustainability issues.

Restriction: Masters of Business Administration students only.

MGMT FE 287. Project Management. 4 Units.
Examines the fundamental components of project management and its role in the modern corporation. Emphasis is on how to initiate, implement, control, and terminate a project. Use of computer package for project management. Evening or weekend course format.

Restriction: Masters of Business Administration students only.

MGMT FE 290. Special Topics in Business. 2-4 Units.
Studies in selected areas of Business. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Masters of Business Administration students only.

MGMT FE 292. Business Law for Managers. 4 Units.
Detailed study from a business viewpoint of contract theories, assignments, delegation of duties, third-party beneficiary contracts, defenses to consensual contracts, types of conditions, methods of excusing conditions, remedies, and types of damages. Evening or weekend course format.

Restriction: Masters of Business Administration students only.

MGMT FE 295A. Global Business I for Managers. 4 Units. 4 Workload Units.
Fundamentals of global strategy, economics, and financial issues. Topics include global manager's environment, global strategy, impact of national culture on business systems, strategies and practices, foreign direct investment, corporate governance, human resources, and international marketing. Evening and weekend course format.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 295B. Global Business II for Managers. 8 Units.
Emphasizes and reinforces international perspectives contained in the FEMBA curriculum by providing a week-long intensive seminar abroad in the second year. Scholars and business people from the host country instruct FEMBA students in specially designed class sessions and company visits.

Prerequisite: MGMT FE 295A.

Restriction: Fully Employed M.B.A. students only.

MGMT FE 296. Executive Leadership. 6 Units.
Provides perspectives on leadership. Helps students answer three questions: Where am I currently as a leader? What tools can I use to improve my leadership? What is my plan for the future as a leader? Evening or weekend course format.

Restriction: Masters of Business Administration students only.

MGMT FE 298. Experiential Learning. 4 Units.
Provides students the opportunity to put into practice concepts, skills, and tools acquired in other parts of the MBA program. Seminars augment internship experiences with analyses of relevant administrative issues.

Restriction: Masters of Business Administration students only.

MGMT FE 299. Individual Directed Study. 1-8 Units.
Individual study under the direction of a selected faculty member.

Same as MGMT 299, MGMT EP 299.

Health Care MBA Courses

MGMT HC 200. Managing of Innovative Organizations for Healthcare Executives . 7 Units.
Using concepts from organization studies, students examine different frameworks for analyzing and designing innovative organizations, the foundations of competitive analysis, alliances and networks as a source of innovation, and key issues in managing innovation effectiveness. Once a month weekend course.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 201A. Statistics for for Healthcare Executives . 5 Units.
Methods of statistical inference, emphasizing applications to administrative and management decision problems. Topics include classical estimation, hypothesis testing, regression, correlation, analysis of variance, decision analysis, and forecasting. Once a month weekend course format.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 201B. Management Science for Healthcare Executives . 5 Units.
An introduction to computer-based models for decision making. Topics include optimization (linear programming, integer programming, network flow models) and computer simulation. Uses spreadsheets extensively, including Excel built-in and add-in packages. Once a month weekend course format.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 202. Organizational Analysis for Healthcare Executives . 5 Units.
Develops a better understanding of individual and group behavior in and across organizations, the frameworks by which to analyze and understand behavior in complex organizations; enhances the skills required to manage collaboration and lead. Once a month weekend course format.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 203A. Financial Accounting for Healthcare Executives . 5 Units.
Involves the development, analysis, and interpretation of financial accounting information for external reporting purposes. Emphasis on measurement and valuation issues in decision-making problems and cases. Once a month weekend course format.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 203B. Managerial Accounting for Healthcare Executives . 5 Units.
Involves developing and using internal financial and non-financial information to help organizations make planning, budgeting, control, operating, and performance evaluation decisions. Once a month weekend course format.

Prerequisite: MGMT HC 203A.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 204A. Microeconomics for Healthcare Executives . 5 Units.
Provides basic tools for analyzing economic decisions of consumers and firms. Topics include demand and supply analysis, production and cost theory, perfect competition, monopoly, market failures, and introductory game theory. Once a month weekend course format.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 204B. Macroeconomics for Healthcare Executives . 5 Units.
Introduces use of macroeconomic analysis to manage the business cycle for competitive advantage. "Business cycle-sensitive" management is explored within the context of marketing, operations management, HRM, merger and acquisitions, and capital financing and expenditures. Once a month weekend course format.

Prerequisite: MGMT HC 204A.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 205. Marketing for Healthcare Executives . 5 Units.
Introduction to marketing. Develops familiarity with fundamental marketing concepts, theories, and techniques, and acquainting students with the type of decisions made by marketing managers including customer targeting, product, pricing, place, promotion, and research. Once a month weekend course format.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 206. Business and Government for Healthcare Executives . 2 Units.
Introduces students to the many non-market issues that affect today's managers: environment protection, health and safety, intellectual property protection, antitrust, and lobbying. Takes an interdisciplinary approach using economics, political science, public policy and law. Once a month weekend course format.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 207. Information Technology for Healthcare Executives . 5 Units.
Focuses on how information technology is used to create value in healthcare-related organizations through product, process, and strategy innovation. Aims to help managers and healthcare professionals understand the strategic role of technology. Every other weekend course format.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 209A. Managerial Finance for Healthcare Executives . 5 Units.
Introduces students to financial theory and concepts. Topics include time value of money, valuation of stocks and bonds, capital budgeting, portfolio theory, capital structure choice. Once a month weekend course format.

Prerequisite: MGMT HC 201A and MGMT HC 203A and MGMT HC 204A.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 209B. Investments for Healthcare Executives . 3 Units.
Foundations of investment management. Theory and empirical evidence related to portfolio theory, market efficiency, and valuation models for equities, bonds, and options. Emphasis on practical applications, including optimal investment strategies. Once a month weekend course format.

Prerequisite: MGMT HC 209A.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 210. Business Strategy for Healthcare Executives . 5 Units.
Provides conceptual frameworks and techniques to analyze and develop firm strategies. Through case analysis and discussion, helps students improve analytical and strategic thinking. Once a month weekend course format.

Prerequisite: MGMT HC 200 and MGMT HC 202 and MGMT HC 205 and MGMT HC 209A.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 213. New Venture Management for Healthcare Executives : A Course in Entrepreneurship. 2-5 Units.
Focuses on how to launch a new business by providing an overview of the start-up process, including how to identify new business opportunities and how to develop a sound operating model.

Prerequisite: MGMT HC 200 and MGMT HC 202 and MGMT 205 and MGMT 210.

Restriction: Masters of Business Administration graduate students only.

MGMT HC 214. Entrepreneurship: Planning the New Venture. 2-5 Units.
Project course in which student teams develop a business plan to launch a new venture. The final business plan is presented to a panel of private investors, venture capitalists, entrepreneurs, experienced executives, and faculty.

Prerequisite: MGMT HC 202 and MGMT HC 205 and MGMT HC 210.

Restriction: Masters of Business Administration graduate students only.

MGMT HC 225. Negotiations For Healthcare Executives . 2-5 Units.
Using a combination of theory and practice via negotiation simulations, students expand their repertoire of negotiating skills and develop their ability to analyze different negotiation situations and contexts. Once a month weekend course format.

Prerequisite: MGMT HC 200 and MGMT HC 202.

Restriction: Masters of Business Administration students only.

MGMT HC 234. Financial Statement Analysis for Healthcare . 2-5 Units.
Develops an initial set of skills essential to using financial statements for business analysis. Topics include financial information "quality," earnings management, revenue recognition, forecasting financial information, and equity valuation. Once a month weekend course format.

Prerequisite: MGMT HC 203A.

Restriction: Masters of Business Administration students only.

MGMT HC 248. Corporate Valuation for Healthcare Executives . 2-5 Units.
Studies cases that expand concepts covered in the introductory corporate finance course and focuses on estimating the value of firms and projects in diverse settings. Once a month weekend course format.

Prerequisite: MGMT HC 209B.

Restriction: Masters of Business Administration students only.

MGMT HC 267. Understanding Managed Care. 2-5 Units.
This course is designed to increase understanding of the various concepts of managed health care with an emphasis on the organizational processes required to make it work, and explore the economics and financial pressures these organizations face.

Restriction: Masters of Business Administration graduate students only.

MGMT HC 283. Decision Analysis for Healthcare Executives . 2-5 Units.
Models of preferences and uncertainty; exercises in creative problem solving. Assessment and use of preference models for private, public, and not-for-profit decision making. Assessment and use of subjective probabilities in decision making. Once a month weekend course format.

Restriction: Masters of Business Administration students only.

MGMT HC 287. Project Management. 2-5 Units.
Examines the fundamental components of project management and its role in the modern corporation. Emphasis is on how to initiate, implement, control, and terminate a project. Use of computer package for project management.

Restriction: Masters of Business Administration students only.

MGMT HC 290. Special Topics in Business. 2-5 Units.
Studies in selected areas of business. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

Restriction: Masters of Business Administration students only.

MGMT HC 292. Business Law for Healthcare Executives. 2-5 Units.
Detailed study from a business viewpoint of contract theories, assignments, delegation of duties, third-party beneficiary contracts, defenses to consensual contracts, types of conditions, methods of excusing conditions, remedies, and types of damages.

Repeatability: May be repeated for credit unlimited times.

Restriction: Masters of Business Administration graduate students only.

MGMT HC 295. Federal Policy in Health Care. 8 Units.
National/international one-week residential course exploring political analysis as related to management of health care organizations. Topics include political environment of management, concepts, and processes central to political analysis, bureaucratic politics, politics, and the manager.

Restriction: Health Care Executive M.B.A. students only.

MGMT HC 296. Leadership for Healthcare Executives . 7 Units.
Focuses on the conceptual, practical, and personal dimensions of executive leadership. Past and current leadership theories are addressed. Individual personal assessment and diagnosis. Once a month weekend course format.

Restriction: Healthcare Executive M.B.A. students only.

MGMT HC 299. Individual Study. 1-8 Units.
Individual study under the direction of a selected faculty member.

Repeatability: May be repeated for credit unlimited times.

Management MBA Courses

MGMTMBA 200. Management of Innovative Organizations. 4 Units.
Using concepts from organization studies and strategy, students examine different frameworks for analyzing and designing innovative organizations, the foundations of strategy and competitive analysis, alliances and networks as a source of innovation, and key issues in managing innovation effectiveness.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 201A. Statistics for Management. 4 Units.
Methods of statistical inference, emphasizing applications to administrative and management decision problems. Topics: classical estimation and hypothesis testing, regression, correlation, analysis of variance, decision analysis, and forecasting.

Prerequisite: Courses in basic statistics with probability.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 201B. Management Science. 2 Units.
An introduction to computer-based models for decision making. Topics include optimization (linear programming, integer programming, network flow models) and computer simulation. Uses spreadsheets extensively, including Excel built-in and add-in packages.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 202. Organizational Analysis for Management. 4 Units.
Develops a better understanding of the causes and consequences of individual and group behavior, and the frameworks by which to analyze and understand complex organizations; and enhances the skills required to manage and lead an organization.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 203A. Financial Accounting for Management. 4 Units.
Nature and purpose of accounting, principal accounting instruments, and valuation problems.

Restriction: Master of Business Administration students only.

MGMTMBA 203B. Managerial Accounting for Management. 4 Units.
Involves developing and using financial and non-financial information to help organizations make planning, budgeting, control, operating, and performance evaluation decisions.

Prerequisite: MGMTMBA 203A

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 204A. Microeconomics for Management. 4 Units.
Provides basic tools for analyzing economic decisions of consumers and firms. Topics include demand and supply analysis, production and cost theory, perfect competition, monopoly, market failures and introductory game theory.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 204B. Macroeconomics for Management. 4 Units.
Introduces use of macroeconomic analysis to manage the business cycle for competitive advantage. Such "business cycle-sensitive" management is explored within the context of marketing, operations management, HRM, merger and acquisition activity, and capital financing and expenditures.

Prerequisite: MGMTMBA 204A.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 205. Marketing Management. 4 Units.
Introduction to the field of marketing. Objectives include developing familiarity with fundamental concepts, theories, and techniques in marketing, and acquainting students with the type of decisions made by marketing managers including customer targeting, product, pricing, distribution, promotion, and research.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 206. Business and Government. 4 Units.
Introduces students to the many non-market issues that affect today's managers, such as: environment protection, health and safety, intellectual property protection, antitrust, and lobbying. Takes an interdisciplinary approach using economics, political science, public policy and law.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 207. Information Technology for Management. 4 Units.
Focuses on the technological and managerial issues surrounding the development and use of IT in organizations. Examines role of technology in organizations, how technology can be used to execute an organization's business strategy and to enable new, innovative business strategies.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 208. Operations Management. 4 Units.
Introduction to strategic and tactical issues in production and operations management. A blend of quantitative and qualitative considerations. Topics: product planning, process design, capacity management, production planning, inventory control, distribution management, just-in-time manufacturing, quality management.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 209A. Managerial Finance. 4 Units.
Introduces students to financial theory and concepts. The main topics covered are time value of money, valuation of stocks and bonds, capital budgeting, portfolio theory, capital structure choice.

Prerequisite: MGMTMBA 201A and MGMTMBA 203A and MGMTMBA 204A.

Restriction: Full-time Master of Business Administration graduate students only.

MGMTMBA 209B. Investments. 4 Units.
Foundations of investment management. Theory and empirical evidence related to portfolio theory, market efficiency, asset pricing models, factor models, and option pricing theory. Students are expected to combine market research results and electronic information sources to create optimal investment strategies.

Prerequisite: MGMTMBA 209A.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 210. Business Strategy. 4 Units.
Examines the functions and responsibilities of senior management and the decisions that determine the direction of the organization and shape its future. Introduces students to concepts, frameworks, and analytical techniques firms use to analyze strategic issues.

Prerequisite: MGMTMBA 202 and MGMTMBA 205 and MGMTMBA 209A.

Restriction: Master of Business Administration students only.

MGMTMBA 211. MBA Proseminar.
Provides students in the Merge School Full-time MBA Program with information and practical skills for success in the MBA program, and for business career planning.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MGMTMBA 213. New Venture Management: A Course in Entrepreneurship. 4 Units.
Focuses on how to launch a new business by providing an overview of the start-up process, including how to identify new business opportunities and how to develop a sound operating model.

Prerequisite: MGMTMBA 202 and MGMTMBA 205.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 215. Global Competitive Strategy. 4 Units.
Explores advanced topics in managing the geographic scope of the firm: locating activities in the right places, which markets to penetrate, horizontal integration across countries, and multinational partnering.

Prerequisite: MGMTMBA 202 and MGMTMBA 205 and MGMTMBA 210.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 218. Business Dynamics. 4 Units.
Addresses how managers can successfully face the continuous challenges to their survival in a time-efficient, strategically sound manner. Builds on the core strategy course by tackling an extended range of strategic responses to dynamic and competitive environments.

Prerequisite: MGMTMBA 200 and MGMTMBA 202 and MGMTMBA 210.

Restriction: Master of Business Administration students only.

MGMTMBA 220. Organizational Change. 4 Units.
Focuses on the implementation of change, including identifying the features of successful change in organizations of varying sizes and configurations, with an emphasis on the reasons why individuals resist or embrace change.

Prerequisite: MGMTMBA 200 and MGMTMBA 202.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 225. Negotiations. 4 Units.
Using a combination of theory and practice via negotiation simulations, students expand their repertoire of negotiating skills and develop their ability to analyze different negotiation situations and contexts.

Prerequisite: MGMTMBA 200 and MGMTMBA 202.

Restriction: Master of Business Administration students only.

MGMTMBA 228. International Management. 4 Units.
Introduction to the effects of different national cultures, political and economic systems on the assumptions, expectations, organizational practices, and organizational forms needed to conduct cross-national organizational work.

Prerequisite: MGMTMBA 200 and MGMTMBA 202.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 229. Leadership Strategies. 4 Units.
Provides insight/perspectives about the study and development of leadership. Helps students answer three questions: Where am I currently as a leader? What tools can I use to improve my leadership? What is my plan for the future as a leader. Materials fee.

Prerequisite: MGMTMBA 200 and MGMTMBA 202.

Restriction: Master of Business Administration students only.

MGMTMBA 231A. FSA-Earnings Quality and Asset Analysis. 4 Units.
Develops skills essential to using financial statements for business analysis by examining financial information quality, profitability and risk analysis, earnings management, revenue recognition, asset recognition and valuation, and how financial reporting is related to the business environment and managerial incentives.

Prerequisite: MGMTMBA 203A.

Restriction: Master of Business Administration students only.

MGMTMBA 231B. FSA-Liability and Equity Analysis. 4 Units.
Focuses on the financial statement analysis of liabilities and stockholders' equity. Covers topics such as forecasting financial statements, earnings-based valuation models, accounting analysis of mergers and acquisitions, leases, bankruptcy prediction, and derivatives.

Prerequisite: MGMTMBA 203A.

Restriction: Master of Business Administration students only.

MGMTMBA 234. Financial Statement Analysis. 4 Units.
Develops an initial set of skills essential to using financial statements for business analysis. Topics include financial information "quality," earnings management, revenue recognition, forecasting financial information, and equity valuation.

Prerequisite: MGMTMBA 203A.

Restriction: Master of Business Administration students only.

MGMTMBA 236. Accounting Control and Corporate Governance. 4 Units.
Equips MBA students with skills to deal with the challenges and opportunities organizations face in dealing with the separation of ownership and control.

Prerequisite: MGMTMBA 203A and MGMTMBA 203B.

Restriction: Master of Business Administration students only.

MGMTMBA 242. Portfolio Management. 4 Units.
Advanced portfolio decision-making. Topics include index models, portfolio performance measures, bond portfolio management and interest immunization, stock market anomalies and market efficiency.

Prerequisite: MGMTMBA 201A and MGMTMBA 201B and MGMTMBA 204A and MGMTMBA 209A and MGMTMBA 209B.

MGMTMBA 243. Bonds and Fixed Income. 4 Units.
Fixed-income markets include treasury bonds, corporate bonds, and asset-backed securities. Focuses on techniques and methodologies for valuing different types of debt as well as their uses.

Prerequisite: MGMTMBA 209A and MGMTMBA 209B.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 244. Multinational Finance. 4 Units.
Focuses on financial issues facing multinational corporations, the most important of which is the management of foreign exchange risk. Other topics covered are investments and financing decisions in international capital markets.

Prerequisite: MGMTMBA 201A and MGMTMBA 201B and MGMTMBA 204A and MGMTMBA 204B and MGMTMBA 209A and MGMTMBA 209B.

MGMTMBA 246A. Introduction to Real Estate Process. 4 Units.
Introductory survey course providing a working knowledge of the real estate market. Topics include real estate economics, valuation, feasibility, investment, tax considerations, financing, development, and corporate real estate asset management. Lectures and cases, with supplemental presentations by real estate professionals.

MGMTMBA 246B. International Real Estate. 4 Units.
Survey of international real estate investment opportunities. Topics include size and breadth; opportunities and challenges (tax treatment, currency/political/market risks, transaction costs, lack of local knowledge); ownership vehicles (REITs, joint ventures, equity funds, etc.). Global cast of guest lecturers supplements lectures.

Prerequisite: MGMTMBA 246A.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 246C. Real Estate Capital Markets. 4 Units.
Understanding the four sectors of real estate capital markets: public debt, private debt, public equity, private equity; fundamental drivers of real estate investment; key players; investment types; underwriting strategies; debt vs. equity source characteristics and implications for returns.

Prerequisite: MGMTMBA 246A.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 246D. The Real Estate Development Process. 4 Units.
Nature and composition of development community and development process. Emphasis on role of conflicting interests, values and goals, and market uncertainty. Special attention paid to deal structuring and risk management. Lectures, guest lecturers, team projects evaluating actual development project.

Prerequisite: MGMTMBA 246A.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 246E. Mortgage-Backed Securities and Structured Finance. 4 Units.
Theory and operation of the residential and commercial mortgage-backed securities markets. Historical introduction, pricing and technical analysis, the securitization process and roles of individual players, investment characteristics, structured finance and derivatives, recent policy issues. Guest lecturers from industry supplement lectures.

Prerequisite: MGMTMBA 246A.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 246F. Seminar in Management of the Real Estate Enterprise. 4 Units.
Capstone seminar. Looks beyond "The Deal" to management of the real estate enterprise itself. Explores aspects of decision-making focused upon strategic objectives: goal setting, legal/tax structures, public vs. closely-held entities, corporate ethics, capital structure, managing growth, diversification, technology. Guest professionals.

Prerequisite: MGMTMBA 246A.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 246G. Applied Real Estate Security Analysis and Portfolio Management. 4 Units.
Provides an understanding of the public real estate investment trust (REIT) market and its place in modern investment strategies, presents methods for analyzing and valuing companies, and introduces basic concepts for constructing and managing a real estate investment portfolio.

Prerequisite: MGMTMBA 246A.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 248. Corporate Valuation. 4 Units.
Studies cases that expand concepts covered in the introductory corporate finance course and focuses on estimating the value of firms and projects in diverse settings.

Prerequisite: MGMTMBA 209B.

Restriction: Master of Business Administration students only.

MGMTMBA 249. Derivatives. 4 Units.
Studies financial derivatives instruments, including forward contracts, futures, swaps, and options. Advanced applications of these instruments, including pricing and risk management, are emphasized.

Prerequisite: MGMTMBA 209A and MGMTMBA 209B.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 250. Consumer Behavior. 4 Units.
Examines consumer decision-making process with emphasis on application of concepts and research findings from behavioral sciences for solution of marketing problems. Includes models of consumer decision-making, information processing theories, and sociological influences on consumer decision-making.

Prerequisite: MGMTMBA 205.

Restriction: Master of Business Administration students only.

MGMTMBA 251A. Marketing Research. 4 Units.
Covers conducting marketing research to generate consumer insights that will drive sales, market share, and profitability and/or realize other quantitative objectives. Discusses problem formulation, data collection, statistical analyses, formulating managerial recommendations, implementation, and how research is used by companies.

Prerequisite: MGMTMBA 205.

Restriction: Master of Business Administration students only.

MGMTMBA 252A. Advertising and Communications Management. 4 Units.
Covers integrated marketing communications which includes advertising, sale promotions, public relations, and direct mail. Topics include elements of a communications plan, marketing research including copy testing and tracking, creating brand value, media strategies, and measuring return on investment.

Prerequisite: MGMTMBA 205.

Restriction: Master of Business Administration students only.

MGMTMBA 252D. New Product Development. 4 Units.
Designed to introduce the new product development process and techniques to identify markets, develop new product ideas, measure consumer preferences, position and design new products as well as test them prior to launch. Analytical thinking and techniques are emphasized.

Prerequisite: MGMTMBA 205.

Restriction: Master of Business Administration students only.

MGMTMBA 254. International Marketing. 4 Units.
Provides an understanding of the problems and perspectives of marketing across national boundaries, and develops analytical abilities for structuring and controlling marketing programs related to overseas business. Financial, legal, and cultural barriers to international marketing are emphasized.

Prerequisite: MGMTMBA 205.

Restriction: Master of Business Administration students only.

MGMTMBA 256. Design Management and Innovation. 4 Units.
Presents a design-driven approach, from design as organizational vision to strategic innovation to managing the design process. Students are exposed to design fundamentals and work in teams that involve creativity workshops and real-world projects.

Restriction: Master of Business Administration students only.

MGMTMBA 257. Marketing on the Internet. 4 Units.
Examines impact of the Internet on traditional methods of doing marketing, and explores its existing and future uses. Discusses how to capitalize on and increase the Internet's utility as a tool that can increase marketing effectiveness, efficiency, and competitiveness.

Prerequisite: MGMTMBA 205.

Restriction: Master of Business Administration students only.

MGMTMBA 258. Marketing Strategies for High Technology. 4 Units.
Framework and tools for managing technology-intensive businesses. Product and pricing policies; network externalities; compatibility concerns; systems competition; technological and market uncertainty; technology licensing strategies; contracting in high-tech markets; product line design; product bundling strategies; usage-based pricing; pricing of networks.

Prerequisite: MGMTMBA 205.

Restriction: Master of Business Administration students only.

MGMTMBA 259. Strategic Brand Management. 4 Units.
Addresses important branding decisions faced by organizations. A computer simulation allows students hands-on experience in making decisions about their brand and seeing the results of those decisions.

Prerequisite: MGMTMBA 205.

Restriction: Master of Business Administration students only.

MGMTMBA 261A. Physicians, Executives, and Healthcare Law. 4 Units.
Elective course offered alternating years, for the UCI MBA students. Designed to bring to the classroom major healthcare law issues.

Prerequisite: MGMTMBA 201A.

MGMTMBA 261B. Physicians, Executives, and Health Leadership. 4 Units.
Elective course offered alternating years, for the UCI MBA students. Designed to bring to the classroom major healthcare leadership and management issues from both the executive and physician perspective.

Prerequisite: MGMTMBA 201A.

Restriction: Master of Business Administration students only.

MGMTMBA 262. Managing Nonprofits. 4 Units.
Focuses on the similarities and differences between for-profit and nonprofit organizations, with emphasis on the management of nonprofits. Topics include: marketing, fundraising, staffing, management/director relationships, use of volunteers, and emerging career opportunities.

Restriction: Master of Business Administration students only.

MGMTMBA 264. US Health Policy. 4 Units.
Provides an overview of US health policy with a particular emphasis on current policy developments and debates. Students will be introduced to the basic tools of policy analysis and will apply them to health policy issues.

Restriction: Master of Business Administration students only.

MGMTMBA 272. Critical IT Decisions for Business Executives. 4 Units.
Develops frameworks to help business executives make critical IT decisions. Examples include how much to invest in IT, determining management practices to maximize return on IT investment, sourcing strategies for IT and business process outsourcing, strategies for digital environments.

Prerequisite: MGMTMBA 207.

Restriction: Master of Business Administration students only.

MGMTMBA 273. Business Intelligence for Analytical. 4 Units.
Introduces methods to mine data repositories for business intelligence to facilitate analytical decision-making. Topics include clustering for market segmentation, association rules to discover relationships between different purchase decisions, Naive-Bayes classification techniques for decision making using decision-trees.

Restriction: Master of Business Administration students only.

MGMTMBA 274. Database Management and Strategic Applications. 4 Units.
Examines contemporary business applications of databases including CRM, knowledge management, data-warehousing, data-mining, and business intelligence. Also covers the database design process with a focus on enabling business decision making including capturing the linkages among data, and retrieving data.

Prerequisite: MGMTMBA 207.

Restriction: Master of Business Administration students only.

MGMTMBA 279. Digital Strategies and Markets. 4 Units.
Examines how online social media are impacting organizations and markets. Topics include collective intelligence, online social influence, social networks, and social media monetization. The target audience consists of students interested in IT consulting, competitive strategy, marketing, and entrepreneurship.

Restriction: Master of Business Administration students only.

MGMTMBA 280. Forecasting. 4 Units.
Basic theory and techniques used to forecast future activities in technological, economic, social, and political arenas. Impact of forecasting on managerial decision making.

MGMTMBA 282. Revenue Management . 4 Units.
Students learn to apply advanced analytics to earn incremental revenue through the efficient use of resources and science-based pricing methods. Statistics and optimization (using Excel and Excel Solver). Industry-specific implementation issues.

Restriction: Master of Business Administration students only.

MGMTMBA 283. Decision Analysis. 4 Units.
Models of preferences and uncertainty; exercises in creative problem solving. Assessment and use of preference models (von Neumann-Morgenstern expected utility and measurable value functions) for private, public, and not-for-profit decision making. Assessment and use of subjective probabilities in decision making.

Restriction: Master of Business Administration students only.

MGMTMBA 285. Supply Chain Management. 4 Units.
Introduces students to the tools and strategies to effectively match supply and demand. Focuses on the coordination of material and information flows in supply chains. Recent innovations are also discussed, including globalization, the impact of electronic commerce, and sustainability issues.

Restriction: Masters of Business Administration graduate students only.

MGMTMBA 290. FLD STUDIES IN MGMT. 2-4 Units.
Each quarter a number of special topic seminars are offered in the 290 series. Examples of possible topics include Communication in Organizations, Power and Authority in Organizations, International Management, Health Care Administration, Real Estate Development.

Repeatability: May be repeated for credit unlimited times.

MGMTMBA 292. Business Law. 4 Units.
Detailed study from a business viewpoint of contract theories, assignments, delegation of duties, third-party beneficiary contracts, defenses to consensual contracts, types of conditions, methods of excusing conditions, remedies, and types of damages.

MGMTMBA 293. Biotech Management . 5 Units.
Taught jointly by Biological Sciences and Merage School faculty, the course addresses fundamental aspects within, and associated with, the biotechnology industry. Curriculum is focused largely on management issues, including finance, product development, pharmaceuticals, project management, regulatory affairs, and ethics.

Same as MOL BIO 253.

Restriction: Master's Program in Biotechnology Management students only.

MGMTMBA 295B. Micromarketing Lab. 2 Units.
Develop marketing plans for retail locations and neighborhoods based on past purchases and demographics. Topics include retail site selection, targeted advertising, promotion management, and category management. Gain experience with Geographic Information System (GIS) software and retail sales (POS) analysis.

Corequisite: MGMTMBA 205.

Restriction: Master of Business Administration students only.

MGMTMBA 298. Experiential Learning. 4 Units.
Provides students the opportunity to put into practice concepts, skills, and tools acquired in other parts of the M.B.A. program. Seminars augment internship experiences with analyses of relevant administrative issues.

Restriction: Second-year MBA students only.

MGMTMBA 299. Individual Study . 1-12 Units.
Individual study under the direction of the selected faculty member.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Management PhD Courses

MGMTPHD 291. Ph.D. Special Topics Seminar. 2-12 Units.
Each quarter a number of special topic seminars are offered in the 291 series for Ph.D. students. Examples include topics such as methods seminar, experimental design, qualitative research, structural equation modeling.

Repeatability: Unlimited as topics vary.

MGMTPHD 297A. Doctoral Proseminar. 2-4 Units.
Analysis of the central theories and theoretical controversies in the field of management. Examination of the formal education for managerial careers and exploration of issues relating to professional careers in research and scholarship in the field of management.

Grading Option: Satisfactory/unsatisfactory only.

MGMTPHD 297B. University Teaching.
Designed to prepare students for teaching career; incorporates seminars addressing topics of classroom dynamics, syllabus preparation, teaching techniques; establishes mentor relationship with faculty member in student's teaching area, provides classroom experience and includes option of videotape analysis of teaching style.

MGMTPHD 297F. Doctoral Research Methods for the Management and Business Social Sciences. 4 Units.
An introduction to the fundamentals of social science research: theory development, research design, methods, data management, and writing for scholarly publications; for doctoral students intending scholarly research careers. Involves hands-on practice in formulating hypotheses, designing research, and conducting journal reviews.

MGMTPHD 297G. Qualitative Research. 4 Units.
Focuses on qualitative research techniques for management. A hands-on course that includes in-depth/long interviews, visual research methods, participant/non-participant observation, verbal protocols, constructing field notes, multi-media approaches for data gathering and analyses.

Restriction: Graduate students only.

MGMTPHD 297H. Experimental Design. 4 Units.
Advanced course provides experience in planning and implementing an experiment or quasi-experiment, including choice of topic, study design, data analysis, and manuscript preparation. Data analysis topics include ANOVA, ANCOVA, repeated measures, logistic regression, chi-square, and tests of mediation.

Restriction: Graduate students only.

MGMTPHD 297I. Applied Multivariate Statistics. 2-4 Units.
Provides an overview of the most common techniques for multivariate analysis: principal component analysis, factor analysis, cluster analysis, MANOVA, regression with continuous variables, and regression with discrete variables.

Restriction: Graduate students only.

MGMTPHD 297J. Applied Econometrics and Research Methods. 2-4 Units.
Helps students to be more knowledgeable consumers and producers of empirical research. Reviews econometric techniques and research designs used by applied microeconomists. Attention to practical issues that arise when analyzing data.

Restriction: Graduate students only.

MGMTPHD 297K. Advanced Qualitative Methods: Analyzing Qualitative Data. 4 Units.
Introduces students to the theory and practice of analyzing qualitative data. Students must have already learned about data collection and research design for qualitative research and they must have qualitative data they can analyze in the course.

Same as POL SCI 273A, SOCIOL 223, PP&D 213.

Restriction: Graduate students only.

MGMTPHD 297Q. Game-Theoretic Models for Management Research. 4 Units.
Introduces some classic game-theoretic models for management research. It is about modeling strategic interactions between business competitors and/or partners in an analytical framework. Various applications will be discussed, e.g., pricing strategies, business alliances, e-commerce, negotiations, and contracts, etc.

Restriction: Graduate students only.

MGMTPHD 297R. Theories of Power and Empowerment. 4 Units.
Studies different ways of thinking about power and its uses. Explores theories of power that inform various notions of empowerment, including resistance, participatory democracy, and workplace empowerment.

Same as POL SCI 223A, SOCIOL 271, PP&D 279.

Restriction: Graduate students only.

MGMTPHD 297S. Information Economics and Business Applications. 4 Units.
Designed to provide doctoral students in the Merage School with an overview of the basics of information economics, so the students can readily access the literature in their areas based on this key reference discipline.

Restriction: Graduate students only.

MGMTPHD 297T. Decision Theory. 2-4 Units.
Decision theories and preference models: How models are elicited or theories are experimentally tested, relevance to different management research areas, alternative theories, applications in management practice, and interpretations for the general public.

Restriction: Graduate students only.

MGMTPHD 297U. Foundational Theories of Organizations. 4 Units.
Covers major economic and sociological perspectives guiding the study of organizations (i.e., transaction cost economics, agency theory, institutional theories, organizational ecology, network and diffusion theories, behavioral theories, resource dependence), and examines how different theoretical perspectives are tested.

Restriction: Graduate students only.

MGMTPHD 299. Individual Directed Study. 1-12 Units.
Individual study under the direction of a selected faculty member.

Repeatability: May be taken for credit for 12 units.

Restriction: Graduate students only.

Master of Professional Accountancy Courses

MPAC 200A. Intermediate Accounting Intensive I. 4 Units.
Designed to provide students with technical U.S. accounting theory and principles background necessary for graduate work in accounting. Current international accounting convergence issues and standards will be discussed on emerging topics.

Repeatability: May be taken for credit 2 times.

Restriction: Master of Professional Accountancy students only.

MPAC 200B. Foundations of Taxation Intensive. 4 Units.
Provides students with the basic concepts of federal income taxation applicable to all taxpayers. Specifically, principles of taxation for individuals, corporations, and partnerships are discussed.

Repeatability: May be taken for credit 2 times.

Restriction: Master of Professional Accountancy students only.

MPAC 200C. Intermediate Accounting Intensive II and Special Topics. 4 Units.
Designed to provide students with the technical U.S. accounting theory and principles background necessary for graduate work in accounting. Current international accounting convergence issues and standards will be discussed on emerging topics.

Repeatability: May be taken for credit 2 times.

Restriction: Master of Professional Accountancy students only.

MPAC 200D. Auditing Intensive. 4 Units.
Designed to provide students with an understanding of the fundamental principles, processes, and ethical considerations involved in the performance of a financial statement audit under U.S. auditing standards.

Repeatability: May be taken for credit 2 times.

Restriction: Master of Professional Accountancy students only.

MPAC 230. Accounting Proseminar: Career and Professional Development. 2 Units.
Provides students with information and practical skills for success in the program and for professional accounting and business career planning, and with discussions of current issues confronting the accounting profession.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 2 times.

Restriction: Master of Professional Accountancy students only.

MPAC 231A. Financial Statement Analysis and Valuation I. 4 Units.
Develops skills to analyze corporate financial reports. Topics include profitability, risk analysis, cash flow analysis, revenue and asset recognition, and valuation. The skills are useful for students to evaluate financial reporting quality, detect earnings management, and predict firms' financial performance.

Prerequisite: Intermediate accounting.

Restriction: Master of Professional Accountancy students only.

MPAC 231B. Financial Statement Analysis and Valuation II. 4 Units.
Develops skills to analyze corporate financial reports with a focus on liabilities, stockholders' equity, and valuation. Some topics include forecasting financial statements, cash flows- and earnings-based equity, and valuation models, accounting analysis of mergers and acquisitions, lease pensions, and derivatives.

Restriction: Master of Professional Accountancy students only.

MPAC 232. Taxes and Business Strategy. 4 Units.
Develops a student's ability to identify, understand, and evaluate tax-planning opportunities. The focus is on tax planning concepts and the effects of taxes on business decisions rather than on detailed tax rules, compliance, or legal research.

Restriction: Master of Professional Accountancy students only.

MPAC 233. Non-for-Profit Accounting. 2 Units.
Elective course focuses on the accounting and reporting for governmental and non-for-profit entities. Topics include preparation of fund basis financial statements and related reporting and auditing issues. Use of non-financial performance measures for non-for-profit entities will also be discussed.

Restriction: Master of Professional Accountancy students only.

MPAC 234. Accounting Policy and Research. 2 Units.
Considers issues in contemporary accounting standard setting and regulation by examining academic accounting research of the various issues. Enables students to develop their knowledge and better appreciate current debates in accounting.

Restriction: Master of Professional Accountancy students only.

MPAC 235. Advanced Managerial Accounting. 4 Units.
Design of cost information and systems used to plan and control organizational activities; procedures used to account for unit, process, and program costs; cybernetic evaluation of costing procedures; cost estimation, analysis, and accounting via computers.

Prerequisite:

Restriction: Master of Professional Accountancy students only.

MPAC 236. Forensic Accounting . 2 Units.
Elective course focuses on the principles, and application of forensic accounting. Topics include the identification, detection, and prevention of fraud, valuations, damage calculations, and litigation support. The role of forensic accountants in the legal system will also be discussed.

Restriction: Master of Professional Accountancy students only.

MPAC 237. International Accounting. 4 Units.
An online course. A comprehensive study of differences between US GAAP and International Financial Reporting Standards (IFRS). Course may be offered online.

Prerequisite: Intermediate accounting.

Restriction: Master of Professional Accountancy students only.

MPAC 238. Advanced Auditing and Forensics. 4 Units.
Designed to provide advanced coverage of topics and emerging issues in auditing, assurance services, and fraud detection. Provides a deeper understanding of the fundamental concepts of auditing, assurance services, and developing hot-topics within the auditing profession.

Prerequisite: Intermediate accounting and basic auditing.

Restriction: Master of Professional Accountancy students only.

MPAC 239. Ethics in Accounting and Business. 4 Units.
Designed to introduce students to the intellectual principles of ethical decision making by emphasizing the theories of ethics and their application in the business, and specifically, accounting professions. MPAC capstone course with a final comprehensive exam for the program.

Restriction: Master of Professional Accountancy students only.

MPAC 290. Special Topic Seminars. 2-4 Units.
Studies in selected area of Accounting. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Master of Professional Accountancy students only.

MPAC 291. Professional Research and Communication. 4 Units.
Combines research of the professional accounting literature on a range of technical topics with a written communication and oral presentations of the findings.

Restriction: Master of Professional Accountancy students only.

MPAC 299. Individual Study. 1-4 Units.
Individual study under the direction of a selected faculty member.

Repeatability: May be repeated for credit unlimited times.

Restriction: Master of Professional Accountancy students only.

School of Education

Deborah Lowe Vandell, **Dean**

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Overview

The School of Education is a unique interdisciplinary academic unit committed to promoting educational success in and out of school for ethnically and economically diverse learners from preschool through college (P–20) through collective research, teaching, and service activities. The multidisciplinary faculty includes scholars in psychology, sociology, economics, linguistics, language and literacy, policy, race and ethnicity, and the achievement gap. Their research addresses core issues in contemporary education: (1) equity of opportunity for ethnically, linguistically, and economically diverse learners; (2) teaching and learning in science and math; (3) early childhood education and development; (4) out-of-school learning; and (5) effective interfaces between technology and education.

The School integrates the themes of Learning, Cognition, and Development; Educational Policy and Social Context; and Language, Literacy, and Technology across its programs, including the minor in Educational Studies, the B.A. in Education Sciences, the Ph.D. in Education, the Master of Arts in Teaching, and the Teacher Credential program. Scholarly work arises from the common belief that education environments, both in and out of school, are the sites of change in the quality of life and the availability of productive life choices for learners of all ages.

Degrees

Education	M.A., Ph.D.
Education Sciences	B.A.
Elementary and Secondary Education	M.A.T.

Honors

Graduation with Honors. Honors at graduation, e.g., *cum laude, magna cum laude, summa cum laude,* are awarded to approximately the top 12 percent of the graduating seniors. To be eligible for honors, a general criterion is that students must have completed at least 72 units in residence at the University of California. The student's cumulative record at the end of the final quarter is the basis for consideration for awarding Latin honors. Other important factors are considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext).

Undergraduate Programs

Bachelor of Arts in Education Sciences

The major in Education Sciences builds a theoretical foundation and applied understandings in the study of education, focusing on four primary areas: human development, learning, and cognition; societal and policy contexts affecting education; media and communication systems for learning; and educational research and evaluation. Program faculty bring multiple disciplinary perspectives to their research and courses, including cognitive sciences, developmental psychology, sociology, economics, applied linguistics, informatics, and media studies. Lower-division coursework in the major introduces students to each of the four primary areas, while upper division courses will allow students to build depth of understanding and explore applications in each area, and if they wish, to complete a specialization to help prepare them for further study or careers in education. Specializations are offered in the following fields: Early Childhood Learning and Development (p. 416); Children's Learning and Development (p. 417); After-School Learning and Development (p. 417); Digital Media and Learning (p. 418); English Language Learning (p. 418); and Educational Research and Evaluation (p. 419).

Undergraduates enrolled in the Education Sciences degree program are encouraged to complete courses inside and outside of the major to enhance career preparation and pursue personal interests. With advanced planning, students in the major can complete a minor or a second major in another discipline.

Two important ways to build depth of understanding in preparation for careers or graduate study are to participate in faculty-directed research and in fieldwork in school-based or other education settings. Accordingly, students in the major augment their coursework with a minimum of 40 hours of field experience or research in an educational setting.

The B.A. in Education Sciences is not a professional education degree. However, those who complete the major will be prepared to pursue a post-baccalaureate teaching credential program. (See School of Education section on Teaching Credentials and M.A.T. program.) Students interested in teaching elementary grades will benefit from completing the major with a specialization in *Early Childhood Learning and Development* or *Children's Learning and Development*. Students who are interested in teaching in middle schools or high schools should consult an Education Student Affairs

Counselor about combining an appropriate major and minor, or completing a double major to develop appropriate expertise in the subject they plan to teach.

Education Sciences majors are also prepared for other types of instructional or administrative positions in programs such as those focused on early childcare (see specialization in *Early Childhood Learning and Development*), out-of-school learning (see specialization in *After-School Learning and Development*), adult learning, or international education (see specialization in *English Language Learning*). Additionally, students who complete the major are prepared to enter other education-related career fields in the private and public sectors, such as curriculum development and instructional design (see specialization in *Digital Media and Learning*), academic counseling, child welfare, governmental policy, program evaluation (see specialization in *Educational Research and Evaluation*), or education sales and marketing. Students interested in graduate study will be well prepared to pursue advanced degree programs in education or related fields (see specialization in *Educational Research and Evaluation*).

Admission

Freshmen: Preference will be given to those who rank the highest using the selection criteria as stated in the Undergraduate Admissions (p. 52) section of the *Catalogue*.

Transfer students: Preference will be given to Junior-level applicants with the highest grades overall (minimum cumulative GPA of 3.0). It is suggested that prospective transfer students work toward completing coursework to fulfill the UCI general education requirements or IGETC.

Change of Major. Students who wish to change their major to Education Sciences should contact the Education Student Affairs Office for information about change-of-major requirements, procedures, and policies. Information is also available at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Requirements for the B.A. Degree in Educational Sciences

All students must meet the University Requirements (p. 71).

Grade Requirement. A minimum grade average of at least C (2.0) is required (1) overall, (2) in all of the courses required for the major program, and (3) in the upper-division courses required for the major program. No more than two courses (8 units) applied to the major program may be taken Pass/Not Pass.

Overlap Restrictions

Double Majors. In fulfilling degree requirements for multiple majors, a maximum of two courses may overlap between two majors.

Major and Minor Requirements. Students may not receive both the major in Education Sciences and the minor in Educational Studies. In fulfilling requirements for a minor, a maximum of two courses may overlap between a major in Education Sciences and a minor from another department.

Major Requirements

Students must complete twelve courses (48 units) and a practicum as specified below:

Lower-Division requirements (20 units total).	
A. Five Lower-Division courses (20 units):	
EDUC 10	Educational Research Design
EDUC 15	Statistics for Education Research [1]
EDUC 30	21st Century Literacies
EDUC 40	Theories of Development and Learning Applied to Education
EDUC 50	Origins, Purposes, and Central Issues in K-12 Education
Upper-Division Requirements (28 units total).	
B. Select one development course (4 units):	
EDUC 106	Introduction to Early Childhood Education
EDUC 107	Child Development in Education
EDUC 108	Adolescent Development and Education
EDUC 185	Social Development in Education
C. Select one learning course (4 units):	
EDUC 128	Exceptional Learners
EDUC 160	Foundations of Out-of-School Learning
EDUC 173	Cognition and Learning in Educational Settings
EDUC 176	Psychology of Learning, Abilities, and Intelligence
D. Select one educational policy and social context course (4 units):	
EDUC 124	Multicultural Education in K-12 Schools

EDUC 126	Ethics and Education
EDUC 145	Theories and Pedagogies of Race in Education
EDUC 149	Family, School, and Community in Early Childhood
EDUC 150	Changing the High School Experience
EDUC 175	Foundations of Education
EDUC 182	Latina/Latino Access and Persistence in Higher Education
E. Select one communications and media course (4 units):	
EDUC 104E	Multimedia and the Arts in the Multicultural Classroom
EDUC 125	Children, Schools, and Cinema
EDUC 130	Children's Learning and Media
EDUC 131	Educational Technology
EDUC 134	Teaching English Internationally
EDUC 151	Language and Literacy

F. Three additional elective Education courses (12 units). At least 8 units must be upper-division (numbered 100-199). [2]

The additional electives do not including the following professional education courses: EDUC 109, EDUC 143AW, EDUC 143BW, EDUC 148, EDUC 158. A maximum of 8 units for any repeatable Education course (e.g., EDUC 198, EDUC 199) may be used to satisfy this elective requirement.

G. Practicum Requirement (40 hours total):

A minimum of 40 hours of field experience or research in an education setting, satisfied in one or two ways.

1. Complete 40 hours of field experience or research completed in conjunction with one or more approved UCI courses that include a practicum. Consult the Education Student Affairs Office or School of Education Website for Undergraduate Academic Programs for a current list of approved practicum courses.

or

2. Submit a petition to the Education Student Affairs Office for approval of verifiable hours from courses that are not on the approved practicum course list or hours from educational fieldwork that is not linked to a UCI course (e.g., tutoring experience, instructional experience in a summer program for children, etc.).

1 The following statistics courses are approved alternatives for EDUC 15: SOCECOL 13 or STATS 7. The following course sequences are an approved alternative for EDUC 15 (both courses in the sequence must be completed): ANTHRO 10A-ANTHRO 10B; POL SCI 10A-POL SCI 10B; PSYCH 10A-PSYCH 10B; SOC SCI 9A-SOC SCI 9B;SOC SCI 10A-SOC SCI 10B; or SOCIOL 10A-SOCIOL 10B.

2 8 units of non-Education courses may be used to satisfy the major's elective requirement if the courses are also required for a student's selected specialization.

Specializations. Six optional specializations are offered to students who are completing a B.A. in Education Sciences. Specializations usually include a blend of lower and upper-division courses that also satisfy requirements for the major. In most cases where students select only Education courses to fulfill specialization requirements, they will be able to satisfy requirements for the major and requirements for a specialization concurrently, without exceeding the twelve courses (48 units) needed for the major.

Students in the major may complete more than one specialization; however, a particular course may satisfy requirements for no more than two specializations, and no more than two courses may overlap between two specializations.

Except where noted otherwise in specialization requirements, students may petition to apply up to 4 units of EDUC 198 or EDUC 199 courses or up to 4 units for courses from other departments to meet any of the specialization requirements when they address the topic of the specialization.

Specialization in Early Childhood Learning and Development

Select four courses (16 units) and a practicum as specified below:	
Lower-Division Requirements (4 units total)	
A. One lower-division course:	
EDUC 40	Theories of Development and Learning Applied to Education
Upper-Division Requirements (12 units total)	
B. Three upper-division courses:	
EDUC 106	Introduction to Early Childhood Education
EDUC 107	Child Development in Education
EDUC 149	Family, School, and Community in Early Childhood
C. Practicum Requirement (40 hours total):	

A minimum of 40 hours of field experience in an early childhood setting (pre-K) can be satisfied by taking EDUC 193 or otherwise completing verifiable fieldwork. The 40 hours of fieldwork for this specialization will concurrently satisfy the required 40-hour practicum for the major.

Students should consult the Education Student Affairs Office for information about courses that satisfy state requirements for Child Development Permits needed to teach in an early childhood setting.

Specialization in After-School Learning and Development

Select six courses (24 units) and a practicum as specified below:	
Upper-Division Requirements (24 units total)	
A. One foundations course (4 units):	
EDUC 160	Foundations of Out-of-School Learning
B. Select one development and learning course (4 units) from:	
EDUC 107	Child Development in Education
EDUC 108	Adolescent Development and Education
EDUC 124	Multicultural Education in K-12 Schools
EDUC 128	Exceptional Learners
C. Select one or two curricula group 1 courses (4 or 8 units) from:	
EDUC 100	Educational Strategies for Tutoring and Teacher Aiding
EDUC 132	Reading and Writing Enrichment for After-School Programs
EDUC 138	Children's Literature in the Elementary Classroom
EDUC 122A- 122B- 122C	Foundations of Elementary School Mathematics I and Foundations of Elementary School Mathematics II and Foundations of Elementary School Mathematics III
EDUC 161	Discovering Science in Out-of-School Hours
D. Select one or two curricula group 2 courses (4 or 8 units) from:	
EDUC 104D	Preparation for Teaching Fine Arts in K-12 Schools
EDUC 131	Educational Technology
EDUC 137	Art in the Elementary School
EDUC 190	Principles and Practices of K–6 After School Sports and Fitness
E. A capstone course (4 units):	
EDUC 191	Advanced Fieldwork in After-School Education
F. Practicum Requirement (70 hours total):	
A minimum of 70 hours of field experience in an out-of-school setting is satisfied by taking EDUC 160 (includes 20 hours of fieldwork at a site approved by the course instructor) and EDUC 191 (includes 50 hours of fieldwork at a site approved by the course instructor). The 70 hours of fieldwork for this specialization will concurrently satisfy the required 40-hour practicum for the major.	

Specialization in Children's Learning and Development

Select six courses (24 units) and a practicum as specified below:	
Lower-Division Requirements (4 units total)	
A. One lower-division course:	
EDUC 40	Theories of Development and Learning Applied to Education
Upper-Division Requirements (20 units total)	
B. Three upper-division courses:	
EDUC 107	Child Development in Education
EDUC 124	Multicultural Education in K-12 Schools
EDUC 173	Cognition and Learning in Educational Settings
C. Select two additional upper-division courses (8 units) from:	
EDUC 122A	Foundations of Elementary School Mathematics I
EDUC 122B	Foundations of Elementary School Mathematics II
EDUC 122C	Foundations of Elementary School Mathematics III
EDUC 128	Exceptional Learners
EDUC 130	Children's Learning and Media
EDUC 132	Reading and Writing Enrichment for After-School Programs
EDUC 137	Art in the Elementary School
EDUC 138	Children's Literature in the Elementary Classroom
EDUC 151	Language and Literacy

EDUC 161	Discovering Science in Out-of-School Hours
EDUC 190	Principles and Practices of K–6 After School Sports and Fitness

D. Practicum Requirement (40 hours total):

A minimum of 40 hours of field experience in a children's education setting (e.g., ages 5 through 12) can be satisfied in one of two ways. The 40 hours of fieldwork for this specialization will concurrently satisfy the required 40-hour practicum for the major.

1. Complete 40 hours of relevant field experience in conjunction with one or more approved UCI courses that include a practicum in a children's education setting. Consult the Education Student Affairs Office or School of Education Website for Undergraduate Academic Programs for a current list of approved UCI courses.

or

2. Submit a petition to the Education Student Affairs Office for approval of verifiable hours from courses that are not on the approved practicum course list or hours from educational fieldwork that is not linked to a UCI course (e.g., tutoring experience, instructional experience in a summer program for children, etc.).

Students should consult the Education Student Affairs Office for information about several courses that offer an early start on requirements for the UCI post-baccalaureate Multiple Subject (elementary) Teaching Credential Program.

Specialization in Digital Media and Learning

Select four courses (16 units) as specified below:

Lower-Division and Upper-Division Requirements (16 units total)

A. Select four courses (16 units) from:

EDUC 30	21st Century Literacies
EDUC 104E	Multimedia and the Arts in the Multicultural Classroom
EDUC 130	Children's Learning and Media
EDUC 131	Educational Technology
I&C SCI 3	Internet Technologies and their Social Impact
I&C SCI 4	Human Factors for the Web
I&C SCI 60	Computer Games and Society
I&C SCI 161	Game Engine Lab

A maximum of 8 units can be for I&C SCI courses.

Specialization in English Language Learning

Select five courses (20 units) and a practicum as follows:

Lower-Division Requirements (4 units total)

A. One lower-division course (4 units):

EDUC 30	21st Century Literacies

Upper-Division Requirements (8 units total)

B. Two upper-division courses (8 units):

EDUC 134	Teaching English Internationally
EDUC 151	Language and Literacy

Additional Lower-Division and Upper Division Elective Requirement (8 units total)

C. Select two additional courses (8 units) from:

EDUC 132	Reading and Writing Enrichment for After-School Programs
EDUC 138	Children's Literature in the Elementary Classroom
EDUC 151	Language and Literacy
EDUC 153A	Urban Youth and the Development of Literacy through the Arts I
EDUC 153B	Urban Youth and the Development of Literacy through the Arts II
EDUC 179W	Advanced Composition for Teachers
LINGUIS 3	Introduction to Linguistics
LINGUIS 10	Introduction to Phonology
LINGUIS 20	Introduction to Syntax
LINGUIS 51	Acquisition of Language
LINGUIS 68	Introduction to Language and Culture
LINGUIS 99	Special Topics in Linguistics
LINGUIS 100	Grammatical Theory

LINGUIS 111	Intermediate Phonology
LINGUIS 112	Advanced Phonolgy
LINGUIS 119	Special Topics in Phonetics/Phonology
LINGUIS 121	Intermediate Syntax
LINGUIS 155	Psychology of Language
LINGUIS 163B	The Structure of English
LINGUIS 172	History of English

A maximum of 8 units can be for Linguistics courses.

D. Practicum Requirement (40 hours total): A minimum of 40 hours of field experience in an English language learning setting can be satisfied in one of two ways. The 40 hours of fieldwork for this specialization will concurrently satisfy the required 40-hour practicum for the major.

A minimum of 40 hours of field experience in an English language learning setting can be satisfied in one of two ways. The 40 hours of fieldwork for this specialization will concurrently satisfy the required 40-hour practicum for the major.

1. Complete 40 hours of relevant field experience in conjunction with one or more approved UCI courses that include a practicum in an English language learning setting. Consult the Education Student Affairs Office or School of Education Web site for Undergraduate Academic Programs for a current list of approved UCI courses.

or

2. Submit a petition to the Education Student Affairs Office for approval of verifiable hours from courses that are not on the approved practicum course list or hours from educational fieldwork that is not linked to a UCI course (e.g., tutoring experience, instructional experience in a language learning context, etc.).

Specialization in Research and Evaluation

Select five courses (20 units) as specified below:

Lower-Division Requirements (8 units total)	
A. Two lower-division courses:	
EDUC 10	Educational Research Design
EDUC 15	Statistics for Education Research [1]
Upper-Division Requirements (12 units total)	
B. Select three upper-division courses from:	
EDUC 156	Introduction to Field Methods in Education
EDUC 157	Educational Research and Evaluation
EDUC 159	Experimental Research Methods
EDUC 198	Directed Research in Education [2]
STATS 110	Statistical Methods for Data Analysis I

1 The following statistics courses are approved alternatives for EDUC 15: SOCECOL 13 or STATS 7. The following course sequences are approved alternatives for EDUC 15 (both courses in the sequence must be completed): ANTHRO 10A-ANTHRO 10B; POL SCI 10A-POL SCI 10B; PSYCH 10A-PSYCH 10B;SOC SCI 9A-SOC SCI 9B; SOC SCI 10A-SOC SCI 10B; or SOCIOL 10A-SOCIOL 10B.

2 A maximum of 4 units of EDUC 198 may be used to satisfy requirements for this specialization.

Sample Program

Freshman		
Fall	**Winter**	**Spring**
EDUC 50	EDUC 40	EDUC 30
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
		Gen. Ed./Elective
Sophomore		
Fall	**Winter**	**Spring**
EDUC 10	EDUC 15	Education Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Junior		
Fall	**Winter**	**Spring**
Education UD Learning Course	Education UD Development Course	Education UD Policy/Social Context Course
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective

Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Senior		
Fall	**Winter**	**Spring**
Education Elective	Education UD Communications/Media Course	Education Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective

Undergraduate Minor in Educational Studies

The minor in Educational Studies is designed to (1) foster exploration of a broad range of issues in the field of education, (2) provide a strong foundation for aspiring teachers in grades pre-K–20, and (3) offer some early-start course-work options for the UCI teaching credential program.

Students explore topics and gain practical field experience to build a knowledge base and skills applicable to careers in teaching; to graduate study in education or related fields; and to assume roles as citizens, parents, and volunteers.

The School's academic counseling staff can assist students to select a coordinated set of courses based on their stated objectives. Aspiring K–12 teachers also have options for an "early start" to teaching by completing selected minor courses that will also satisfy requirements for the UCI multiple subjects or single subject teaching credential programs. Students interested in serving community out-of-school programs can select new courses on topics relevant to after-school education. Students who are interested in future graduate study can select undergraduate courses that will lay a foundation for the study of core subject areas in the School of Education's Ph.D. program.

Requirements

The minor requires completion of a minimum of seven courses (three core courses and four electives) totaling 28 units. At least five courses must be upper-division. Students must also complete a minimum of 40 hours of verifiable field experience or research in an educational setting. No more than two non-Education courses (up to 8 units) from the student's major area of study may be used to satisfy the minor requirements. A maximum of 8 units may be used to satisfy minor requirements with any repeatable course.

Core Courses	
Select three core courses (12 units) of the following:	
EDUC 50	Origins, Purposes, and Central Issues in K-12 Education
EDUC 107	Child Development in Education
EDUC 108	Adolescent Development and Education
EDUC 124	Multicultural Education in K-12 Schools
EDUC 160	Foundations of Out-of-School Learning
EDUC 173	Cognition and Learning in Educational Settings
EDUC 175	Foundations of Education
EDUC 176	Psychology of Learning, Abilities, and Intelligence
Elective Courses	
Select four elective courses (16 units) of the following:	
A. Education courses numbered 1–199. A course selected to satisfy the minor core requirement cannot also be used to satisfy the elective requirement.	
B. Up to 4 units allowed for an approved course offered by another department. The course must appear on the list below, or the student may petition approval of a course that is not on the list. Petition forms are available on the School's Web site. The following are approved elective courses offered by other departments:	
ASIANAM 139	Asian Americans and Education
HUMAN 195	Humanities Out There (H.O.T.) Public Humanities Practicum
PHY SCI 5/BIO SCI 14	California Teach 1: Introduction to Science and Mathematics Teaching
PHY SCI 105/BIO SCI 101	California Teach 2: Middle School Science and Mathematics Teaching
PHY SCI 106/BIO SCI 102	California Teach 3: High School Science and Mathematics Teaching
PSYCH 144A	HABLA: Language Intervention for Disadvantaged Children
PSYCH 144B	HABLA: Language Intervention for Disadvantaged Children
PSYCH 144C	HABLA: Language Intervention for Disadvantaged Children
PSYCH 145P	Attention and Learning Deficits in Children I
PSYCH 145Q	Attention and Learning Deficits in Children II
PSYCH 145R	Attention and Learning Deficits in Children III
SOC SCI 196	Global Connect

UNI STU 175	Methods and Application in Small Group Instruction
UNI STU 192	Group Project for Discussion Leaders
UNI STU 197A	UTeach Special Study
UNI STU 197B	UTeach: Teaching Theory and Practice
UNI STU 197C	UTeach: Teaching Practicum

Practicum

The student must complete a minimum of 40 hours of verifiable field experience or research in an educational setting. This requirement may be satisfied in any combination of the following to reach a total of 40 hours:

A. Complete field experience hours that satisfy requirements for UCI courses. The number of fieldwork hours in a course must be verified by the course syllabus or by a fieldwork verification form signed by the instructor.

B. Complete education-related research in conjunction with Education 198.

C. Get approval by petition for fieldwork hours completed during a student's tenure at UCI that are independent of any courses (e.g., tutoring experience, instructional experience in a summer program or after-school program for children). When fieldwork approval by petition is needed, students submit a fieldwork verification form to the School of Education Student Affairs Office. Forms are available on the School's website.

The School of Education Student Affairs Office can provide up-to-date information about courses that include fieldwork. Before enrolling in a course with the intent of satisfying the minor practicum requirement, students are advised to check with the instructor or the course syllabus to verify the exact number of hours. The following is a list of Education courses that usually include 10 hours or more of fieldwork:

EDUC 100	Educational Strategies for Tutoring and Teacher Aiding
EDUC 104D	Preparation for Teaching Fine Arts in K-12 Schools
EDUC 131	Educational Technology
EDUC 132	Reading and Writing Enrichment for After-School Programs
EDUC 137	Art in the Elementary School
EDUC 141A/PSYCH 141J	Jumpstart I: Early Language, Literacy, and Social Development
EDUC 141B/PSYCH 141K	Jumpstart I: Early Language, Literacy, and Social Development
EDUC 141C/PSYCH 141L	Jumpstart I: Early Language, Literacy, and Social Development
EDUC 153B	Urban Youth and the Development of Literacy through the Arts II
EDUC 160	Foundations of Out-of-School Learning
EDUC 161	Discovering Science in Out-of-School Hours
EDUC 191	Advanced Fieldwork in After-School Education
EDUC 193	Directed Studies in Early Childhood Education
EDUC 198	Directed Research in Education

Residence Requirement. At least four upper-division courses must be successfully completed at UCI.

Statement of Intent. A Statement of Intent is required of all students wishing to enroll in this minor; forms are available at the School of Education (http://www.education.uci.edu) website.

GPA Requirement. For certification in the minor, a student must obtain a minimum overall grade point average of at least C (2.0) in all courses required for the minor program. No more than two courses (8 units) applied to the minor may be taken Pass/Not Pass.

Other Courses. Students should consult a School of Education Student Affairs counselor about UCI 300-level Education courses that are open to undergraduates or courses from other colleges or universities that can satisfy minor in Educational Studies requirements.

Minor and Major. Students may not receive both the minor in Educational Studies and the major in Education Sciences.

Minor Courses That Also Provide an Early Start Toward a Teaching Credential. The following courses satisfy core or elective requirements for the minor in Educational Studies, and concurrently satisfy some requirements for the UCI Multiple Subjects or Single Subject Teacher Credential programs when the student earns a grade of B or better (may not be taken Pass/Not Pass). Aspiring K–12 teachers should consult a counselor in the School of Education Student Affairs Office about selecting courses that are best suited to particular teaching credentials and to discuss eligibility for the UCI Teacher Credential program. The following courses provide an early start:

EDUC 104D	Preparation for Teaching Fine Arts in K-12 Schools [1]
EDUC 107	Child Development in Education (combined with EDUC 124 Multicultural Education in K-12 Schools) [1]
EDUC 108	Adolescent Development and Education [2]
EDUC 124	Multicultural Education in K-12 Schools [2]
EDUC 128	Exceptional Learners

EDUC 131	Educational Technology [3]
EDUC 137	Art in the Elementary School [1]
EDUC 173	Cognition and Learning in Educational Settings
EDUC 176	Psychology of Learning, Abilities, and Intelligence
EDUC 190	Principles and Practices of K–6 After School Sports and Fitness [1]
POL SCI 21A	Introduction to American Government

1 Satisfies a requirement in the UCI Multiple Subjects Credential program only.

2 Satisfies a requirement in the UCI Single Subject Credential program only.

3 Students satisfy an educational technologies requirement in the UCI Single Subject Credential program by completing EDUC 131.

Undergraduate Programs for Future Teachers Offered by Other Departments. Undergraduates who are completing a minor in Educational Studies and who are considering a teaching career may also be interested in the following programs offered by other departments.

- School of Humanities: English Major with a Specialization in English for Future Teachers; History Major with a Specialization in History for Future Teachers; Spanish Major with an Emphasis in Spanish for Future Teachers
- Francisco J. Ayala School of Biological Sciences: Major in Biological Sciences with Concentration in Biological Sciences Education
- School of Physical Sciences: Chemistry Major with a Concentration in Chemistry Education; Math Major with a Specialization in Mathematics for Education; Physics Major with a Concentration in Physics Education.

Additionally, the School of Education, School of Physical Sciences, and Francisco J. Ayala School of Biological Science jointly sponsor an undergraduate teacher credential program for math and science majors. See the information below for the Cal Teach Science and Mathematics Teacher Credential Program.

Teaching and Service Credential Programs

The School of Education is authorized by the Commission on Teacher Credentialing to offer teacher and school administrator professional preparation programs for California teaching and service credentials. The School offers programs for multiple (p. 422) and single (p. 423) subject credentials. Also, in partnership with the Francisco J. Ayala School of Biological Sciences and the School of Physical Sciences, the School of Education offers the Cal Teach Science and Mathematics Program (p. 424), an undergraduate Student Teacher Credential program for aspiring science or mathematics teachers. Additionally, in cooperation with University Extension, the School offers Administrative Services Credential (p. 426) programs and a Reading Certificate program.

Multiple Subject Teaching Credential

A Multiple Subject Teaching Credential authorizes teaching in multiple-subject environments commonly found in California elementary schools where one teacher is responsible for teaching most or all subjects to one group of students during the school day.

A Preliminary Multiple Subject Teaching Credential is granted by the State upon completion of a baccalaureate degree and the State-approved UCI teacher education program that includes student teaching and a teaching performance assessment.

Admission to the Program

Submit an application through the Graduate Division.

Evidence of Academic Achievement–Official Transcripts from all post-secondary institutions. Completion of a baccalaureate degree from an accredited institution and a minimum grade point average of 3.0 will support admission to the credential programs.

NOTE: An applicant with a GPA of less than 3.0 must pass CSET and basic skills exams as a condition of admission.

Undergraduates who enroll in courses that fulfill credential requirements are not guaranteed admission to the program; admission through the regular graduate admissions process is required.

Written Recommendations. Three letters of recommendation, including at least one from an academic source, from individuals who are familiar with the applicant's: (1) ability to pursue graduate study, (2) capacity to work with children, and/or (3) demonstrated fitness for the professional environment of teaching.

Prior to the Start of the Program

- Pass CSET exam subtests 101, 102, and 103;
- Verify basic skills by passing the CBEST, or CSET subtest 142 along with CSET 101, 102, 103;
- Submit a current Certificate of Clearance from the State of California;
- Submit a current TB test with negative results.

Course and Fieldwork

Fall	Winter	Spring
EDUC 173	EDUC 304 or 306	EDUC 304 or 306
EDUC 301	EDUC 322B	EDUC 308
EDUC 320	EDUC 324	EDUC 323
EDUC 322A		EDUC 325
EDUC 326		EDUC 333
EDUC 329		EDUC 348
EDUC 345		

Student teaching for Multiple Subject candidates (grades K–6) is defined as a full day, four days per week during the first quarter of student teaching and a full day, five days per week during the second quarter of student teaching. Clinical assignments will include two levels within the K–6 range in elementary schools.

Readiness for student teaching shall be determined by, but not be limited to, the candidate's academic work, professional conduct, and potential for success in teaching. Failure to be advanced to student teaching will be considered good cause for removal and/or a leave of absence from the program.

BCLAD (Spanish or Mandarin) Emphasis

Students who are bilingual in Spanish or Mandarin (as confirmed through oral assessment by a School of Education designee) may be eligible for a bilingual student teaching placement to help them prepare to apply for a Bilingual, Crosscultural, Language, and Academic Development (BCLAD) credential with an emphasis in Spanish or Mandarin.

Applying for a California Credential

In addition to fulfilling all of the above requirements, an applicant must:

- Show evidence a college-level course, or pass an approved examination on the U.S. Constitution;
- Obtain a CPR certificate in Adult, Child, and Infant resuscitation training;
- Pass the Reading Instruction Competency Assessment (RICA).

Supplementary and Additional Teaching Authorizations. After acquiring a basic credential, it is possible to add further teaching authorizations. Consult an academic counselor in the School of Education for details.

Single Subject Teaching Credential

A Single Subject Credential authorizes teaching in single-subject environments commonly found in California middle or intermediate and high schools where a teacher teaches one subject to different groups of students. UCI offers a program leading to Single Subject Teaching credentials in art, English, mathematics, music, sciences, social science, and the world languages of Spanish, French, and Mandarin. Depending on the size of the applicant pool, some subjects may not be offered every year.

A Preliminary Single Subject Teaching Credential is granted by the Commission on Teacher Credentialing (CTC) upon completion of a baccalaureate degree and the State-approved UCI teacher education program that includes student teaching or intern teaching and a teaching performance assessment.

Requirements for the Post-Baccalaureate Single Subject Credential Program

Admission to the Program

Submit an application through the Graduate Division.

Evidence of Academic Achievement–Official Transcripts from all post-secondary institutions. Completion of a baccalaureate degree from an accredited institution and a minimum grade point average of 3.0 will support admission to the credential programs. Undergraduates who enroll in courses leading to a credential are not guaranteed admission to the program; admission through the regular graduate admissions process is required.

NOTE: Applicants in the following categories must verify subject matter competence and basic skills (see below) as a condition of admission.

1. If GPA is less than 3.0.
2. If you have not completed a major, a minor, or a significant number of college-level courses in the single subject discipline for which you are applying (e.g., mathematics, English, science).
3. If you are applying for the Spring Start Intern Teacher Program.

Written Recommendations. Three letters of recommendation, including at least one from an academic source, from individuals who are familiar with the applicant's (1) ability to pursue graduate study, (2) capacity to work with children, and/or (3) demonstrated fitness for the professional environment of teaching.

Prior to the Start of the Program:

- Pass the California Basic Educational Skills Test;
- Pass the required California Subject Matter Tests or complete an approved subject-matter preparation program in the content area;
- Hold a current Certificate of Clearance or Substitute Teaching Permit from the State of California;
- Hold a current TB test with negative results.

Course and Fieldwork

Fall	Winter	Spring
EDUC 173	EDUC 307	EDUC 307
EDUC 302	EDUC 342 or 342A	EDUC 310
EDUC 305	EDUC 349	EDUC 334
EDUC 336-341	EDUC 350	EDUC 342B
EDUC 346		EDUC 348
EDUC 347		EDUC 352

A grade of B or better is required in all courses and in student teaching for successful completion of the program. Student teaching for Single Subject candidates (grades 7–12) in the post-baccalaureate program is defined as a full-day, five days per week for one public school semester in an appropriate classroom setting in a middle or high school.

Readiness for student teaching shall be determined by, but not be limited to, the candidate's academic work, professional conduct, and potential for success in teaching. Failure to be advanced to student teaching will be considered good cause for removal and/or a leave of absence from the program.

Applying for a California Credential

In addition to fulfilling all of the above requirements, an applicant must:

- Show evidence of a college-level course, or pass an approved examination on the U.S. Constitution;
- Obtain a CPR certificate in Adult, Child, and Infant resuscitation training.

Supplementary and Additional Teaching Authorizations. After acquiring a basic credential, it is possible to add further teaching authorizations. Consult an academic counselor in the School of Education for details.

Requirements for the Undergraduate Cal Teach Science and Mathematics Single Subject Credential Program

The following academic units offer undergraduates an option to earn a bachelor's degree in mathematics or a science discipline while concurrently satisfying requirements for a Single Subject Teaching Credential: Departments of Chemistry, Earth System Sciences, Mathematics, Physics and Astronomy, and the Francisco J. Ayala School of Biological Sciences. Interested students should consult degree program options described in this *Catalogue* or talk with a counselor in the School of Physical Sciences Student Affairs Office or the Francisco J. Ayala School of Biological Sciences Student Affairs Office. With careful, early planning, it is possible for students to complete their bachelor's degree and teacher certification in four years.

Prior to Entry in the Cal Teach Single Subject Credential Program:

- Declare a major and, if applicable, a concentration in secondary education in one of the departments offering a Cal Teach Science and Mathematics credentialing option;
- Complete a Cal Teach Program enrollment form, indicating intent to complete requirements for the Single Subject Teaching Credential for mathematics or one of the science disciplines. This must be done by the end of an undergraduate's second year at the latest, and prior to enrolling in EDUC 55, which would typically be completed in fall of the third year. Enrollment forms are available in the School of Physical Sciences Student Affairs Office (134 Rowland Hall), the Francisco J. Ayala School of Biological Sciences Student Affairs Office (third floor, Biological Sciences III), and the Cal Teach Science and Mathematics Resource and Advising Center (137 Bison Modular).

Prior to the Start of Student Teaching:

- Pass the California Basic Education Skills Test (CBEST);
- Pass the California Subject Exam for Teachers (CSET) or complete a subject-matter preparation program (available for Mathematics only);
- Hold a current Certificate of Clearance from the State of California;
- Hold a current TB test with negative results.

Course and Fieldwork

Candidates who enroll in the undergraduate Cal Teach Single Subject Teacher Credential program at UCI are generally required to take the following courses.

PHY SCI 5/BIO SCI 14	California Teach 1: Introduction to Science and Mathematics Teaching
PHY SCI 105/BIO SCI 101	California Teach 2: Middle School Science and Mathematics Teaching [1]
CHEM/PHYSICS 193/BIO SCI 108	Research Methods
MATH 8	Explorations in Functions and Modeling (for Mathematics candidates only)
LPS 60	The Making of Modern Science
or MATH 184 & 184L	History of Mathematics and History of Mathematics Lesson Lab
EDUC 55	Knowing and Learning in Mathematics and Science [1]
EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms [1]
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II
EDUC 148	Complex Pedagogical Design [1]
EDUC 158	Student Teaching Mathematics and Science in Middle/High School [1]

1 In order to be recommended for the Preliminary Single Subject Credential, a grade of C or better is required in the following Cal Teach teacher credential program courses: PHY SCI 105/BIO SCI 101; EDUC 55, EDUC 109, EDUC 143AW, EDUC 143BW, and EDUC 148. A grade of C or better is required for all sections of EDUC 158 (a repeatable course) that students complete, including all EDUC 158 sections with a student teaching requirement.

Student teaching for Single Subject candidates in the undergraduate Cal Teach program is defined as a minimum of four hours per day, five days per week for at least one full public school semester in an appropriate classroom setting in middle or high school.

Readiness for student teaching shall be determined by, but not be limited to, the candidate's academic work, professional conduct, and potential for success in teaching. Failure to be advanced to student teaching will be considered good cause for removal and/or a leave of absence from the program.

Applying for a California Credential

In addition to fulfilling all of the above requirements, an applicant must:

- Show evidence of a college-level course, or pass an approved examination on the U.S. Constitution;
- Obtain a CPR certificate in Adult, Child, and Infant resuscitation training;
- Official UCI transcript must show that bachelor's degree has been awarded.

If competence has been demonstrated by the conclusion of the student teaching program, and all other CTC and Departmental requirements are met, the undergraduate candidate is eligible for a preliminary credential through UCI.

Supplementary and Additional Teaching Authorizations. After acquiring a basic credential, it is possible to add further teaching authorizations. Consult an academic counselor in the School of Education for details.

Spring Start Intern Teacher Program

Currently, because there are enough teachers available for job openings without using intern teachers, UCI has placed this program on hiatus. Please consider the School of Education's other excellent programs.

Admission to the Program

NOTE: Admission to the program is not available at this time. Contact the School for information.

Evidence of Academic Achievement–Official Transcripts from all post-secondary institutions. Completion of a baccalaureate degree from an accredited institution and a minimum grade point average of 3.0 will support admission to the credential programs. Undergraduates who enroll in courses leading to a credential are not guaranteed admission to the program; admission through the regular graduate admissions process is required.

Written Recommendations. Three letters of recommendation, including at least one from an academic source, from individuals who are familiar with the applicant's (1) ability to pursue graduate study, (2) capacity to work with children, and/or (3) demonstrated fitness for the professional environment of teaching.

Documentation for Field Component of the Intern Program:

- Pass the California Basic Educational Skills Test;
- Pass the required California Subject Matter Tests or complete an approved subject-matter preparation program in the content area;
- Hold a current Certificate of Clearance or Substitute Teaching Permit from the State of California.

Course and Fieldwork

Spring	Summer	Fall	Winter/Spring
EDUC 315	EDUC 173	EDUC 307 (student teaching, if no internship occurs) or 317	
EDUC 319	EDUC 347A, B (124)	EDUC 310	
EDUC 334	EDUC 342 or 342A	EDUC 342	
EDUC 338, EDUC 340, or EDUC 341	EDUC 349	EDUC 346	
EDUC 348	EDUC 350 (108)		
EDUC 352			
			EDUC 317 (if internship occurs)

A grade of B or better is required in all courses and in intern or student teaching for successful completion of the program. Readiness for student or intern teaching shall be determined by, but not be limited to, the candidate's academic work, professional conduct, and potential for success in teaching. Failure to be advanced to student or intern teaching will be considered good cause for removal and/or a leave of absence from the program.

Applying for a California Internship or Preliminary Credential

If an internship is offered, the School of Education will apply for an intern credential to authorize supervised teaching in the public school. Whether the candidate uses an internship or student teaching to complete the program, upon successful completion of all requirements, the candidate is eligible to apply for a preliminary credential through UCI.

Adding Teaching Authorizations. After acquiring a basic credential, it is possible to add further teaching authorizations. For further information, see an academic counselor in the School of Education.

Preparation to Apply to the Post-Baccalaureate Credential Programs

In addition to collecting documentation of all requirements listed in the earlier sections of this *Catalogue,* there are several ways to prepare for the application process and strengthen an applicant's potential for success in the credential program.

Take courses in the Minor in Educational Studies. These courses introduce issues central to education and provide opportunities for field experiences.

Start on required exams a year in advance. CBEST results do not expire; CSET results are valid for five years; GRE results are valid for five years. CSET exams may be scheduled one subtest at a time to reduce test stress and provide more time for in-depth study. If an applicant spreads the subtests over two or three test dates, it may take a year to pass all required subtests.

Apply for a Certificate of Clearance well in advance. This process can encounter unanticipated delays, so apply early. The certificate expires after five years, although some school districts will require new fingerprints for employment.

Obtain a substitute teaching credential and work as a substitute teacher. By working in the schools, an applicant will make the transition more easily.

Build a résumé. Work in a school as an aide or tutor, or in an after-school program.

Admission to the Credential Programs

The M.A.T. and credential programs offer preferred admission status to applicant files completed between January and March and then continue admitting students until the programs are filled. Later applicants may miss out on scholarship opportunities.

There are several ways to obtain support with the admissions process:

Online guide to the application process (http://www.education.uci.edu/admissions/matwtc.php).

Information Sessions: Informal meetings for general and specific information about programs and admissions documentation are held every other week on alternating Mondays and Tuesdays (or more frequently during peak recruitment periods).

Personal Counseling with the Counselor of the Day.

Administrative Services Credential

The School of Education sponsors a program through University Extension leading to the Administrative Services Credential. The Preliminary Administrative Services Credential is obtained by completing the approved program of 36 quarter units and a comprehensive examination. This credential also requires a valid basic credential, five years of full-time teaching or services experience, and passage of the CBEST.

The Professional Clear Administrative Services Credential begins when an administrative position is obtained. The UCI Professional Clear Administrative Services program requires the successful completion of two years of full-time school administrative experience, the Preliminary Administrative Services Credential, and six (6) quarter units (Induction and Final Evaluation, Education 398A-B) which provide structured mentoring, self-assessment, and formative/summative evaluation of the candidate. Those interested in these credentials should visit the University Extension (http://unex.uci.edu) website or call 949-824-5414.

Faculty

Jonathan Alexander, Ph.D. Louisiana State University, *Campus Writing Coordinator and Professor of English; Culture and Theory; Education; Gender and Sexuality Studies* (writing studies, sexuality studies, queer theory, new media studies)

Drew Bailey, Ph.D. University of Missouri, *Assistant Professor of Education*

Bruce Baron, M.S. Pepperdine University, *Lecturer of Education*

Robert J. Beck, Ph.D. University of Chicago, *Senate Emeritus of Education*

Henry J. Becker, Ph.D. Johns Hopkins University, *Professor Emeritus of Education*

Marianne Bitler, Ph.D. Massachusetts Institute of Technology, *UCI Chancellor's Fellow* and *Professor of Economics; Education*

Rebecca W. Black, Ph.D. University of Wisconsin-Madison, *Associate Professor of Education*

Liane R. Brouillette, Ph.D. University of Colorado Boulder, *Associate Professor of Education*

Christine Cameron, M.S. California State University, Fullerton, *Supervisor of Teacher of Education*

Elizabeth E. Cauffman, Ph.D. Temple University, *UCI Chancellor's Fellow* and *Professor of Psychology and Social Behavior; Education; Psychology and Social Behavior; School of Law* (adolescent development, mental health, juvenile justice, legal and social policy)

Chuansheng Chen, Ph.D. University of Michigan, *Professor of Psychology and Social Behavior; Education* (cross-cultural psychology, adolescent development, cognitive neuroscience, genes and behavior)

Penelope R. Collins, Ph.D. University of Toronto, *Associate Professor of Education*

Gilverto Q. Conchas, Ph.D. University of Michigan, *Associate Professor of Education; Sociology*

AnneMarie M. Conley, Ph.D. University of Michigan, *Assistant Professor of Education*

Kevin Dempsey, M.S. California State University, Fullerton, *Lecturer of Education*

Thurston Domina, Ph.D. The Graduate Center, City University of New York, *Associate Professor of Education*

Michael V. Drake, M.D. University of California, San Francisco, *UCI Distinguished Professor of Ophthalmology; Education*

Greg Duncan, Ph.D. University of Michigan, *UCI Distinguished Professor of Education; Economics; Psychology and Social Behavior* (economics of education, program evaluation, child development)

Jacquelynne S. Eccles, Ph.D. University of California, Los Angeles, *UCI Distinguished Professor of Education; Psychology and Social Behavior* (academic motivation and achievement, school and family influences on adolescent development, gender and ethnicity in STEM fields)

Dennis Evans, Ed.D. University of Southern California, *Non-Senate Academic Emeritus of Education*

George Farkas, Ph.D. Cornell University, *Professor of Education; Education; Sociology*

Cynthia Feliciano, Ph.D. University of California, Los Angeles, *Associate Professor of Sociology; Chicano/Latino Studies; Education* (race/ethnicity/minority relations, migration and immigration, education)

David J. Frank, Ph.D. Stanford University, *Professor of Sociology; Education; Political Science* (globalization, sexuality, the natural environment, higher education)

Wendy A. Goldberg, Ph.D. University of Michigan, *Professor of Psychology and Social Behavior; Education* (developmental psychology, work and family, infant sleep, transition to parenthood, autism)

Jody Guarino, Ed.D. Azusa Pacific University , *Lecturer and Supervisor of Teacher of Education*

Susan Guilfoyle, M.S. University of Southern California, *Lecturer of Education; Education* (reading, language and literacy)

Gillian Hayes, Ph.D. Georgia Institute of Technology, *Associate Professor of Informatics; Education* (interactive and collaborative technology, human-computer interaction, computer-supported cooperative work, educational technology, ubiquitous computing)

Marie-Charlotte Henderson, M.A. University of California, Irvine, *Lecturer of Education*

Valerie J. Henry, B.A. University of California, Davis, *Lecturer of Education*

Alan R. Hoffer, Ph.D. University of Michigan, *Professor Emeritus of Education*

Jeffrey J. Hruby, M.A. California State University, Fullerton, *Lecturer of Education*

Bradley S. Hughes, Ph.D. University of California, Irvine, *Lecturer with Security of Employment of Ecology and Evolutionary Biology; Education*

Karajean Hyde, M.A. Vanguard University, *Lecturer of Education* (mathematics education)

Mizuko Ito, Ph.D. Stanford University, *John D. and Catherine T. MacArthur Foundation Chair in Digital Media and Learning* and *Professor in Residence of Anthropology; Education; Informatics* (ethnography, game studies, youth culture, learning sciences, online communities)

Susanne M. Jaeggi, Ph.D. University of Bern, *Assistant Professor of Education*

Susan C. Jarratt, Ph.D. University of Texas at Austin, *Professor of Comparative Literature; Culture and Theory; Education* (histories and theories of rhetoric, ancient Greek rhetoric, writing studies)

Jeffrey M. Johnston, M.A. University of Southern California, *Lecturer of Education*

Hosun Sun Kang, Ph.D. Michigan State University, *Assistant Professor of Education*

Joshua F. Lawrence, Ed.D. Boston University, *Assistant Professor of Education*

Glenn S. Levine, Ph.D. University of Texas at Austin, *German Language Program Director and Professor of German; Education* (applied linguistics, foreign language pedagogy, German-Jewish culture and history, Yiddish language and culture, European culinary history)

Julia R. Lupton, Ph.D. Yale University, *Professor of English; Comparative Literature; Education* (Renaissance literature, literature and psychology)

Jeannette Mancilla-Martinez, Ed.D. Harvard University, *Assistant Professor of Education*

Virginia Mann, Ph.D. Massachusetts Institute of Technology, *Professor of Cognitive Sciences; Education; Linguistics*

Jack R. McCullough, Ph.D. United States International University, *Lecturer with Security of Employment Emeritus of Education*

Carol Booth Olson, Ph.D. University of California, Los Angeles, *Associate Professor of Education*

Rita W. Peterson, Ph.D. University of California, Berkeley, *Senior Lecturer with Security of Employment Emerita of Education*

Stephanie Reich, Ph.D. Vanderbilt University, *Associate Professor of Education; Psychology and Social Behavior* (child development, parenting, peer interactions, media, program evaluation)

Ruben G. Rumbaut, Ph.D. Brandeis University, *Professor of Sociology; Criminology, Law and Society; Education* (international migration, immigration laws, criminalization, incarceration, inequality)

Judith Haymore Sandholtz, Ph.D. Stanford University, *Professor of Education*

Rossella Santagata, Ph.D. University of California, Los Angeles, *Associate Professor of Education*

Robin C. Scarcella, Ph.D. University of Southern California, *Professor of Academic English/English as a Second Language; Education*

Tesha Sengupta-Irving, Ph.D. Stanford University, *Assistant Professor of Education*

Therese B. Shanahan, Ed.D. University of Southern California, *Lecturer of Education*

Jeanne M. Stone, M.A. California State University, Long Beach, *Lecturer of Education*

Timothy M. Tift, M.A. Pepperdine University, *Lecturer with Security of Employment Emeritus of Education*

William M. Tomlinson, Ph.D. Massachusetts Institute of Technology, *Professor of Informatics; Education* (environmental informatics, educational technology, computer graphics/visualization/digital arts)

Elizabeth van Es, Ph.D. Northwestern University, *Associate Professor of Education*

Deborah Lowe Vandell, Ph.D. Boston University, *Dean of the School of Education* and *Professor of Education; Psychology and Social Behavior* (P-20 education, longitudinal studies of development)

Brad W. Vanpatten, M.A. California State University, Long Beach, *Lecturer of Education*

Mark J. Warschauer, Ph.D. University of Hawaii at Manoa, *Professor of Education; Informatics* (language, literacy, technology)

Courses

EDUC 10. Educational Research Design. 4 Units.
Designed to help students become intelligent consumers of research and independent researchers, this course provides an introduction to the basic principles of educational research. Topics include research questions, literature reviews, and qualitative and quantitative research designs.

(III)

EDUC 15. Statistics for Education Research . 4 Units.
Provides an introduction to the use of statistics in educational research. Focusing on testing and measurement, the course provides basic tools to read, interpret, and draw conclusions from quantitative educational research.

Prerequisite: EDUC 10.

(Va)

EDUC 30. 21st Century Literacies. 4 Units.
Provides an overview of literacies required for academic and career success in the 21st century.Issues addressed include reading, writing, academic language, research skills, media and technology skills, scientific literacy, critical thinking, communication, collaboration, and creativity.

(III)

EDUC 40. Theories of Development and Learning Applied to Education. 4 Units.
Provides an introductory examination of central theories of human development and learning in their application to contemporary educational settings.

(III)

EDUC 50. Origins, Purposes, and Central Issues in K-12 Education. 4 Units.
An introduction to the role of education in U.S. society and to central issues in K–12 education. Education is studied from four different perspectives: social, historical, philosophical, and political.

EDUC 55. Knowing and Learning in Mathematics and Science. 5 Units.
Multidisciplinary study of knowing and learning in secondary school mathematics and science. Topics include standards for knowing, scientific epistemologies, mental representations, problem solving, expert-novice studies, assessment, and domain-specific thinking, learning, and teaching. Applied analysis of learning through clinical interviews.

Prerequisite: PHY SCI 5 or BIO SCI 14.

(III)

EDUC 100. Educational Strategies for Tutoring and Teacher Aiding . 4 Units.
Placement in a public elementary or secondary school to gain experience as a tutor or teacher aide. Emphasis on cognitive learning and the development of instructional strategies and resources which can be used in effective cross-age and cross-cultural experiences.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Same as ENGR 197A.

EDUC 104D. Preparation for Teaching Fine Arts in K-12 Schools. 4 Units.
Arts education, theory, curriculum and methods for university students specializing in studio art, digital arts, dance, music, and/or drama. Includes lesson planning and teaching strategies based on California and national frameworks and content standards, and fieldwork in K–12 settings.

EDUC 104E. Multimedia and the Arts in the Multicultural Classroom. 4 Units.
Multiculturalism and under-represented U.S. minorities and the visual and performing arts: perspectives in artistic perception, creative expression, historical and cultural context, aesthetic valuing, and media literacy in the interpretation and production of multimedia arts products and applications for K-12 classrooms.

EDUC 106. Introduction to Early Childhood Education. 4 Units.
Designed to provide an introductory survey of the nature, needs, and education of young children. Explores questions such as "What should we teach young children?" and "How should we teach?".

EDUC 107. Child Development in Education. 4 Units.
Explores the pathways of normally developing children's growth and change over time. In particular, focuses on how cognitive and social development impact and are driven by educational contexts.

EDUC 108. Adolescent Development and Education. 4 Units.
Explores the physical, cognitive, emotional, and social development of adolescents, with an emphasis on the practical implications of developmental theory and research findings for teachers and other professionals who work with adolescents in middle or high school contexts.

EDUC 109. Reading and Writing in Secondary Mathematics and Science Classrooms. 4 Units.
Emphasis is placed on understanding the literacy processes (listening, speaking, viewing, thinking, reading, and writing) as they relate to middle and high school mathematics and science. Students integrate literacy-related strategies with curriculum-based goals supported in the California State Frameworks.

Corequisite: EDUC 158.

EDUC 122A. Foundations of Elementary School Mathematics I. 4 Units.
Provides understanding of fundamental mathematics necessary to teach for conceptual understanding and higher-level reasoning and problem solving. Conceptual understanding of place value, fractions, proportionality, geometry, algebra, functions, probability, statistics, and measurement. Instructional applications of these concepts in grades K-8 teaching.

EDUC 122B. Foundations of Elementary School Mathematics II. 4 Units.
Provides understanding of fundamental mathematics necessary to teach for conceptual understanding and higher-level reasoning and problem solving. Conceptual understanding of place value, fractions, proportionality, geometry, algebra, functions, probability, statistics, and measurement. Instructional applications of these concepts in grades K-8 teaching.

Prerequisite: EDUC 122A.

EDUC 122C. Foundations of Elementary School Mathematics III. 4 Units.
Provides understanding of fundamental mathematics necessary to teach for conceptual understanding and higher-level reasoning and problem solving. Conceptual understanding of place value, fractions, proportionality, geometry, algebra, functions, probability, statistics, and measurement. Instructional applications of these concepts in grades K-8 teaching.

Prerequisite: EDUC 122B.

EDUC 124. Multicultural Education in K-12 Schools. 4 Units.
Provides a theoretical and empirical overview of educational issues affecting low-income immigrant and U.S.-born minority student populations in an increasingly diverse and changing society.

Same as CHC/LAT 183.

(VII)

EDUC 125. Children, Schools, and Cinema. 4 Units.
Through popular films, analyzes aspects of school dynamics and interaction of schools with students, teachers, and public. Melding educational studies and film studies provides deeper understanding of methods used to transmit information and attitudes about schools to the lay public.

EDUC 126. Ethics and Education. 4 Units.
Ethics in education and how ethicists frame moral problems. Presents major ethical themes that affect education. Analysis of models for dealing with ethical goals and developing morality for K–12 students. Models for solving ethical dilemmas within an educational context.

Prerequisite: EDUC 50.

EDUC 128. Exceptional Learners. 4 Units.
An introductory survey of the nature, needs, and education of K–12 children with exceptionalities. Covers the categories and characteristics of exceptionalities, relevant state and federal legislation, and the role of general education teachers in special education.

EDUC 130. Children's Learning and Media. 4 Units.
Examines how popular media may impact how young people learn, develop, and communicate by looking at research related to the impacts of a wide range of popular media including television, video games, digital environments, mobile devices, and other multimedia.

EDUC 131. Educational Technology. 4 Units.
Presents an overview of the types and uses of educational technology to support and enhance the K–12 learning experience. Familiarizes students with lesson planning, instructional design, learning theory, and integrating technology into the curriculum.

EDUC 132. Reading and Writing Enrichment for After-School Programs. 4 Units.
Examines literacy development and the implementation of research-based practices to enrich learners' reading and writing skills in after-school programs. A minimum of 20 hours of after-school program fieldwork is required in order to design and implement literacy enrichment activities.

EDUC 134. Teaching English Internationally. 4 Units.
Covers methods of teaching English as a foreign language, basic language knowledge for English teachers, the social context of English language teaching around the world, and essential information about securing international employment as an English teacher.

EDUC 137. Art in the Elementary School. 4 Units.
Theory and practice in art education for the elementary school classroom. Includes content and pedagogy for future teachers and others interested in the relationship between child development and the production of visual art. Materials fee.

EDUC 138. Children's Literature in the Elementary Classroom. 4 Units.
Explores the wealth of children's literature that can be integrated into the elementary classroom. Surveys traditional literature, fiction, nonfiction, and poetry that make curriculum accessible to all students. Focuses on literary elements for both reading and creating text.

EDUC 141A. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as PSYCH 141J.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

EDUC 141B. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as PSYCH 141K.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

EDUC 141C. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lecture, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as PSYCH 141L.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

EDUC 141D. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as PSYCH 141M.

EDUC 141E. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as PSYCH 141N.

EDUC 141F. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as PSYCH 141O.

EDUC 141G. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as PSYCH 141P.

EDUC 141H. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as PSYCH 141Q.

EDUC 141I. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as PSYCH 141R.

EDUC 143AW. Classroom Interactions I. 4 Units.
Focuses on research-based instructional strategies for enhancing the learning of secondary mathematics and science. Students learn about adolescent and second-language development to assist them in developing analyzing, teaching, and critiquing lessons for secondary classrooms.

Prerequisite: (PHY SCI 105 or BIO SCI 101) and EDUC 55. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

EDUC 143BW. Classroom Interactions II. 4 Units.
Focuses on equity and multicultural education research, special education, and research-based instructional and assessment strategies to assist students in designing, teaching, and assessing lessons that meet the needs of all secondary mathematics and science students.

Prerequisite: (PHY SCI 105 or BIO SCI 101) and EDUC 55 and EDUC 143AW. Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VII)

EDUC 145. Theories and Pedagogies of Race in Education. 4 Units.
Introduces theoretical frameworks to examine the role of race in American education. Emphasis is placed on introducing students to different race and ethnicity paradigms.

EDUC 148. Complex Pedagogical Design. 6 Units.
In this Cal Teach capstone course, students design lesson plans and complex instructional units, using approaches such as mathematics and science integration, problem-based instruction, project-based learning, technology, representations, scientific and mathematical analysis/modeling, authentic assessment, contextualization, and designing equitable learning environments.

Prerequisite: (PHY SCI 105 or BIO SCI 101) and EDUC 55 and EDUC 143AW and EDUC 143BW.

EDUC 149. Family, School, and Community in Early Childhood. 4 Units.
Focuses on the many socializing aspects of young children's social worlds. Through the use of ecological perspectives, explores the role of families, schools, and communities on children's social development, especially in early childhood.

EDUC 150. Changing the High School Experience. 4 Units.
Analysis of problems in high school education (e.g., student disengagement and underachievement of disadvantaged) and proposals for changing curriculum, instruction, and school organization. Students suggest own reforms and analyze effective/ineffective school practices.

Prerequisite: Recommended: 1 unit of EDUC 199.

EDUC 151. Language and Literacy. 4 Units.
Addresses the linguistic principles and processes that underlie oral and written language proficiency. Emphasis is on how to use phonology, morphology, orthography, semantics, syntax, and pragmatics to support literacy and oral language development for K-12 students.

Same as PSY BEH 192V.

Restriction: Psychology and Social Behavior, Social Ecology, Education, and Psychology majors have first consideration for enrollment.

EDUC 153A. Urban Youth and the Development of Literacy through the Arts I. 4 Units.
Brings together research and practice on innovative instructional strategies for developing urban-student literacy through visual, communicative, and performing arts. UCI students are involved in an intervention at a local school.

EDUC 153B. Urban Youth and the Development of Literacy through the Arts II. 4 Units.
Building on knowledge gained in Education 153A, focuses on practices for developing urban-student literacy. Students are required to complete 40 hours of fieldwork, participating in an actual intervention at a local school.

Prerequisite: EDUC 153A.

EDUC 155. Special Topics in Educational Issues and Asian Americans. 4 Units.
Critical analysis of a variety of historical and contemporary educational issues facing Asian Americans. May be repeated for credit as topics vary.

Repeatability: Unlimited as topics vary.

EDUC 156. Introduction to Field Methods in Education. 4 Units.
Introduces students to methods for studying human behavior in context. It prepares students for conducting applied educational research, including designing needs assessments; conducting observations, interviews and focus groups; organizing and analyzing data; and synthesizing and presenting research findings.

Prerequisite: EDUC 10.

EDUC 157. Educational Research and Evaluation. 4 Units.
Covers qualitative and quantitative research methods relevant for the evaluation of educational programs. Students will have the opportunity to plan, execute, and write-up a small evaluation project.

Prerequisite: EDUC 10 and EDUC 15.

EDUC 158. Student Teaching Mathematics and Science in Middle/High School. 6 Units.
Student teaching includes orientation, seminars, preparation, and assumption of secondary school classroom instructional responsibilities in accordance with State credentialing requirements and in conjunction with the public school calendar. Five days/week and a minimum four hours/day over two quarters.

Prerequisite: (PHY SCI 105 or BIO SCI 101) and EDUC 55 and EDUC 143AW and EDUC 143BW and EDUC 148.

EDUC 159. Experimental Research Methods. 4 Units.
Designed to help students to develop the ability to think critically about research, and to develop an understanding of how to design and conduct experiments. The overall goal is to prepare students to independently plan and implement a research study.

Prerequisite: EDUC 10 and EDUC 15.

EDUC 160. Foundations of Out-of-School Learning. 4 Units.
Provides an overview of child and adolescent learning through participation in out-of-school activities and settings. Recognizes the importance of matching out-of-school experiences with the interests, needs, and development level of students. Observation-based fieldwork included.

Repeatability: May be taken for credit 2 times.

Restriction: May be taken a second time if student is a candidate for Certificate in After-School Education, and the first time was prior to Fall 2008.

EDUC 160L. After-school Programs Fieldwork. 1-2 Units.
Supervised fieldwork at an after-school program. Fieldwork is under the direction of an Education faculty member and an after-school program supervisor.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 4 units.

EDUC 161. Discovering Science in Out-of-School Hours. 4 Units.
Examines the design principles and teaching techniques that science museums and other out-of-school science programs use to motivate children and youth to learn science through discovery. Includes field experience at a science learning center or after-school program. Materials fee.

EDUC 170B. Teaching & Learning Secondary History-Social Studies. 4 Units.
How adolescents understand history and social issues. Pioneering research on their reasoning about history, politics, and related areas. Examination of typical practices in history and social studies teaching. Improving students' learning through historiographic investigation and information technology resources.

EDUC 172A. Issues and Controversies in Secondary Mathematics. 4 Units.
Examines different perspectives on what mathematical competencies should be emphasized in secondary schools, and how they should be taught. Particular attention to problem solving, algebra and geometry, and issues of equity. Introduction to research on mathematical cognition and teacher beliefs.

EDUC 172B. Teaching and Learning Secondary Mathematics. 4 Units.
How children and adolescents learn to understand mathematics. Research on mathematical cognition, particularly on mathematical problem solving and the learning of algebra, geometry, and calculus. Examination of several innovative instructional programs derived from research on mathematics learning.

EDUC 173. Cognition and Learning in Educational Settings. 4 Units.
Foundational concepts in cognition and development as applied to student learning. Primary topics include historical behaviorism, basic cognitive structure and processes, complex cognition, cognitive development, and motivation.

Same as PSY BEH 192T.

Restriction: Psychology and Social Behavior, Social Ecology, Education, and Psychology majors have first consideration for enrollment.

EDUC 175. Foundations of Education. 4 Units.
Foundational questions of education are viewed from newly emerging developmental perspectives which treat cognition as embodied action and learning as cultural recapitulation. Historical, sociological, psychological, and philosophical implications of views toward aspects of teaching, learning, curriculum, and pedagogy are considered.

EDUC 176. Psychology of Learning, Abilities, and Intelligence. 4 Units.
Overview of classic positions on the mind, human abilities, and intelligence, especially as related to academic achievement. Contrasting views: psychometric versus information processing; experimental versus correlational research.

Prerequisite: PSYCH 7A or PSY BEH 9.

Same as PSY BEH 192U.

Restriction: Psychology and Social Behavior, Social Ecology, and Education majors have first consideration for enrollment.

EDUC 177. Exploring Geography and Social Issues in K-12 Education. 4 Units.
Examines how natural environment has shaped human culture and how human cultures shape natural environment. Uses geography as lens to develop student understanding of social issues, their causes, and consequences.

EDUC 179W. Advanced Composition for Teachers. 4 Units.
Principles of formal composition and problems of teaching. Selecting handbooks and ancillary reading, marking papers, making assignments, and conducting workshops and tutorials.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as WRITING 179W.

Restriction: Upper-division students only.

(Ib)

EDUC 180. Interdisciplinary Topics in Education. 4 Units.
Analysis of issues in education from interdisciplinary perspectives. Topics covered vary with interests of instructor.

Repeatability: Unlimited as topics vary.

EDUC 181A. Principles and Practices of Coaching Sports I. 4 Units.
Focuses on foundational theories and instructional practices in coaching sports from fourth grade to the collegiate level. Prepares students for the coach's mandatory state certification examination for high school sports in California.

EDUC 182. Latina/Latino Access and Persistence in Higher Education. 4 Units.
Introduction to how social, political, and economic forces impact on Latina/Latino racial/ethnic minorities with regard to their access and persistence in the U.S. higher education system. Investigates historical perspectives and theoretical underpinnings of college access and retention research.

Same as CHC/LAT 182.

EDUC 183. College Advising for High School Students. 4 Units.
Provides a brief introduction to college-access issues and in-depth understanding in the field of college advising. Students learn how to help high school students develop higher education plans and guide them through the college application process.

Same as CHC/LAT 184.

EDUC 185. Social Development in Education. 4 Units.
Examination of contextual, psychosocial, and biological factors contributing to the social development of children and adolescents. Theoretical perspectives, empirical findings, and methodological issues are emphasized. Implications of the scientific evidence for practical and policy decision-making surrounding development are discussed.

EDUC 190. Principles and Practices of K–6 After School Sports and Fitness. 4 Units.
Focuses on foundational theories and instructional practices in after-school sports and fitness for K–6 students. Includes a 20-hour field experience in an after-school setting.

EDUC 191. Advanced Fieldwork in After-School Education. 4 Units.
Capstone fieldwork experience for students seeking to earn the Department of Education-sponsored Certificate in After-School Education. Students are required to complete 50 or more hours of fieldwork and related assignments at an instructor-approved after-school program.

Prerequisite: EDUC 160.

EDUC 193. Directed Studies in Early Childhood Education. 2-4 Units.
Advanced study of early childhood education under the direction of a faculty member, coupled with a community-based practicum.

Repeatability: May be repeated for credit unlimited times.

EDUC 198. Directed Research in Education. 2-8 Units.
Individually or in small groups, students are exposed to or participate in work related to a faculty member's research. Students also attend a weekly seminar and complete a research paper or comparable project. Prerequisite: sophomore, junior, or senior standing.

Repeatability: May be taken for credit for 12 units.

Restriction: Sophomore only or Juniors only or Seniors only.

EDUC 199. Individual Study. 1-4 Units.
Intensified advanced study in areas in which a student has considerable background, under the direction of a faculty member who will guide and evaluate the study.

EDUC 201. Teachers' Lives and Policy Environment of Teaching. 4 Units.
Examines research and public perceptions about school-based educational processes, the influence of institutional structures and educational policy on the lives of teachers, and the challenges of school reform at the local and classroom level.

Restriction: Master of Arts in Teaching Program majors only.

EDUC 202. Outcomes of Schooling/Student Assessment. 4 Units.
Focuses on establishment of learning goals and assessment tools that are valid for all students, inform educational decisions, and promote educational success. Provides critical examination of different forms of assessment used in K–12 schools, including developmental assessments and appropriate interventions.

Restriction: Master of Arts in Teaching Program majors only.

EDUC 203. Advanced Concepts in Learning and Cognition. 4 Units.
Theories of cognition and their application to thinking and learning in school settings. Topics include memory, information processing, knowledge representation, problem solving, meta-cognition, and intelligence.

Prerequisite: EDUC 173.

Restriction: Master of Arts in Teaching Program majors only.

EDUC 205. Critical Assessment of Teaching Practice and Learning. 4 Units.
Student articulates a problem in instructional practice and uses research on cognition, assessment, and other tools to understand the problem. Capstone course emphasizes practices of teacher inquiry, reflection, and professional collaboration. Student's written analyses are evaluated as program's Comprehensive Examination.

Restriction: Master of Arts in Teaching Program students only.

EDUC 206. Design of Learning Environments for Teachers in Secondary School Subjects. 4 Units.
Research on comprehension, conceptual understanding, reasoning, critical thinking, and problem solving with applications to pedagogy in secondary school subjects. Required for M.A.T. single subject students, unless substitution of Education 207 is authorized.

EDUC 207. Cognition and Pedagogy in Quantitative Literacy. 4 Units.
Reviews research on cognition in elementary mathematics, including numeracy, fractions, probability, proportionality, measurement, geometry, algebra. Emphasizes instructional approaches consistent with this research knowledge. Required for M.A.T. multiple subjects students, unless substitution of Education 206 is authorized by the Department.

EDUC 208. Reading Development . 4 Units.
Course will focus on the language and literacy development of typically-developing native English-speaking students in the U.S. Students will learn about seminal and recent research in the field of reading development.

Restriction: Graduate students only.

EDUC 209. Vocabulary Learning and Academic Language. 4 Units.
Examines linguistic, developmental, psychometric, and neurological perspectives on word learning and semantics, paying particular attention to the relation between language development and reading, and features of academic language in content-specific texts.

Restriction: Graduate students only.

EDUC 210. Language, Literacy, and Discourse. 4 Units.
Introduces students to the interdisciplinary study of language, literacy, and discourse across historical and educational contexts. Addresses theories of how people learn, interact, and make meaning through a variety of semiotic resources, including oral communication, print, and digital media.

Restriction: Graduate students only.

EDUC 211. Writing Theory and Practice. 4 Units.
Offers an overview of histories, theories, and research in the field of composition studies from 1950 to the present. Addresses the influences of theory and research on teaching practice at K–12 and college levels.

Restriction: Graduate students only.

EDUC 212. Literacy and Technology. 4 Units.
Examines theoretical, historical, and contemporary relationships of technology and literacy. Topics include online communication, multimodality, video games, the use of technology for literacy instruction in schools, and research approaches for investigating literacy development with technology.

Restriction: Graduate students only.

EDUC 216. Language Learning with Digital Media. 4 Units.
Examines the use of new technologies in second and foreign language teaching. Considers historical and theoretical perspectives, current research, and future directions. Topics include online interaction, computer-assisted testing, corpora and concordancing, second language reading and writing, and affect and identity.

Restriction: Graduate students only.

EDUC 218. Special Topics in Language, Literacy, and Technology. 4 Units.
Advanced seminar designed to engage students in highly interactive examination of current issues in language, literacy, and technology. Topics and content will vary by quarter, depending upon research interests of the faculty and students.

Repeatability: May be taken for credit 10 times as topics vary.

Restriction: Graduate students only.

EDUC 220. Developing Adolescent Literacy. 4 Units.
Examines how adolescents leverage vocabulary knowledge, word-reading skills, background understanding, and knowledge of content-specific text features to master an increasing range of texts both independently and for subject-area learning.

Restriction: Graduate students only.

EDUC 222. Research Epistemologies and Methodologies. 4 Units.
Introduction to epistemological underpinnings of educational research and to a range of research methodologies in education. Includes examination of quantitative and qualitative studies through reading and analyzing contemporary research. Critique of selected research studies pertinent to educational practice and policy.

Restriction: Ed.D. Program students only.

EDUC 224. Social Development and Education. 4 Units.
Surveys the theory and empirical evidence concerning human social development from infancy to adolescence. Topics include studying how children conceptualize the social world, interact with caretakers, develop social relationships with peers, and how they impact student success.

Restriction: Graduate students only.

EDUC 225. Learning, Development, and Culture. 4 Units.
Explores issues of learning and development through a cultural lens. The interplay between culture and learning and culture and development is analyzed through the discussion of relevant readings from both psychological and anthropological research traditions.

Restriction: Graduate students only.

EDUC 229. Theories of Human Development. 4 Units.
Examines developmental theory as a guide for research and practice in education. The evolution of classical development theories and the emergence of new theoretical models are considered. Theoretical perspectives include ecological systems, life course, psychobiology, attachment, and social-cognitive theories.

Restriction: Graduate students only.

EDUC 235. Psychology of Reading Acquisition. 4 Units.
Surveys theory and empirical evidence concerning acquisition, cognitive processes, and consequences of skilled reading. Explores psychological models of skilled reading, how children acquire reading and writing skills in their home and second languages, cognitive consequences of acquiring literacy skills.

Restriction: Graduate students only.

EDUC 237. Teacher Thinking and Learning. 4 Units.
Recent research on teacher cognition, including what knowledge teachers bring to their work and how it is used in practice. Examines the nature and development of teachers' knowledge and the relationship between knowledge and practice.

Restriction: Graduate students only.

EDUC 238. Special Topics in Learning, Cognition, and Development. 4 Units.
An advanced seminar designed to engage students in highly interactive examination of current issues in learning, cognition, and development. Topics and content will vary by quarter, depending upon the research interests of the faculty and students.

Restriction: Graduate students only.

EDUC 240. Instructional Design and Education Technology. 4 Units.
Design of high-quality instructional units consistent with current theory and research in cognitive psychology and constructivist-compatible instructional practice and infused with appropriate uses of computer and video technologies. Students design a complete instructional unit using these principles.

Restriction: Master of Arts in Teaching Program students only.

EDUC 251. Educational Policy and Politics. 4 Units.
An in-depth study of topics relevant to educational reform and policy-making. Topics include: the policy-making process, the role of values and interest groups, policy analysis, equality of educational opportunity, systemic reform, implementation, and politics at the school site.

Restriction: Graduate students only.

EDUC 254. College Access and Persistence. 4 Units.
Introduction to how social, political, and economic forces impact college access and persistence in the U.S. higher education system. Investigates historical perspectives and theoretical underpinnings of college access and retention research and the link between K–12 schooling and postsecondary stratification.

Restriction: Graduate students only.

EDUC 255. Immigration and the New Second Generation. 4 Units.
Focuses on Asian, Latino, and Black children of immigrants. Investigates how today's second generation adapts, incorporates into the U.S. social structure, transforms the social and economic landscape. Explores assimilation, immigrant families/communities, language, racial/ethnic identities, gender, education, changing U.S. racial structure.

Restriction: Graduate students only.

EDUC 256. Critical Case Studies in Education. 4 Units.
Examines single and multiple case studies as a method for investigating educational theory, practice, and policy. Explores types of questions that can be answered with case study research and designs, data analysis techniques, format, and style of writing case studies.

Restriction: Graduate students only.

EDUC 257. Social Capital and Student Achievement. 4 Units.
Examines strategies that have proven successful in encouraging both high student achievement and a supportive school culture. Extended case studies are used to probe how interpersonal interactions at the school site can work to stimulate or discourage academic commitment.

Restriction: Graduate students only.

EDUC 258. Special Topics in Educational Policy and Social Context. 4 Units.
An advanced seminar designed to engage students in highly interactive examination of current issues in educational policy and social context. Topics and content will vary by quarter, depending upon the research interests of the faculty and students.

Repeatability: May be taken for credit 10 times.

Restriction: Graduate students only.

EDUC 259. Community Research and Action. 4 Units.
Introduces the theoretical underpinnings and research approaches of the field of Community Psychology. Project-based course focused on research and action in communities, organizations, and other extra-individual units (e.g., schools).

Restriction: Graduate students only.

EDUC 261. Social and Cultural Foundations of Education. 4 Units.
Provides a critical understanding of the social and cultural foundations of education through reproduction theory. Explores the unique ways in which culture and power intersect within schools and schooling systems to reproduce and resist educational inequality.

Restriction: Graduate students only.

EDUC 264. Economic Foundations of Education and Social Policy. 4 Units.
Beginning/intermediate microeconomics course provides students with an introduction to how economists think about household decision-making, markets, benefit-cost analysis, social policy issues in general and education policy in particular.

Restriction: Graduate students only.

EDUC 265. Applied Regression Analysis for Education and Social Research. 4 Units.
Provides students with a working knowledge of multiple regression and the statistical analysis of longitudinal data. Topics include a review of the OLS regression model, event-history methods, and various other techniques for analyzing longitudinal data.

Prerequisite: EDUC 288B.

Restriction: Graduate students only.

EDUC 266. Design of Learning Environments. 4 Units.
Theory and practice of designing innovative learning environments. New models of classroom interaction and technology use for new cognitive and social roles. Design cognition, and social learning theories and research methods for the design and enactment of learning environments.

Restriction: Graduate students only.

EDUC 267. Classsroom Research Methods. 4 Units.
Uses students' research problems as the basis for exploring methods—teacher and student observation, interview, case studies, think alouds. Intended for doctoral students with a specific research question and very good grounding in the literature related to their question.

Restriction: Graduate students only.

EDUC 268. Out-of-School Learning and Youth Development. 4 Units.
Examines theory, research, and policy concerning out-of-school time and youth development. Several out-of-school contexts are considered (e.g, unsupervised care, informal leisure activities, and organized activities). A range of developmental outcomes are considered (e.g., achievement, social-emotional competence, and physical health).

Restriction: Graduate students only.

EDUC 274. Studies of Professional and Staff Development. 2-4 Units.
Research and theory of effective strategies for professional and staff development. Topics include: adult learning as related to professional growth of teachers, staff development as vehicle for systemic reform, reforms to enhance teacher professionalization and empowerment.

Restriction: Doctoral students only.

EDUC 278. Experimental Designs in Educational Research. 4 Units.
Designed to enable students to think critically about experimental research, and to develop an understanding of how to design and conduct experiments. The overall goal is to prepare students to independently plan and implement an experimental research study.

Prerequisite: EDUC 222.

Restriction: Graduate students only.

EDUC 278B. Studies of Diversity and Inequality in Education. 4 Units.
Study of relationships between individual diversity, social inequality, and education. How differences in socioeconomic status, race, culture, and gender translate in the educational process and affect educational outcomes. Addresses issues such as educational access, social mobility, and social reproduction.

Restriction: Graduate students only.

EDUC 280. Research Methods. 2-8 Units.
Provides practitioners at advanced degree level with insight and leadership skills for working with increasingly diverse school populations. Content varies with interest of students and instructors. May focus on populations or broader content area such as education reform in California.

Repeatability: May be taken for credit 3 times.

Restriction: Doctoral Degree candidates only.

EDUC 281. Evaluation of Educational Programs. 4 Units.
Alternative approaches to formative and summative evaluation of educational programs. Standards for effective evaluations. Epistemological, political, and practical issues in designing and conducting evaluations. Students critique specific studies relevant to educational administration and policy-making and design an evaluation.

Restriction: Doctoral students only.

EDUC 282. Graduate Seminar in the History of the Philosophy of Education. 4 Units.
Draws upon results in the historical development of the philosophy of education from Plato, Quintillian, Augustine, Locke, Rousseau, to more contemporary thinkers such as Dewey, Freire, Egan, and Rorty.

Repeatability: May be repeated for credit unlimited times.

EDUC 283A. Qualitative Research Methods in Education I. 4 Units.
Introduces students to qualitative research methodologies and methods and explores strengths and challenges of this research tradition. Topics include logistical and ethical issues, reliability, validity and generalizability, and the role of reflexivity. Students will also engage in fieldwork.

Prerequisite: EDUC 222.

Restriction: Graduate students only.

EDUC 283B. Qualitative Research Methods in Education II. 4 Units.
Provides methods for conducting and analyzing qualitative research in educational settings. Topics include data collection, coding, representing qualitative data, and using software for qualitative data analysis.

Prerequisite: EDUC 283A.

Restriction: Graduate students only.

EDUC 285. Theories of Learning Cognition. 4 Units.
Overview of theories applicable to learning in schools and extracurricular contexts. Cognitive, psychometric, behavioral, and neuroscience perspectives are applied to such topics as memory, knowledge structures, problem solving, motivation, self-referent beliefs, expertise, assessment, and cognitive abilities, including intelligence.

Restriction: Graduate students only.

EDUC 286. Discourse Analysis. 4 Units.
Examines the methodological tradition of discourse analysis as it has been applied by researchers in language and literary education for both in and out-of-school settings.

Restriction: Graduate students only.

EDUC 287. Quantitative Data Analysis in Education Research and Evaluation. 4 Units.
Covers statistical aspects of survey-based evaluations and quantitative research in education. Includes sampling, coding open-ended information, data management, scale construction, statistical analysis, and presentation of findings. Students analyze data sets—a district-based evaluation and a national survey—using SPSS.

Prerequisite: EDUC 281.

EDUC 288A. Educational,Social, and Behavioral Statistics. 4 Units.
Designed for graduate students with previous course work in statistics, including experience with statistical software such as SPSS. The emphasis is on regression analysis and the general linear model. Students learn to analyze real data using Stata software.

Prerequisite: Prior coursework in statistics, and experience with statistical software such as SPSS.

Restriction: Graduate students only.

EDUC 288B. Structural Equation Modeling for Educ, Soc & Behavioral Analysis. 4 Units.
Rigorous introduction to structural equation modeling for students with strong prior course work in statistics. Topics include path diagrams, SEM with observed variables, factor analysis, SEM with latent variables. Maximum likelihood estimating, goodness-of-fit measures, nested models, related topics.

Prerequisite: EDUC 288A.

Restriction: Graduate students only.

EDUC 289. Use of Video in Educational Research. 4 Units.
Provides students with conceptual and methodological tools for using video in educational research. Students work with their own video data or with publicly accessible databases.

Restriction: Graduate students only.

EDUC 291. Hierarchical Linear Models for Education Research. 4 Units.
Descriptive and inferential analysis methods for education projects with nested data. Focuses on linear models that account for nesting of children in classrooms or schools or of repeated measures over time on the same individuals.

EDUC 295. Pre-Dissertation Research. 1-12 Units.
Independent study course taken under the direction of a faculty member who guides the student's research. May include guidance on data collection, methodology, human subjects protocol, conference presentation, scholarly publication, program benchmark activities.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

EDUC 296A. Professional Writing in Educational Research I. 2 Units.
First of a two-course series designed to extend students’ knowledge of conducting and publishing educational research. Topics include the logic of research and how to effectively communicate research findings, with particular emphasis on proficient scientific writing.

EDUC 296B. Professional Writing in Educational Research II. 2 Units.
Second of a two-course series designed to extend students’ knowledge of conducting and publishing educational research. Topics include the logic of research and how to effectively communicate research findings, with particular emphasis on proficient scientific writing.

EDUC 298. Independent Study. 1-8 Units.
Independent research on topics related to education.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EDUC 299. Dissertation Reserach. 1-12 Units.
Specifically designed for students researching and writing their dissertations.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Doctoral students only.

EDUC 302. Directed Secondary Field Experiences. 2 Units.
Field work experiences and seminars to provide introduction to the California Teaching Performance Expectations, including guidelines for professional expectations, observation and participation in classrooms, instructional planning, classroom management, and formative experiences and preparation for the State-mandated Teaching Performance Assessment.

Restriction: Teacher Credential Program student only.

EDUC 303. Learning to Learn from Teaching in Elementary Schools. 3 Units.
Preparation for elementary school teaching that provides analytic tools for observing and reflecting on instruction, examining how student thinking is demonstrated, understanding components of and relationships between the teaching and learning process and planning effective instruction including innovative teaching practices.

Restriction: Teacher Credential Program students only.

EDUC 304. Student Teaching in the Elementary Schools. 4-12 Units.
Student teaching seminars prepare candidates for assumption of classroom instructional responsibilities in accordance with State credentialing requirements. Four full days a week of student teaching in public school elementary classrooms in winter quarter and five full days in spring quarter.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 305. Learning to Learn from Teaching in Secondary Schools. 4 Units.
Analytic tools for (1) observing and reflecting on observed instruction; (2) examining student thinking and the relationship between teaching and learning; (3) understanding particular components of the teaching/learning process; and (4) planning effective instruction including innovative teaching practices.

Restriction: Teacher Credential Program students only.

EDUC 306. Supervised Teaching in Bilingual Education, Elementary. 4-12 Units.
Student teaching experiences in bilingual public school classrooms to include orientation, regular seminars, and preparation for bilingual classroom instructional responsibilities in accordance with State credentialing requirements and in conjunction with the public school calendar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Teacher Credential Program students only.

EDUC 307. Student Teaching in Intermediate/Secondary School. 2-16 Units.
Student teaching includes orientation, seminars, and preparation for and assumption of secondary school classroom instructional responsibilities in accordance with State credentialing requirements and in conjunction with public school calendar. Five full days a week in both winter and spring quarters.

Repeatability: May be taken for credit for 20 units.

Restriction: Teacher Credential Program students only.

EDUC 308. Performance Assessment for California Teachers, Multiple Subjects. 1 Unit.
Preparation and technical support for multiple subjects teacher candidates to complete State-required Teaching Performance Assessment for the California preliminary credential. Includes assistance in planning, teaching/videotaping, assessment and reflection, and document production.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 309. Supervised Teaching in Bilingual Education, Secondary. 4-12 Units.
Student teaching experiences in bilingual public school classrooms to include orientation, regular seminars, and preparation for bilingual classroom instructional responsibilities in accordance with State credentialing requirements and in conjunction with the public school calendar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Teaching Credential Program students only.

EDUC 310. Performance Assessment for California Teachers. 1 Unit.
Preparation and technical support for teacher candidates to complete the required Teaching Performance Assessment for California credential licensure. Structured support for planning, videotaping, and document production occurs in meetings scheduled to coincide with the timeline for the project.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 315. Learning to Learn from Teaching Practice. 4 Units.
Secondary curriculum and methodology, including instructional planning, teaching strategies, classroom management, evaluation, cultural and linguistic considerations and interpersonal skills. Application of these to fieldwork experience in preparation for teaching responsibilities assumed in secondary schools.

Restriction: Teacher Credential Program students only.

EDUC 317. Intern Teaching in the Secondary School: Single Subject Instruction. 4-16 Units.
A paid intern practicum (usually one year) cosponsored by an employing school district and the UCI Department of Education.

Repeatability: May be taken for credit for 36 units.

Restriction: Teacher Credential Program students only.

EDUC 319. Direct Field Experiences. 4 Units.
Observation, participation, and teaching in diverse public school classrooms. Application of theory and pedagogy in field work classrooms.

Restriction: Teacher Credential Program students only.

EDUC 321. Curriculum and Methods for Elementary School Social Studies. 3 Units.
Description, scope, sequence, and methods of teaching social studies and inquiry in grades K-8. Includes utilization of California State Framework for Teaching History/Social Science and addresses current aspects and trends in multicultural education.

Restriction: Teacher Credential Program Students only.

EDUC 322A. Curriculum and Methods for Elementary School Mathematics I. 4 Units.
Scope, sequence, and methods of teaching mathematics at all levels of elementary school. Presented through lectures, discussions, demonstrations, and exploration of a variety of materials. Covers how to plan lessons, motivate students, diagnose difficulties, and evaluate learning in mathematics.

Restriction: Teacher Credential Program students only.

EDUC 322B. Curriculum and Methods for Elementary School Mathematics II. 4 Units.
Part two of a course addressing pedagogical methods for elementary mathematics. Lectures, discussions, and exploration of instructional strategies and materials will support preservice teacher development in the critical areas of planning, instruction, and assessment for conceptual understanding in mathematics.

Restriction: Teacher Credential Program students only.

EDUC 323. Curriculum and Methods for Elementary School Science. 4 Units.
Prospective elementary teachers learn how to teach science in grades K-8. Covers States science requirements, a variety of teaching methods, criteria for selecting science curriculum materials, and how to plan science lessons, units, experiments, projects, and demonstrations.

Same as ECO EVO 323.

EDUC 324. Curriculum and Methods for Elementary School Language Arts Integrated with Social Studies. 4 Units.
An integrated approach to language arts and social studies instruction at the K–6 level based on California State English/Language Arts and Social Studies Frameworks and Standards. Focus on teaching content through literature and writing and providing access for all learners.

Restriction: Teacher Credential Program students only.

EDUC 325. Teaching the Visual and Performing Arts in Elementary School. 2 Units.
Introduction to the issues and practices, including student diversity, academic literacy, and interdisciplinary content, involved in integrating the California visual and performing arts curriculum framework and academic content standards with developmentally appropriate teaching strategies for the elementary classroom.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 326. Curriculum and Methods for Elementary School Reading. 4 Units.
Teaching an integrated reading/language arts program in the elementary classroom. Implementing theories, principles, and methods which are research and reality-based. Creating a child-centered, language-rich program to meet needs of children in multicultural/multilingual settings.

Restriction: Teacher Credential Program students only.

EDUC 329. Theories and Methods of English Language Development Applied to Elementary Students. 4 Units.
Theories and methods of English language development and instruction of English language learners, with focus on elementary students. Includes language acquisition theory, language and content, assessment strategies, and preparation of curricula and instruction for grades K–6 English language learners.

Restriction: Teacher Credential Program students only.

EDUC 331. Instructional Technology: Resources for the Multiple Subject Classroom. 3 Units.
Issues and techniques in uses of computer-based and media technologies in the multiple subject classroom: social implications and professional responsibilities; productivity tools to enhance student thinking skills; and strategies for instruction and management.

Restriction: Teacher Credential Program majors only.

EDUC 333. Health Principles and Practices for the Elementary Teacher. 1 Unit.
Methods for creating healthy environments for student learning in elementary schools. Introduction of California content standards and frameworks with appropriate pedagogy. Personal, family, school, community factors, and legal responsibilities of teachers. Academic, physical, emotional, and social well-being.

Grading Option: Satisfactory/unsatisfactory only.

EDUC 334. Literacy and Technology in the Secondary Classroom. 2 Units.
A view of literacy expanded beyond typological print, students learn: (1) strategies for incorporating, (2) tools for evaluating and selecting, and (3) learning theories for understanding how information and communication technologies and online resources contribute to general and disciplinary literacy.

Prerequisite: Limited to students accepted into the Teacher Credential Program

Restriction: Teacher Credential Program students only.

EDUC 336. Methods of Teaching Languages other than English in Secondary Schools. 4 Units.
Prepares future teachers of foreign language or primary/home language. Emphasizes hands-on, practical strategies for communication-based instruction and authentic assessment, in reading, writing, listening, speaking, and culture.

Restriction: Teacher Credential Program students only.

EDUC 337. Methods of Teaching Social Science in the Secondary School. 4 Units.
Theories, strategies, and methodologies related to the teaching of history and social science in the secondary school. Emphasis on the planning, delivery, and assessment of lessons reflecting an understanding of the History-Social Science Framework for California.

Restriction: Teacher Credential Program students only.

EDUC 338. Methods of Teaching English in the Secondary School. 2-4 Units.
Introduction to teaching reading, writing, and speaking skills in secondary school. Emphasis upon integrative approach to teaching literature, composition, and grammar consistent with the California State Framework. Practice in the design of lesson plans that are both integrated and cumulative.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 339. Methods of Teaching Visual & Performing Arts in Secondary Schools. 4 Units.
Theory, curriculum, and strategies for teaching visual and performing arts in the secondary school. Emphasis on the planning, delivery, and assessment of lessons consistent with California State Framework and content standards.

Restriction: Teacher Credential program or M.A.T. program students only.

EDUC 340. Methods of Teaching Mathematics in Secondary School. 2-4 Units.
Theories, strategies, and methodologies related to the teaching of mathematics in the secondary school. Emphasis on the planning, delivery, and assessment of lessons reflecting an understanding of the Mathematics Framework for California and the recommendations of professional organizations.

Repeatability: May be taken for credit for 4 units.

Restriction: Teacher Credential Program students only.

EDUC 341. Teaching Science in Secondary School. 4 Units.
Prospective secondary science teachers learn how to teach science in grades 7-12. Covers State science requirements, a variety of teaching methods, criteria for selecting science curricular materials, and how to plan science lessons, units, experiments, projects, and demonstrations.

Same as ECO EVO 341.

Restriction: Teacher Credential Program students only.

EDUC 342. Applied Instructional Strategies in Secondary Schools. 4 Units.
Application of pedagogy and research to practice teaching experiences in the secondary schools. A continuation of the methodology course series with an emphasis on the needs of students with culturally diverse backgrounds.

Repeatability: May be taken for credit 2 times.

Overlaps with EDUC 342A, EDUC 342B.

Restriction: Teacher Credential Program students only. EDUC 342 and EDUC 342A-B may not both be taken for credit.

EDUC 342A. Applied Instructional Strategies in Secondary. 2 Units.
Application of pedagogy and research to practice teaching experiences in the secondary schools. A continuation of the methodology course series with an emphasis on the needs of students with culturally diverse backgrounds. Conducted in a five-week format.

Repeatability: May be taken for credit 2 times.

Overlaps with EDUC 342.

Restriction: Teacher Credential Program students only. EDUC 342 and EDUC 342A-B may not both be taken for credit.

EDUC 342B. Applied Instructional Strategies in Secondary. 2 Units.
Application of pedagogy and research to practice teaching experiences in the secondary schools. A continuation of the methodology course series with an emphasis on the needs of students with culturally diverse backgrounds. Conducted in a five-week format.

Repeatability: May be taken for credit 2 times.

Overlaps with EDUC 342.

Restriction: Teacher Credential Program students only. EDUC 342 and EDUC 342A-B may not both be taken for credit.

EDUC 344. Applied Instructional Strategies in Secondary School Sciences. 4 Units.
Application of pedagogy and research to practice science teaching experiences in the secondary schools. A continuation of the Education 340 series with an emphasis on the needs of students with culturally diverse backgrounds.

Repeatability: May be taken for credit 2 times.

Same as ECO EVO 344.

Restriction: Teacher Credential Program students only.

EDUC 345. Child Development and Educational Equity. 4 Units.
Explores theories of child development applied to teaching and learning in elementary schools. Attention is given to role of cultural norms in defining goals for child development and for educational practices and in creating equal learning opportunities for all children.

Restriction: Teacher Credential Program students only.

EDUC 346. Reading and Writing in Middle School and High School Classrooms. 4 Units.
Emphasis is placed upon understanding the literacy processes (listening, speaking, viewing, reading, and writing) as they relate to all Single Subject areas. Teachers are guided to integrate literacy-related strategies with curriculum-based goals supported in the California State Frameworks.

Restriction: Teacher Credential Program students only.

EDUC 347. Culture, Diversity, and Educational Equity . 4 Units.
Survey of the history of and social theories about the origins and consequences of U.S. racial, gender, and social inequality and the effects of poverty and racism on the educational opportunities and outcomes of minority groups in the United States.

Prerequisite: Limited to students accepted into the Teacher Credential Program.

EDUC 347A. Culture, Diversity, and Educational Equity. 2 Units.
Survey of the history of and social theories about the origins and consequences of U.S. racial, gender, and social inequality and the effects of poverty and racism on the educational opportunities and outcomes of minority groups in the United States.

Restriction: Teacher Credential Program students only.

EDUC 347B. Culture, Diversity, and Educational Equity. 2 Units.
Survey of the history of and social theories about the origins and consequences of U.S. racial, gender, and social inequality and the effects of poverty and racism on the educational opportunities and outcomes of minority groups in the United States.

Restriction: Teacher Credential Program students only.

EDUC 348. Theory and Methods of Instruction of Special Populations in General Classroom. 2 Units.
Knowledge, skills, and strategies to teach special populations in the general education classroom. Categories of disability and exceptionality. Legislation pertaining to the education of special populations. Role of general education teacher in special education process. Differentiated instruction and inclusive environments.

Restriction: Teacher Credential Program students only.

EDUC 349. Theories and Methods of English Language Development Applied to Secondary Students. 4 Units.
Theories and methods of English language development and instruction of English language learners, with focus on secondary students. Includes language acquisition theory, language and content, assessment strategies, and preparation of curricula and instruction for grades 7–12 English language learners.

Restriction: Teacher Credential Program students and M.A.T. students only.

EDUC 350. Adolescent Development in Education. 4 Units.
Secondary teachers must understand adolescent physical, cognitive, emotional, and social development, particularly how educators can promote healthy adjustment in their students. Focuses on why and how changes occur in each of these areas as children grow older.

Restriction: Teacher Credential Program students only.

EDUC 351. Instructional Technology: Resources for the Single Subject Classroom. 3 Units.
Issues and techniques in uses of computer based and media technologies in the single subject classroom: social implications and professional responsibilities; productivity tools to enhance student thinking skills; and strategies for instruction and management.

Restriction: Teacher Credential Program majors only.

EDUC 352. Creating a Supportive and Healthy Environment for Student Learning in the Secondary Classr. 2 Units.
Creation of healthy environments for student learning in secondary classrooms. Personal, family, school, community, environmental factors. Academic, physical, emotional, social well-being of students. Legal responsibilities of teachers related to student health, safety. Communication with family and use of community resources.

Restriction: Teaching Credential Program students only.

EDUC 398. Special Topics. 3 Units.
Meets induction and program planning requirements for students enrolled in Professional Administrative Services Credential. Also serves as final course in program, wherein the candidate, the University instructor, and a representative of the involved school district assess and evaluate candidate competency.

Repeatability: May be taken for credit 2 times.

Restriction: Professional Administrative Services Credential students only.

EDUC 399. University Teaching. 1-4 Units.
Limited to teaching assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Graduate Degree Programs in Education

Master of Science in Chemistry or Mathematics with a Teaching Credential

In cooperation with the Departments of Chemistry and Mathematics, the School of Education offers coordinated programs for the California Single Subject Teaching Credential and a Master of Science degree in Chemistry or Mathematics. Additional information is available from the School of Education Student Affairs Office and the Graduate Affairs Office in the Departments of Chemistry and Mathematics.

Master of Arts in Social Science with a Teaching Credential

In cooperation with the School of Social Sciences, students enrolled in a graduate program offered by the School may choose to pursue a teaching credential while working toward their degree. After completion of the requirements for an M.A. degree, students may petition to enroll in credential program courses with the School of Education. Credential program requirements, such as the Certificate of Clearance, TB clearance, and the passage of CBEST and CSET, may need to be met prior to the approval of the petition. A detailed description of the program may be obtained from the School of Education Student Affairs Office and the Social Sciences Graduate Office.

Master of Arts in Teaching in Elementary and Secondary Education

The School of Education offers a 15-month Master of Arts degree program in Elementary and Secondary Education. The M.A.T. program is comprised of the one-year UCI teacher credential program with six additional courses, usually taken in the summers before and after the credential program, but also available in the two summers following the credential program. This program provides a rich theoretical and practical framework with a focus on *Learning to Learn from Teaching,* or continuously studying the impact of one's teaching on student learning.

Admission to the Program

Selection is based on the graduate admission requirements of the UCI Graduate Division, which include the strength of the undergraduate academic record, GRE scores, statement of purpose, and letters of recommendation.

Submit an application through the Graduate Division.

Evidence of Academic Achievement–Official Transcripts from all post-secondary institutions. Completion of a baccalaureate degree from an accredited institution and a minimum grade point average of 3.0 will support admission to the credential programs. Undergraduates who enroll in courses leading to a credential are not guaranteed admission to the program; admission through the regular graduate admissions process is required.

NOTE: Applicants in the following categories must verify subject matter competence and basic skills (see below) as a condition of admission.

1. If GPA is less than 3.0.
2. If you have not completed a major, a minor, or a significant number of college-level courses in the single subject discipline for which you are applying (e.g., mathematics, English, science).
3. If you are applying for the Spring Start Intern Teacher Program.

Written Recommendations. Three letters of recommendation, including at least one from an academic source, from individuals who are familiar with the applicant's (1) ability to pursue graduate study, (2) capacity to work with children, and/or (3) demonstrated fitness for the professional environment of teaching.

Prior to the Start of the Program

- Pass the California Basic Educational Skills Test;
- Pass the required California Subject Matter Tests or complete an approved subject-matter preparation program in the content area;
- Hold a current Certificate of Clearance or Substitute Teaching Permit from the State of California;
- Hold a current TB test with negative results.

Program of Study

Summer One – Multiple and Single Subject

EDUC 201	Teachers' Lives and Policy Environment of Teaching
EDUC 202	Outcomes of Schooling/Student Assessment
EDUC 240	Instructional Design and Education Technology

Summer Two – Multiple Subject Credential Program

EDUC 203	Advanced Concepts in Learning and Cognition
EDUC 205	Critical Assessment of Teaching Practice and Learning
EDUC 207	Cognition and Pedagogy in Quantitative Literacy

Summer Two – Single Subject Credential Program

EDUC 203	Advanced Concepts in Learning and Cognition
EDUC 205	Critical Assessment of Teaching Practice and Learning
EDUC 206	Design of Learning Environments for Teachers in Secondary School Subjects

A comprehensive examination is completed by M.A.T. candidates during the second summer. The examination is an action research project embedded in EDUC 205.

A grade of B or better is required in all courses and in student teaching for successful completion of the program.

Student teaching for Multiple Subject candidates (grades K–6) is defined as a full-day, four days per week during the first quarter of student teaching and a full-day, five days per week during the second quarter of student teaching. Assignments will include two levels within the K–6 range in elementary schools.

Student teaching for Single Subject candidates (grades 7–12) in the post-baccalaureate program is defined as a full-day, five days per week for one public school semester in an appropriate classroom setting in a middle or high school.

Readiness for student teaching shall be determined by, but not be limited to, academic work, professional conduct, and potential for success in teaching. Failure to be advanced to student teaching will be considered good cause for removal and/or a leave of absence from the program.

Applying for a California Credential

In addition to fulfilling all of the above requirements:

- Show evidence a college-level course, or pass an approved examination on the U.S. Constitution;
- Obtain a CPR certificate in Adult, Child, and Infant resuscitation training.

Adding Teaching Authorizations. After acquiring a basic credential, it is possible to add further teaching authorizations. Consult an academic counselor in the School of Education for details.

Doctor of Philosophy in Education

The School of Education offers a Ph.D. degree in Education. The program seeks applicants from varied backgrounds and experiences who have the potential to become outstanding scholars and researchers in the field of education. The program currently offers three specializations: (1) Learning, Cognition, and Development; (2) Educational Policy and Social Context; and (3) Language, Literacy, and Technology. Students enrolling in the program choose among the specializations based on their research interests. Course work for the program ordinarily takes two to three years to complete and involves a number of core courses, methodology courses, elective courses, and a directed research sequence. Students should advance to candidacy

in their third year. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years. Program length may be shorter for students who enter the program with a prior master's degree in an area closely related to their doctoral research.

Students are admitted to the program once per year to begin each fall quarter. Applicants must have completed a bachelor's degree with a grade point average of at least 3.0 and have prior course work or background related to the specialization for which they express interest. Applicants are required to submit a UCI application, transcripts, a statement of purpose, a personal statement, CV or resume, a writing sample, three letters of reference, and general GRE scores completed within the past five years. Students whose primary language is not English and who did not graduate from a U.S. college or university are also required to submit scores from either the TOEFL examination or the Academic Modules of the International English Language Testing System (IELTS).

Financial support will be offered on a competitive basis in the form of teaching or research assistantships. Students who are not citizens of countries where English is the primary or dominant language who wish to apply for a teaching assistantship will be required to fulfill an English proficiency requirement.

Further information regarding the Ph.D. program, courses, and application requirements is available at the School of Education (http://www.education.uci.edu) website.

Master of Arts in Education

The School of Education offers an M.A. degree in Education as an option exclusively for students who are admitted to the Ph.D. in Education program. Separate applications for the M.A. in Education will not be accepted. Further information regarding the requirements for the M.A. in Education for students enrolled in the Ph.D. program is available at the School of Education (http://www.education.uci.edu) website.

Courses

EDUC 10. Educational Research Design. 4 Units.
Designed to help students become intelligent consumers of research and independent researchers, this course provides an introduction to the basic principles of educational research. Topics include research questions, literature reviews, and qualitative and quantitative research designs.

(III)

EDUC 15. Statistics for Education Research . 4 Units.
Provides an introduction to the use of statistics in educational research. Focusing on testing and measurement, the course provides basic tools to read, interpret, and draw conclusions from quantitative educational research.

Prerequisite: EDUC 10.

(Va)

EDUC 30. 21st Century Literacies. 4 Units.
Provides an overview of literacies required for academic and career success in the 21st century.Issues addressed include reading, writing, academic language, research skills, media and technology skills, scientific literacy, critical thinking, communication, collaboration, and creativity.

(III)

EDUC 40. Theories of Development and Learning Applied to Education. 4 Units.
Provides an introductory examination of central theories of human development and learning in their application to contemporary educational settings.

(III)

EDUC 50. Origins, Purposes, and Central Issues in K-12 Education. 4 Units.
An introduction to the role of education in U.S. society and to central issues in K–12 education. Education is studied from four different perspectives: social, historical, philosophical, and political.

EDUC 55. Knowing and Learning in Mathematics and Science. 5 Units.
Multidisciplinary study of knowing and learning in secondary school mathematics and science. Topics include standards for knowing, scientific epistemologies, mental representations, problem solving, expert-novice studies, assessment, and domain-specific thinking, learning, and teaching. Applied analysis of learning through clinical interviews.

Prerequisite: PHY SCI 5 or BIO SCI 14.

(III)

EDUC 100. Educational Strategies for Tutoring and Teacher Aiding . 4 Units.
Placement in a public elementary or secondary school to gain experience as a tutor or teacher aide. Emphasis on cognitive learning and the development of instructional strategies and resources which can be used in effective cross-age and cross-cultural experiences.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Same as ENGR 197A.

EDUC 104D. Preparation for Teaching Fine Arts in K-12 Schools. 4 Units.
Arts education, theory, curriculum and methods for university students specializing in studio art, digital arts, dance, music, and/or drama. Includes lesson planning and teaching strategies based on California and national frameworks and content standards, and fieldwork in K–12 settings.

EDUC 104E. Multimedia and the Arts in the Multicultural Classroom. 4 Units.
Multiculturalism and under-represented U.S. minorities and the visual and performing arts: perspectives in artistic perception, creative expression, historical and cultural context, aesthetic valuing, and media literacy in the interpretation and production of multimedia arts products and applications for K-12 classrooms.

EDUC 106. Introduction to Early Childhood Education. 4 Units.
Designed to provide an introductory survey of the nature, needs, and education of young children. Explores questions such as "What should we teach young children?" and "How should we teach?".

EDUC 107. Child Development in Education. 4 Units.
Explores the pathways of normally developing children's growth and change over time. In particular, focuses on how cognitive and social development impact and are driven by educational contexts.

EDUC 108. Adolescent Development and Education. 4 Units.
Explores the physical, cognitive, emotional, and social development of adolescents, with an emphasis on the practical implications of developmental theory and research findings for teachers and other professionals who work with adolescents in middle or high school contexts.

EDUC 109. Reading and Writing in Secondary Mathematics and Science Classrooms. 4 Units.
Emphasis is placed on understanding the literacy processes (listening, speaking, viewing, thinking, reading, and writing) as they relate to middle and high school mathematics and science. Students integrate literacy-related strategies with curriculum-based goals supported in the California State Frameworks.

Corequisite: EDUC 158.

EDUC 122A. Foundations of Elementary School Mathematics I. 4 Units.
Provides understanding of fundamental mathematics necessary to teach for conceptual understanding and higher-level reasoning and problem solving. Conceptual understanding of place value, fractions, proportionality, geometry, algebra, functions, probability, statistics, and measurement. Instructional applications of these concepts in grades K-8 teaching.

EDUC 122B. Foundations of Elementary School Mathematics II. 4 Units.
Provides understanding of fundamental mathematics necessary to teach for conceptual understanding and higher-level reasoning and problem solving. Conceptual understanding of place value, fractions, proportionality, geometry, algebra, functions, probability, statistics, and measurement. Instructional applications of these concepts in grades K-8 teaching.

Prerequisite: EDUC 122A.

EDUC 122C. Foundations of Elementary School Mathematics III. 4 Units.
Provides understanding of fundamental mathematics necessary to teach for conceptual understanding and higher-level reasoning and problem solving. Conceptual understanding of place value, fractions, proportionality, geometry, algebra, functions, probability, statistics, and measurement. Instructional applications of these concepts in grades K-8 teaching.

Prerequisite: EDUC 122B.

EDUC 124. Multicultural Education in K-12 Schools. 4 Units.
Provides a theoretical and empirical overview of educational issues affecting low-income immigrant and U.S.-born minority student populations in an increasingly diverse and changing society.

Same as CHC/LAT 183.

(VII)

EDUC 125. Children, Schools, and Cinema. 4 Units.
Through popular films, analyzes aspects of school dynamics and interaction of schools with students, teachers, and public. Melding educational studies and film studies provides deeper understanding of methods used to transmit information and attitudes about schools to the lay public.

EDUC 126. Ethics and Education. 4 Units.
Ethics in education and how ethicists frame moral problems. Presents major ethical themes that affect education. Analysis of models for dealing with ethical goals and developing morality for K–12 students. Models for solving ethical dilemmas within an educational context.

Prerequisite: EDUC 50.

EDUC 128. Exceptional Learners. 4 Units.
An introductory survey of the nature, needs, and education of K–12 children with exceptionalities. Covers the categories and characteristics of exceptionalities, relevant state and federal legislation, and the role of general education teachers in special education.

EDUC 130. Children's Learning and Media. 4 Units.
Examines how popular media may impact how young people learn, develop, and communicate by looking at research related to the impacts of a wide range of popular media including television, video games, digital environments, mobile devices, and other multimedia.

EDUC 131. Educational Technology. 4 Units.
Presents an overview of the types and uses of educational technology to support and enhance the K–12 learning experience. Familiarizes students with lesson planning, instructional design, learning theory, and integrating technology into the curriculum.

EDUC 132. Reading and Writing Enrichment for After-School Programs. 4 Units.
Examines literacy development and the implementation of research-based practices to enrich learners' reading and writing skills in after-school programs. A minimum of 20 hours of after-school program fieldwork is required in order to design and implement literacy enrichment activities.

EDUC 134. Teaching English Internationally. 4 Units.
Covers methods of teaching English as a foreign language, basic language knowledge for English teachers, the social context of English language teaching around the world, and essential information about securing international employment as an English teacher.

EDUC 137. Art in the Elementary School. 4 Units.
Theory and practice in art education for the elementary school classroom. Includes content and pedagogy for future teachers and others interested in the relationship between child development and the production of visual art. Materials fee.

EDUC 138. Children's Literature in the Elementary Classroom. 4 Units.
Explores the wealth of children's literature that can be integrated into the elementary classroom. Surveys traditional literature, fiction, nonfiction, and poetry that make curriculum accessible to all students. Focuses on literary elements for both reading and creating text.

EDUC 141A. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as PSYCH 141J.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

EDUC 141B. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as PSYCH 141K.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

EDUC 141C. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lecture, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as PSYCH 141L.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

EDUC 141D. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as PSYCH 141M.

EDUC 141E. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as PSYCH 141N.

EDUC 141F. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as PSYCH 141O.

EDUC 141G. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as PSYCH 141P.

EDUC 141H. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as PSYCH 141Q.

EDUC 141I. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as PSYCH 141R.

EDUC 143AW. Classroom Interactions I. 4 Units.
Focuses on research-based instructional strategies for enhancing the learning of secondary mathematics and science. Students learn about adolescent and second-language development to assist them in developing analyzing, teaching, and critiquing lessons for secondary classrooms.

Prerequisite: (PHY SCI 105 or BIO SCI 101) and EDUC 55. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

EDUC 143BW. Classroom Interactions II. 4 Units.
Focuses on equity and multicultural education research, special education, and research-based instructional and assessment strategies to assist students in designing, teaching, and assessing lessons that meet the needs of all secondary mathematics and science students.

Prerequisite: (PHY SCI 105 or BIO SCI 101) and EDUC 55 and EDUC 143AW. Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VII)

EDUC 145. Theories and Pedagogies of Race in Education. 4 Units.
Introduces theoretical frameworks to examine the role of race in American education. Emphasis is placed on introducing students to different race and ethnicity paradigms.

EDUC 148. Complex Pedagogical Design. 6 Units.
In this Cal Teach capstone course, students design lesson plans and complex instructional units, using approaches such as mathematics and science integration, problem-based instruction, project-based learning, technology, representations, scientific and mathematical analysis/modeling, authentic assessment, contextualization, and designing equitable learning environments.

Prerequisite: (PHY SCI 105 or BIO SCI 101) and EDUC 55 and EDUC 143AW and EDUC 143BW.

EDUC 149. Family, School, and Community in Early Childhood. 4 Units.
Focuses on the many socializing aspects of young children's social worlds. Through the use of ecological perspectives, explores the role of families, schools, and communities on children's social development, especially in early childhood.

EDUC 150. Changing the High School Experience. 4 Units.
Analysis of problems in high school education (e.g., student disengagement and underachievement of disadvantaged) and proposals for changing curriculum, instruction, and school organization. Students suggest own reforms and analyze effective/ineffective school practices.

Prerequisite: Recommended: 1 unit of EDUC 199.

EDUC 151. Language and Literacy. 4 Units.
Addresses the linguistic principles and processes that underlie oral and written language proficiency. Emphasis is on how to use phonology, morphology, orthography, semantics, syntax, and pragmatics to support literacy and oral language development for K-12 students.

Same as PSY BEH 192V.

Restriction: Psychology and Social Behavior, Social Ecology, Education, and Psychology majors have first consideration for enrollment.

EDUC 153A. Urban Youth and the Development of Literacy through the Arts I. 4 Units.
Brings together research and practice on innovative instructional strategies for developing urban-student literacy through visual, communicative, and performing arts. UCI students are involved in an intervention at a local school.

EDUC 153B. Urban Youth and the Development of Literacy through the Arts II. 4 Units.
Building on knowledge gained in Education 153A, focuses on practices for developing urban-student literacy. Students are required to complete 40 hours of fieldwork, participating in an actual intervention at a local school.

Prerequisite: EDUC 153A.

EDUC 155. Special Topics in Educational Issues and Asian Americans. 4 Units.
Critical analysis of a variety of historical and contemporary educational issues facing Asian Americans. May be repeated for credit as topics vary.

Repeatability: Unlimited as topics vary.

EDUC 156. Introduction to Field Methods in Education. 4 Units.
Introduces students to methods for studying human behavior in context. It prepares students for conducting applied educational research, including designing needs assessments; conducting observations, interviews and focus groups; organizing and analyzing data; and synthesizing and presenting research findings.

Prerequisite: EDUC 10.

EDUC 157. Educational Research and Evaluation. 4 Units.
Covers qualitative and quantitative research methods relevant for the evaluation of educational programs. Students will have the opportunity to plan, execute, and write-up a small evaluation project.

Prerequisite: EDUC 10 and EDUC 15.

EDUC 158. Student Teaching Mathematics and Science in Middle/High School. 6 Units.
Student teaching includes orientation, seminars, preparation, and assumption of secondary school classroom instructional responsibilities in accordance with State credentialing requirements and in conjunction with the public school calendar. Five days/week and a minimum four hours/day over two quarters.

Prerequisite: (PHY SCI 105 or BIO SCI 101) and EDUC 55 and EDUC 143AW and EDUC 143BW and EDUC 148.

EDUC 159. Experimental Research Methods. 4 Units.
Designed to help students to develop the ability to think critically about research, and to develop an understanding of how to design and conduct experiments. The overall goal is to prepare students to independently plan and implement a research study.

Prerequisite: EDUC 10 and EDUC 15.

EDUC 160. Foundations of Out-of-School Learning. 4 Units.
Provides an overview of child and adolescent learning through participation in out-of-school activities and settings. Recognizes the importance of matching out-of-school experiences with the interests, needs, and development level of students. Observation-based fieldwork included.

Repeatability: May be taken for credit 2 times.

Restriction: May be taken a second time if student is a candidate for Certificate in After-School Education, and the first time was prior to Fall 2008.

EDUC 160L. After-school Programs Fieldwork. 1-2 Units.
Supervised fieldwork at an after-school program. Fieldwork is under the direction of an Education faculty member and an after-school program supervisor.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 4 units.

EDUC 161. Discovering Science in Out-of-School Hours. 4 Units.
Examines the design principles and teaching techniques that science museums and other out-of-school science programs use to motivate children and youth to learn science through discovery. Includes field experience at a science learning center or after-school program. Materials fee.

EDUC 170B. Teaching & Learning Secondary History-Social Studies. 4 Units.
How adolescents understand history and social issues. Pioneering research on their reasoning about history, politics, and related areas. Examination of typical practices in history and social studies teaching. Improving students' learning through historiographic investigation and information technology resources.

EDUC 172A. Issues and Controversies in Secondary Mathematics. 4 Units.
Examines different perspectives on what mathematical competencies should be emphasized in secondary schools, and how they should be taught. Particular attention to problem solving, algebra and geometry, and issues of equity. Introduction to research on mathematical cognition and teacher beliefs.

EDUC 172B. Teaching and Learning Secondary Mathematics. 4 Units.
How children and adolescents learn to understand mathematics. Research on mathematical cognition, particularly on mathematical problem solving and the learning of algebra, geometry, and calculus. Examination of several innovative instructional programs derived from research on mathematics learning.

EDUC 173. Cognition and Learning in Educational Settings. 4 Units.
Foundational concepts in cognition and development as applied to student learning. Primary topics include historical behaviorism, basic cognitive structure and processes, complex cognition, cognitive development, and motivation.

Same as PSY BEH 192T.

Restriction: Psychology and Social Behavior, Social Ecology, Education, and Psychology majors have first consideration for enrollment.

EDUC 175. Foundations of Education. 4 Units.
Foundational questions of education are viewed from newly emerging developmental perspectives which treat cognition as embodied action and learning as cultural recapitulation. Historical, sociological, psychological, and philosophical implications of views toward aspects of teaching, learning, curriculum, and pedagogy are considered.

EDUC 176. Psychology of Learning, Abilities, and Intelligence. 4 Units.
Overview of classic positions on the mind, human abilities, and intelligence, especially as related to academic achievement. Contrasting views: psychometric versus information processing; experimental versus correlational research.

Prerequisite: PSYCH 7A or PSY BEH 9.

Same as PSY BEH 192U.

Restriction: Psychology and Social Behavior, Social Ecology, and Education majors have first consideration for enrollment.

EDUC 177. Exploring Geography and Social Issues in K-12 Education. 4 Units.
Examines how natural environment has shaped human culture and how human cultures shape natural environment. Uses geography as lens to develop student understanding of social issues, their causes, and consequences.

EDUC 179W. Advanced Composition for Teachers. 4 Units.
Principles of formal composition and problems of teaching. Selecting handbooks and ancillary reading, marking papers, making assignments, and conducting workshops and tutorials.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as WRITING 179W.

Restriction: Upper-division students only.

(Ib)

EDUC 180. Interdisciplinary Topics in Education. 4 Units.
Analysis of issues in education from interdisciplinary perspectives. Topics covered vary with interests of instructor.

Repeatability: Unlimited as topics vary.

EDUC 181A. Principles and Practices of Coaching Sports I. 4 Units.
Focuses on foundational theories and instructional practices in coaching sports from fourth grade to the collegiate level. Prepares students for the coach's mandatory state certification examination for high school sports in California.

EDUC 182. Latina/Latino Access and Persistence in Higher Education. 4 Units.
Introduction to how social, political, and economic forces impact on Latina/Latino racial/ethnic minorities with regard to their access and persistence in the U.S. higher education system. Investigates historical perspectives and theoretical underpinnings of college access and retention research.

Same as CHC/LAT 182.

EDUC 183. College Advising for High School Students. 4 Units.
Provides a brief introduction to college-access issues and in-depth understanding in the field of college advising. Students learn how to help high school students develop higher education plans and guide them through the college application process.

Same as CHC/LAT 184.

EDUC 185. Social Development in Education. 4 Units.
Examination of contextual, psychosocial, and biological factors contributing to the social development of children and adolescents. Theoretical perspectives, empirical findings, and methodological issues are emphasized. Implications of the scientific evidence for practical and policy decision-making surrounding development are discussed.

EDUC 190. Principles and Practices of K–6 After School Sports and Fitness. 4 Units.
Focuses on foundational theories and instructional practices in after-school sports and fitness for K–6 students. Includes a 20-hour field experience in an after-school setting.

EDUC 191. Advanced Fieldwork in After-School Education. 4 Units.
Capstone fieldwork experience for students seeking to earn the Department of Education-sponsored Certificate in After-School Education. Students are required to complete 50 or more hours of fieldwork and related assignments at an instructor-approved after-school program.

Prerequisite: EDUC 160.

EDUC 193. Directed Studies in Early Childhood Education. 2-4 Units.
Advanced study of early childhood education under the direction of a faculty member, coupled with a community-based practicum.

Repeatability: May be repeated for credit unlimited times.

EDUC 198. Directed Research in Education. 2-8 Units.
Individually or in small groups, students are exposed to or participate in work related to a faculty member's research. Students also attend a weekly seminar and complete a research paper or comparable project. Prerequisite: sophomore, junior, or senior standing.

Repeatability: May be taken for credit for 12 units.

Restriction: Sophomore only or Juniors only or Seniors only.

EDUC 199. Individual Study. 1-4 Units.
Intensified advanced study in areas in which a student has considerable background, under the direction of a faculty member who will guide and evaluate the study.

EDUC 201. Teachers' Lives and Policy Environment of Teaching. 4 Units.
Examines research and public perceptions about school-based educational processes, the influence of institutional structures and educational policy on the lives of teachers, and the challenges of school reform at the local and classroom level.

Restriction: Master of Arts in Teaching Program majors only.

EDUC 202. Outcomes of Schooling/Student Assessment. 4 Units.
Focuses on establishment of learning goals and assessment tools that are valid for all students, inform educational decisions, and promote educational success. Provides critical examination of different forms of assessment used in K–12 schools, including developmental assessments and appropriate interventions.

Restriction: Master of Arts in Teaching Program majors only.

EDUC 203. Advanced Concepts in Learning and Cognition. 4 Units.
Theories of cognition and their application to thinking and learning in school settings. Topics include memory, information processing, knowledge representation, problem solving, meta-cognition, and intelligence.

Prerequisite: EDUC 173.

Restriction: Master of Arts in Teaching Program majors only.

EDUC 205. Critical Assessment of Teaching Practice and Learning. 4 Units.
Student articulates a problem in instructional practice and uses research on cognition, assessment, and other tools to understand the problem. Capstone course emphasizes practices of teacher inquiry, reflection, and professional collaboration. Student's written analyses are evaluated as program's Comprehensive Examination.

Restriction: Master of Arts in Teaching Program students only.

EDUC 206. Design of Learning Environments for Teachers in Secondary School Subjects. 4 Units.
Research on comprehension, conceptual understanding, reasoning, critical thinking, and problem solving with applications to pedagogy in secondary school subjects. Required for M.A.T. single subject students, unless substitution of Education 207 is authorized.

EDUC 207. Cognition and Pedagogy in Quantitative Literacy. 4 Units.
Reviews research on cognition in elementary mathematics, including numeracy, fractions, probability, proportionality, measurement, geometry, algebra. Emphasizes instructional approaches consistent with this research knowledge. Required for M.A.T. multiple subjects students, unless substitution of Education 206 is authorized by the Department.

EDUC 208. Reading Development . 4 Units.
Course will focus on the language and literacy development of typically-developing native English-speaking students in the U.S. Students will learn about seminal and recent research in the field of reading development.

Restriction: Graduate students only.

EDUC 209. Vocabulary Learning and Academic Language. 4 Units.
Examines linguistic, developmental, psychometric, and neurological perspectives on word learning and semantics, paying particular attention to the relation between language development and reading, and features of academic language in content-specific texts.

Restriction: Graduate students only.

EDUC 210. Language, Literacy, and Discourse. 4 Units.
Introduces students to the interdisciplinary study of language, literacy, and discourse across historical and educational contexts. Addresses theories of how people learn, interact, and make meaning through a variety of semiotic resources, including oral communication, print, and digital media.

Restriction: Graduate students only.

EDUC 211. Writing Theory and Practice. 4 Units.
Offers an overview of histories, theories, and research in the field of composition studies from 1950 to the present. Addresses the influences of theory and research on teaching practice at K–12 and college levels.

Restriction: Graduate students only.

EDUC 212. Literacy and Technology. 4 Units.
Examines theoretical, historical, and contemporary relationships of technology and literacy. Topics include online communication, multimodality, video games, the use of technology for literacy instruction in schools, and research approaches for investigating literacy development with technology.

Restriction: Graduate students only.

EDUC 216. Language Learning with Digital Media. 4 Units.
Examines the use of new technologies in second and foreign language teaching. Considers historical and theoretical perspectives, current research, and future directions. Topics include online interaction, computer-assisted testing, corpora and concordancing, second language reading and writing, and affect and identity.

Restriction: Graduate students only.

EDUC 218. Special Topics in Language, Literacy, and Technology. 4 Units.
Advanced seminar designed to engage students in highly interactive examination of current issues in language, literacy, and technology. Topics and content will vary by quarter, depending upon research interests of the faculty and students.

Repeatability: May be taken for credit 10 times as topics vary.

Restriction: Graduate students only.

EDUC 220. Developing Adolescent Literacy. 4 Units.
Examines how adolescents leverage vocabulary knowledge, word-reading skills, background understanding, and knowledge of content-specific text features to master an increasing range of texts both independently and for subject-area learning.

Restriction: Graduate students only.

EDUC 222. Research Epistemologies and Methodologies. 4 Units.
Introduction to epistemological underpinnings of educational research and to a range of research methodologies in education. Includes examination of quantitative and qualitative studies through reading and analyzing contemporary research. Critique of selected research studies pertinent to educational practice and policy.

Restriction: Ed.D. Program students only.

EDUC 224. Social Development and Education. 4 Units.
Surveys the theory and empirical evidence concerning human social development from infancy to adolescence. Topics include studying how children conceptualize the social world, interact with caretakers, develop social relationships with peers, and how they impact student success.

Restriction: Graduate students only.

EDUC 225. Learning, Development, and Culture. 4 Units.
Explores issues of learning and development through a cultural lens. The interplay between culture and learning and culture and development is analyzed through the discussion of relevant readings from both psychological and anthropological research traditions.

Restriction: Graduate students only.

EDUC 229. Theories of Human Development. 4 Units.
Examines developmental theory as a guide for research and practice in education. The evolution of classical development theories and the emergence of new theoretical models are considered. Theoretical perspectives include ecological systems, life course, psychobiology, attachment, and social-cognitive theories.

Restriction: Graduate students only.

EDUC 235. Psychology of Reading Acquisition. 4 Units.
Surveys theory and empirical evidence concerning acquisition, cognitive processes, and consequences of skilled reading. Explores psychological models of skilled reading, how children acquire reading and writing skills in their home and second languages, cognitive consequences of acquiring literacy skills.

Restriction: Graduate students only.

EDUC 237. Teacher Thinking and Learning. 4 Units.
Recent research on teacher cognition, including what knowledge teachers bring to their work and how it is used in practice. Examines the nature and development of teachers' knowledge and the relationship between knowledge and practice.

Restriction: Graduate students only.

EDUC 238. Special Topics in Learning, Cognition, and Development. 4 Units.
An advanced seminar designed to engage students in highly interactive examination of current issues in learning, cognition, and development. Topics and content will vary by quarter, depending upon the research interests of the faculty and students.

Restriction: Graduate students only.

EDUC 240. Instructional Design and Education Technology. 4 Units.
Design of high-quality instructional units consistent with current theory and research in cognitive psychology and constructivist-compatible instructional practice and infused with appropriate uses of computer and video technologies. Students design a complete instructional unit using these principles.

Restriction: Master of Arts in Teaching Program students only.

EDUC 251. Educational Policy and Politics. 4 Units.
An in-depth study of topics relevant to educational reform and policy-making. Topics include: the policy-making process, the role of values and interest groups, policy analysis, equality of educational opportunity, systemic reform, implementation, and politics at the school site.

Restriction: Graduate students only.

EDUC 254. College Access and Persistence. 4 Units.
Introduction to how social, political, and economic forces impact college access and persistence in the U.S. higher education system. Investigates historical perspectives and theoretical underpinnings of college access and retention research and the link between K–12 schooling and postsecondary stratification.

Restriction: Graduate students only.

EDUC 255. Immigration and the New Second Generation. 4 Units.
Focuses on Asian, Latino, and Black children of immigrants. Investigates how today's second generation adapts, incorporates into the U.S. social structure, transforms the social and economic landscape. Explores assimilation, immigrant families/communities, language, racial/ethnic identities, gender, education, changing U.S. racial structure.

Restriction: Graduate students only.

EDUC 256. Critical Case Studies in Education. 4 Units.
Examines single and multiple case studies as a method for investigating educational theory, practice, and policy. Explores types of questions that can be answered with case study research and designs, data analysis techniques, format, and style of writing case studies.

Restriction: Graduate students only.

EDUC 257. Social Capital and Student Achievement. 4 Units.
Examines strategies that have proven successful in encouraging both high student achievement and a supportive school culture. Extended case studies are used to probe how interpersonal interactions at the school site can work to stimulate or discourage academic commitment.

Restriction: Graduate students only.

EDUC 258. Special Topics in Educational Policy and Social Context. 4 Units.
An advanced seminar designed to engage students in highly interactive examination of current issues in educational policy and social context. Topics and content will vary by quarter, depending upon the research interests of the faculty and students.

Repeatability: May be taken for credit 10 times.

Restriction: Graduate students only.

EDUC 259. Community Research and Action. 4 Units.
Introduces the theoretical underpinnings and research approaches of the field of Community Psychology. Project-based course focused on research and action in communities, organizations, and other extra-individual units (e.g., schools).

Restriction: Graduate students only.

EDUC 261. Social and Cultural Foundations of Education. 4 Units.
Provides a critical understanding of the social and cultural foundations of education through reproduction theory. Explores the unique ways in which culture and power intersect within schools and schooling systems to reproduce and resist educational inequality.

Restriction: Graduate students only.

EDUC 264. Economic Foundations of Education and Social Policy. 4 Units.
Beginning/intermediate microeconomics course provides students with an introduction to how economists think about household decision-making, markets, benefit-cost analysis, social policy issues in general and education policy in particular.

Restriction: Graduate students only.

EDUC 265. Applied Regression Analysis for Education and Social Research. 4 Units.
Provides students with a working knowledge of multiple regression and the statistical analysis of longitudinal data. Topics include a review of the OLS regression model, event-history methods, and various other techniques for analyzing longitudinal data.

Prerequisite: EDUC 288B.

Restriction: Graduate students only.

EDUC 266. Design of Learning Environments. 4 Units.
Theory and practice of designing innovative learning environments. New models of classroom interaction and technology use for new cognitive and social roles. Design cognition, and social learning theories and research methods for the design and enactment of learning environments.

Restriction: Graduate students only.

EDUC 267. Classsroom Research Methods. 4 Units.
Uses students' research problems as the basis for exploring methods—teacher and student observation, interview, case studies, think alouds. Intended for doctoral students with a specific research question and very good grounding in the literature related to their question.

Restriction: Graduate students only.

EDUC 268. Out-of-School Learning and Youth Development. 4 Units.
Examines theory, research, and policy concerning out-of-school time and youth development. Several out-of-school contexts are considered (e.g, unsupervised care, informal leisure activities, and organized activities). A range of developmental outcomes are considered (e.g., achievement, social-emotional competence, and physical health).

Restriction: Graduate students only.

EDUC 274. Studies of Professional and Staff Development. 2-4 Units.
Research and theory of effective strategies for professional and staff development. Topics include: adult learning as related to professional growth of teachers, staff development as vehicle for systemic reform, reforms to enhance teacher professionalization and empowerment.

Restriction: Doctoral students only.

EDUC 278. Experimental Designs in Educational Research. 4 Units.
Designed to enable students to think critically about experimental research, and to develop an understanding of how to design and conduct experiments. The overall goal is to prepare students to independently plan and implement an experimental research study.

Prerequisite: EDUC 222.

Restriction: Graduate students only.

EDUC 278B. Studies of Diversity and Inequality in Education. 4 Units.
Study of relationships between individual diversity, social inequality, and education. How differences in socioeconomic status, race, culture, and gender translate in the educational process and affect educational outcomes. Addresses issues such as educational access, social mobility, and social reproduction.

Restriction: Graduate students only.

EDUC 280. Research Methods. 2-8 Units.
Provides practitioners at advanced degree level with insight and leadership skills for working with increasingly diverse school populations. Content varies with interest of students and instructors. May focus on populations or broader content area such as education reform in California.

Repeatability: May be taken for credit 3 times.

Restriction: Doctoral Degree candidates only.

EDUC 281. Evaluation of Educational Programs. 4 Units.
Alternative approaches to formative and summative evaluation of educational programs. Standards for effective evaluations. Epistemological, political, and practical issues in designing and conducting evaluations. Students critique specific studies relevant to educational administration and policy-making and design an evaluation.

Restriction: Doctoral students only.

EDUC 282. Graduate Seminar in the History of the Philosophy of Education. 4 Units.
Draws upon results in the historical development of the philosophy of education from Plato, Quintillian, Augustine, Locke, Rousseau, to more contemporary thinkers such as Dewey, Freire, Egan, and Rorty.

Repeatability: May be repeated for credit unlimited times.

EDUC 283A. Qualitative Research Methods in Education I. 4 Units.
Introduces students to qualitative research methodologies and methods and explores strengths and challenges of this research tradition. Topics include logistical and ethical issues, reliability, validity and generalizability, and the role of reflexivity. Students will also engage in fieldwork.

Prerequisite: EDUC 222.

Restriction: Graduate students only.

EDUC 283B. Qualitative Research Methods in Education II. 4 Units.
Provides methods for conducting and analyzing qualitative research in educational settings. Topics include data collection, coding, representing qualitative data, and using software for qualitative data analysis.

Prerequisite: EDUC 283A.

Restriction: Graduate students only.

EDUC 285. Theories of Learning Cognition. 4 Units.
Overview of theories applicable to learning in schools and extracurricular contexts. Cognitive, psychometric, behavioral, and neuroscience perspectives are applied to such topics as memory, knowledge structures, problem solving, motivation, self-referent beliefs, expertise, assessment, and cognitive abilities, including intelligence.

Restriction: Graduate students only.

EDUC 286. Discourse Analysis. 4 Units.
Examines the methodological tradition of discourse analysis as it has been applied by researchers in language and literary education for both in and out-of-school settings.

Restriction: Graduate students only.

EDUC 287. Quantitative Data Analysis in Education Research and Evaluation. 4 Units.
Covers statistical aspects of survey-based evaluations and quantitative research in education. Includes sampling, coding open-ended information, data management, scale construction, statistical analysis, and presentation of findings. Students analyze data sets—a district-based evaluation and a national survey—using SPSS.

Prerequisite: EDUC 281.

EDUC 288A. Educational,Social, and Behavioral Statistics. 4 Units.
Designed for graduate students with previous course work in statistics, including experience with statistical software such as SPSS. The emphasis is on regression analysis and the general linear model. Students learn to analyze real data using Stata software.

Prerequisite: Prior coursework in statistics, and experience with statistical software such as SPSS.

Restriction: Graduate students only.

EDUC 288B. Structural Equation Modeling for Educ, Soc & Behavioral Analysis. 4 Units.
Rigorous introduction to structural equation modeling for students with strong prior course work in statistics. Topics include path diagrams, SEM with observed variables, factor analysis, SEM with latent variables. Maximum likelihood estimating, goodness-of-fit measures, nested models, related topics.

Prerequisite: EDUC 288A.

Restriction: Graduate students only.

EDUC 289. Use of Video in Educational Research. 4 Units.
Provides students with conceptual and methodological tools for using video in educational research. Students work with their own video data or with publicly accessible databases.

Restriction: Graduate students only.

EDUC 291. Hierarchical Linear Models for Education Research. 4 Units.
Descriptive and inferential analysis methods for education projects with nested data. Focuses on linear models that account for nesting of children in classrooms or schools or of repeated measures over time on the same individuals.

EDUC 295. Pre-Dissertation Research. 1-12 Units.
Independent study course taken under the direction of a faculty member who guides the student's research. May include guidance on data collection, methodology, human subjects protocol, conference presentation, scholarly publication, program benchmark activities.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

EDUC 296A. Professional Writing in Educational Research I. 2 Units.
First of a two-course series designed to extend students' knowledge of conducting and publishing educational research. Topics include the logic of research and how to effectively communicate research findings, with particular emphasis on proficient scientific writing.

EDUC 296B. Professional Writing in Educational Research II. 2 Units.
Second of a two-course series designed to extend students' knowledge of conducting and publishing educational research. Topics include the logic of research and how to effectively communicate research findings, with particular emphasis on proficient scientific writing.

EDUC 298. Independent Study. 1-8 Units.
Independent research on topics related to education.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EDUC 299. Dissertation Reserach. 1-12 Units.
Specifically designed for students researching and writing their dissertations.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Doctoral students only.

EDUC 302. Directed Secondary Field Experiences. 2 Units.
Field work experiences and seminars to provide introduction to the California Teaching Performance Expectations, including guidelines for professional expectations, observation and participation in classrooms, instructional planning, classroom management, and formative experiences and preparation for the State-mandated Teaching Performance Assessment.

Restriction: Teacher Credential Program student only.

EDUC 303. Learning to Learn from Teaching in Elementary Schools. 3 Units.
Preparation for elementary school teaching that provides analytic tools for observing and reflecting on instruction, examining how student thinking is demonstrated, understanding components of and relationships between the teaching and learning process and planning effective instruction including innovative teaching practices.

Restriction: Teacher Credential Program students only.

EDUC 304. Student Teaching in the Elementary Schools. 4-12 Units.
Student teaching seminars prepare candidates for assumption of classroom instructional responsibilities in accordance with State credentialing requirements. Four full days a week of student teaching in public school elementary classrooms in winter quarter and five full days in spring quarter.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 305. Learning to Learn from Teaching in Secondary Schools. 4 Units.
Analytic tools for (1) observing and reflecting on observed instruction; (2) examining student thinking and the relationship between teaching and learning; (3) understanding particular components of the teaching/learning process; and (4) planning effective instruction including innovative teaching practices.

Restriction: Teacher Credential Program students only.

EDUC 306. Supervised Teaching in Bilingual Education, Elementary. 4-12 Units.
Student teaching experiences in bilingual public school classrooms to include orientation, regular seminars, and preparation for bilingual classroom instructional responsibilities in accordance with State credentialing requirements and in conjunction with the public school calendar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Teacher Credential Program students only.

EDUC 307. Student Teaching in Intermediate/Secondary School. 2-16 Units.
Student teaching includes orientation, seminars, and preparation for and assumption of secondary school classroom instructional responsibilities in accordance with State credentialing requirements and in conjunction with public school calendar. Five full days a week in both winter and spring quarters.

Repeatability: May be taken for credit for 20 units.

Restriction: Teacher Credential Program students only.

EDUC 308. Performance Assessment for California Teachers, Multiple Subjects. 1 Unit.
Preparation and technical support for multiple subjects teacher candidates to complete State-required Teaching Performance Assessment for the California preliminary credential. Includes assistance in planning, teaching/videotaping, assessment and reflection, and document production.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 309. Supervised Teaching in Bilingual Education, Secondary. 4-12 Units.
Student teaching experiences in bilingual public school classrooms to include orientation, regular seminars, and preparation for bilingual classroom instructional responsibilities in accordance with State credentialing requirements and in conjunction with the public school calendar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Teaching Credential Program students only.

EDUC 310. Performance Assessment for California Teachers. 1 Unit.
Preparation and technical support for teacher candidates to complete the required Teaching Performance Assessment for California credential licensure. Structured support for planning, videotaping, and document production occurs in meetings scheduled to coincide with the timeline for the project.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 315. Learning to Learn from Teaching Practice. 4 Units.
Secondary curriculum and methodology, including instructional planning, teaching strategies, classroom management, evaluation, cultural and linguistic considerations and interpersonal skills. Application of these to fieldwork experience in preparation for teaching responsibilities assumed in secondary schools.

Restriction: Teacher Credential Program students only.

EDUC 317. Intern Teaching in the Secondary School: Single Subject Instruction. 4-16 Units.
A paid intern practicum (usually one year) cosponsored by an employing school district and the UCI Department of Education.

Repeatability: May be taken for credit for 36 units.

Restriction: Teacher Credential Program students only.

EDUC 319. Direct Field Experiences. 4 Units.
Observation, participation, and teaching in diverse public school classrooms. Application of theory and pedagogy in field work classrooms.

Restriction: Teacher Credential Program students only.

EDUC 321. Curriculum and Methods for Elementary School Social Studies. 3 Units.
Description, scope, sequence, and methods of teaching social studies and inquiry in grades K-8. Includes utilization of California State Framework for Teaching History/Social Science and addresses current aspects and trends in multicultural education.

Restriction: Teacher Credential Program Students only.

EDUC 322A. Curriculum and Methods for Elementary School Mathematics I. 4 Units.
Scope, sequence, and methods of teaching mathematics at all levels of elementary school. Presented through lectures, discussions, demonstrations, and exploration of a variety of materials. Covers how to plan lessons, motivate students, diagnose difficulties, and evaluate learning in mathematics.

Restriction: Teacher Credential Program students only.

EDUC 322B. Curriculum and Methods for Elementary School Mathematics II. 4 Units.
Part two of a course addressing pedagogical methods for elementary mathematics. Lectures, discussions, and exploration of instructional strategies and materials will support preservice teacher development in the critical areas of planning, instruction, and assessment for conceptual understanding in mathematics.

Restriction: Teacher Credential Program students only.

EDUC 323. Curriculum and Methods for Elementary School Science. 4 Units.
Prospective elementary teachers learn how to teach science in grades K-8. Covers States science requirements, a variety of teaching methods, criteria for selecting science curriculum materials, and how to plan science lessons, units, experiments, projects, and demonstrations.

Same as ECO EVO 323.

EDUC 324. Curriculum and Methods for Elementary School Language Arts Integrated with Social Studies. 4 Units.
An integrated approach to language arts and social studies instruction at the K–6 level based on California State English/Language Arts and Social Studies Frameworks and Standards. Focus on teaching content through literature and writing and providing access for all learners.

Restriction: Teacher Credential Program students only.

EDUC 325. Teaching the Visual and Performing Arts in Elementary School. 2 Units.
Introduction to the issues and practices, including student diversity, academic literacy, and interdisciplinary content, involved in integrating the California visual and performing arts curriculum framework and academic content standards with developmentally appropriate teaching strategies for the elementary classroom.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 326. Curriculum and Methods for Elementary School Reading. 4 Units.
Teaching an integrated reading/language arts program in the elementary classroom. Implementing theories, principles, and methods which are research and reality-based. Creating a child-centered, language-rich program to meet needs of children in multicultural/multilingual settings.

Restriction: Teacher Credential Program students only.

EDUC 329. Theories and Methods of English Language Development Applied to Elementary Students. 4 Units.
Theories and methods of English language development and instruction of English language learners, with focus on elementary students. Includes language acquisition theory, language and content, assessment strategies, and preparation of curricula and instruction for grades K–6 English language learners.

Restriction: Teacher Credential Program students only.

EDUC 331. Instructional Technology: Resources for the Multiple Subject Classroom. 3 Units.
Issues and techniques in uses of computer-based and media technologies in the multiple subject classroom: social implications and professional responsibilities; productivity tools to enhance student thinking skills; and strategies for instruction and management.

Restriction: Teacher Credential Program majors only.

EDUC 333. Health Principles and Practices for the Elementary Teacher. 1 Unit.
Methods for creating healthy environments for student learning in elementary schools. Introduction of California content standards and frameworks with appropriate pedagogy. Personal, family, school, community factors, and legal responsibilities of teachers. Academic, physical, emotional, and social well-being.

Grading Option: Satisfactory/unsatisfactory only.

EDUC 334. Literacy and Technology in the Secondary Classroom. 2 Units.
A view of literacy expanded beyond typological print, students learn: (1) strategies for incorporating, (2) tools for evaluating and selecting, and (3) learning theories for understanding how information and communication technologies and online resources contribute to general and disciplinary literacy.

Prerequisite: Limited to students accepted into the Teacher Credential Program

Restriction: Teacher Credential Program students only.

EDUC 336. Methods of Teaching Languages other than English in Secondary Schools. 4 Units.
Prepares future teachers of foreign language or primary/home language. Emphasizes hands-on, practical strategies for communication-based instruction and authentic assessment, in reading, writing, listening, speaking, and culture.

Restriction: Teacher Credential Program students only.

EDUC 337. Methods of Teaching Social Science in the Secondary School. 4 Units.
Theories, strategies, and methodologies related to the teaching of history and social science in the secondary school. Emphasis on the planning, delivery, and assessment of lessons reflecting an understanding of the History-Social Science Framework for California.

Restriction: Teacher Credential Program students only.

EDUC 338. Methods of Teaching English in the Secondary School. 2-4 Units.
Introduction to teaching reading, writing, and speaking skills in secondary school. Emphasis upon integrative approach to teaching literature, composition, and grammar consistent with the California State Framework. Practice in the design of lesson plans that are both integrated and cumulative.

Repeatability: May be taken for credit 2 times.

Restriction: Teacher Credential Program students only.

EDUC 339. Methods of Teaching Visual & Performing Arts in Secondary Schools. 4 Units.
Theory, curriculum, and strategies for teaching visual and performing arts in the secondary school. Emphasis on the planning, delivery, and assessment of lessons consistent with California State Framework and content standards.

Restriction: Teacher Credential program or M.A.T. program students only.

EDUC 340. Methods of Teaching Mathematics in Secondary School. 2-4 Units.
Theories, strategies, and methodologies related to the teaching of mathematics in the secondary school. Emphasis on the planning, delivery, and assessment of lessons reflecting an understanding of the Mathematics Framework for California and the recommendations of professional organizations.

Repeatability: May be taken for credit for 4 units.

Restriction: Teacher Credential Program students only.

EDUC 341. Teaching Science in Secondary School. 4 Units.
Prospective secondary science teachers learn how to teach science in grades 7-12. Covers State science requirements, a variety of teaching methods, criteria for selecting science curricular materials, and how to plan science lessons, units, experiments, projects, and demonstrations.

Same as ECO EVO 341.

Restriction: Teacher Credential Program students only.

EDUC 342. Applied Instructional Strategies in Secondary Schools. 4 Units.
Application of pedagogy and research to practice teaching experiences in the secondary schools. A continuation of the methodology course series with an emphasis on the needs of students with culturally diverse backgrounds.

Repeatability: May be taken for credit 2 times.

Overlaps with EDUC 342A, EDUC 342B.

Restriction: Teacher Credential Program students only. EDUC 342 and EDUC 342A-B may not both be taken for credit.

EDUC 342A. Applied Instructional Strategies in Secondary. 2 Units.
Application of pedagogy and research to practice teaching experiences in the secondary schools. A continuation of the methodology course series with an emphasis on the needs of students with culturally diverse backgrounds. Conducted in a five-week format.

Repeatability: May be taken for credit 2 times.

Overlaps with EDUC 342.

Restriction: Teacher Credential Program students only. EDUC 342 and EDUC 342A-B may not both be taken for credit.

EDUC 342B. Applied Instructional Strategies in Secondary. 2 Units.
Application of pedagogy and research to practice teaching experiences in the secondary schools. A continuation of the methodology course series with an emphasis on the needs of students with culturally diverse backgrounds. Conducted in a five-week format.

Repeatability: May be taken for credit 2 times.

Overlaps with EDUC 342.

Restriction: Teacher Credential Program students only. EDUC 342 and EDUC 342A-B may not both be taken for credit.

EDUC 344. Applied Instructional Strategies in Secondary School Sciences. 4 Units.
Application of pedagogy and research to practice science teaching experiences in the secondary schools. A continuation of the Education 340 series with an emphasis on the needs of students with culturally diverse backgrounds.

Repeatability: May be taken for credit 2 times.

Same as ECO EVO 344.

Restriction: Teacher Credential Program students only.

EDUC 345. Child Development and Educational Equity. 4 Units.
Explores theories of child development applied to teaching and learning in elementary schools. Attention is given to role of cultural norms in defining goals for child development and for educational practices and in creating equal learning opportunities for all children.

Restriction: Teacher Credential Program students only.

EDUC 346. Reading and Writing in Middle School and High School Classrooms. 4 Units.
Emphasis is placed upon understanding the literacy processes (listening, speaking, viewing, reading, and writing) as they relate to all Single Subject areas. Teachers are guided to integrate literacy-related strategies with curriculum-based goals supported in the California State Frameworks.

Restriction: Teacher Credential Program students only.

EDUC 347. Culture, Diversity, and Educational Equity . 4 Units.
Survey of the history of and social theories about the origins and consequences of U.S. racial, gender, and social inequality and the effects of poverty and racism on the educational opportunities and outcomes of minority groups in the United States.

Prerequisite: Limited to students accepted into the Teacher Credential Program.

EDUC 347A. Culture, Diversity, and Educational Equity. 2 Units.
Survey of the history of and social theories about the origins and consequences of U.S. racial, gender, and social inequality and the effects of poverty and racism on the educational opportunities and outcomes of minority groups in the United States.

Restriction: Teacher Credential Program students only.

EDUC 347B. Culture, Diversity, and Educational Equity. 2 Units.
Survey of the history of and social theories about the origins and consequences of U.S. racial, gender, and social inequality and the effects of poverty and racism on the educational opportunities and outcomes of minority groups in the United States.

Restriction: Teacher Credential Program students only.

EDUC 348. Theory and Methods of Instruction of Special Populations in General Classroom. 2 Units.
Knowledge, skills, and strategies to teach special populations in the general education classroom. Categories of disability and exceptionality. Legislation pertaining to the education of special populations. Role of general education teacher in special education process. Differentiated instruction and inclusive environments.

Restriction: Teacher Credential Program students only.

EDUC 349. Theories and Methods of English Language Development Applied to Secondary Students. 4 Units.
Theories and methods of English language development and instruction of English language learners, with focus on secondary students. Includes language acquisition theory, language and content, assessment strategies, and preparation of curricula and instruction for grades 7–12 English language learners.

Restriction: Teacher Credential Program students and M.A.T. students only.

EDUC 350. Adolescent Development in Education. 4 Units.
Secondary teachers must understand adolescent physical, cognitive, emotional, and social development, particularly how educators can promote healthy adjustment in their students. Focuses on why and how changes occur in each of these areas as children grow older.

Restriction: Teacher Credential Program students only.

EDUC 351. Instructional Technology: Resources for the Single Subject Classroom. 3 Units.
Issues and techniques in uses of computer based and media technologies in the single subject classroom: social implications and professional responsibilities; productivity tools to enhance student thinking skills; and strategies for instruction and management.

Restriction: Teacher Credential Program majors only.

EDUC 352. Creating a Supportive and Healthy Environment for Student Learning in the Secondary Classr. 2 Units.
Creation of healthy environments for student learning in secondary classrooms. Personal, family, school, community, environmental factors. Academic, physical, emotional, social well-being of students. Legal responsibilities of teachers related to student health, safety. Communication with family and use of community resources.

Restriction: Teaching Credential Program students only.

EDUC 398. Special Topics. 3 Units.
Meets induction and program planning requirements for students enrolled in Professional Administrative Services Credential. Also serves as final course in program, wherein the candidate, the University instructor, and a representative of the involved school district assess and evaluate candidate competency.

Repeatability: May be taken for credit 2 times.

Restriction: Professional Administrative Services Credential students only.

EDUC 399. University Teaching. 1-4 Units.
Limited to teaching assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

The Henry Samueli School of Engineering

Gregory Washington, **Dean**

5200 Engineering Hall
Undergraduate Counseling: 949-824-4334
Graduate Counseling: 949-824-8090
http://www.eng.uci.edu/

Overview

The academic mission of The Henry Samueli School of Engineering has been developed to be consistent with the missions and goals set for it by the State of California, the University of California, and the University of California, Irvine (UCI) campus. Specifically, the academic mission of the School is to educate students, at all levels, to be the best engineers and leaders in the nation and world by engaging them in a stimulating community dedicated to the discovery of knowledge, creation of new technologies, and service to society.

The individual engineering and related programs have published program objectives that are consistent with the missions and goals of the University of California, UCI, and The Henry Samueli School of Engineering.

The School offers undergraduate majors in Aerospace Engineering (AE), Biomedical Engineering (BME), Biomedical Engineering: Premedical (BMEP), Chemical Engineering (ChE), Civil Engineering (CE), Computer Engineering (CpE), Computer Science and Engineering (CSE, a jointly administered program with the Donald Bren School of Information and Computer Sciences), Electrical Engineering (EE), Engineering (a general program, GE), Environmental Engineering (EnE), Materials Science Engineering (MSE), and Mechanical Engineering (ME). The undergraduate majors in Aerospace, Biomedical, Chemical, Civil, Computer, Computer Science and Engineering, Electrical, Environmental, Materials Science, and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org), http://www.abet.org; Computer Science and Engineering (CSE) is also accredited by the Computing Accreditation Commission of ABET (http://www.abet.org), http://www.abet.org. The undergraduate major in Biomedical Engineering: Premedical (BMEP) is not designed to be accredited, therefore is not accredited by ABET.

Aerospace Engineering considers the flight characteristics, performance, and design of aircraft and spacecraft. An upper-division series of courses in aerodynamics, propulsion, structures, and control follows a common core with Mechanical Engineering. The skills acquired in those courses are integrated in the capstone aerospace design course. The intent of the program is to produce highly proficient engineers who can tackle the aerospace engineering challenges of the future.

Biomedical Engineering applies engineering principles to solve complex medical problems and focuses at improving the quality of health care by advancing technology and reducing costs. Examples include advanced biomedical imaging systems, the design of microscale diagnostic systems, drug delivery systems, and tissue engineering. Specializations are available that focus student's technical expertise on biophotonics or biomems.

Biomedical Engineering: Premedical shares introductory engineering courses with Biomedical Engineering, but replaces senior engineering laboratories and design courses with biology and organic chemistry courses required by medical schools for admission. The intent of the program is to produce students with a basic engineering background who are qualified to enter medical school.

Chemical Engineering applies the knowledge of chemistry, mathematics, physics, biology, and humanities to solve societal problems in areas such as energy, health, the environment, food, textiles, shelter, semiconductors, and homeland security. Employment opportunities exist in various industries such as chemical, petroleum, polymer, pharmaceutical, food, textile, fuel, consumer products, and semiconductor, as well as in local, state, and federal governments.

Civil Engineering addresses the challenges of large-scale engineering projects of importance to society as a whole, such as water distribution, transportation, and building design. Specializations are provided in General Civil Engineering, Environmental Hydrology and Water Resources, Structural Engineering, and Transportation Systems Engineering.

Computer Engineering addresses the design and analysis of digital computers, including both software and hardware. Computer design includes topics such as computer architecture, VLSI circuits, data base, software engineering, design automation, system software, and data structures and algorithms. Courses include programming in high-level languages such as Python, Java, C, C++; use of software packages for analysis and design; design of system software such as operating systems and hardware/software interfaces; application of computers in solving engineering problems, and laboratories in both hardware and software experiences.

Computer Science and Engineering is designed to provide students with the fundamentals of computer science, both hardware and software, and the application of engineering concepts, techniques, and methods to both computer systems engineering and software system design. The program gives students access to multidisciplinary problems in engineering with a focus on total systems engineering. Students learn the computer science principles that are critical to development of software, hardware, and networking of computer systems. From that background, engineering concepts and methods are added to give students exposure to circuit design, network design, and digital signal processing. Elements of engineering practice include systems view, manufacturing and economic issues, and multidisciplinary engineering applications. The program is administered jointly by the Department of

Electrical Engineering and Computer Science in The Henry Samueli School of Engineering and by the Department of Computer Science in the Donald Bren School of Information and Computer Sciences.

Electrical Engineering is one of the major contributors to the modernization of our society. Many of the most basic and pervasive products and services are either based on or related to the scientific and engineering principles taught at the Department of Electrical Engineering and Computer Science. Students specialize in Electronic Circuit Design; Semiconductors and Optoelectronics; RF, Antennas and Microwaves; Digital Signal Processing; or Communications.

The major in **Engineering** is a special program of study for upper-division students who wish to combine the study of engineering principles with other areas such as the physical and biological sciences, social and behavioral science, humanities, and arts. Students may construct their own specialization. Click on the "Undergraduate Study" tab above for information about this major.

Environmental Engineering concerns the development of strategies to control and minimize pollutant emissions, to treat waste, and to remediate polluted natural systems. Emphasis areas include air quality and combustion, water quality, and water resources engineering.

Materials Science Engineering is concerned with the generation and application of knowledge relating the composition, structure, and synthesis of materials to their properties and applications. During the past two decades, Materials Science Engineering has become an indispensable component of modern engineering education, partly because of the crucial role materials play in national defense, the quality of life, and the economic security and competitiveness of the nation; and partly because the selection of materials has increasingly become an integral part of almost every modern engineering design. Emphasis in the Materials Science Engineering curriculum is placed on the synthesis, characterization, and properties of advanced functional materials; analysis, selection, and design related to the use of materials; the application of computers to materials problems; and the presence of an interdisciplinary theme that allows a qualified student to combine any engineering major with the Materials Science Engineering major.

Mechanical Engineering considers the design, control, and motive power of fluid, thermal, and mechanical systems ranging from microelectronics to spacecraft to the human body. Specializations allow students to focus their technical electives in the areas of Aerospace Engineering, Energy Systems and Environmental Engineering, Flow Physics and Propulsion Systems, and Design of Mechanical Systems.

The School offers M.S. and Ph.D. degrees in Biomedical Engineering; Chemical and Biochemical Engineering; Civil Engineering; Electrical and Computer Engineering, with concentrations in Computer Engineering and Electrical Engineering; Engineering, with concentrations in Environmental Engineering, and Materials and Manufacturing Technology; Materials Science and Engineering; and Mechanical and Aerospace Engineering. Specialized research opportunities are available within each of these programs. In Biomedical Engineering, areas of research include micro/nanoscale biomedical devices for diagnostics and therapeutics, biophotonics, systems/synthetic bioengineering, tissue/organ engineering, cardiovascular engineering, cancer biotechnology, and neuroengineering. Bioreaction and bioreactor engineering, recombinant cell technology, and bioseparation processes are research areas in Biochemical Engineering. In Civil Engineering, research opportunities are provided in structural/earthquake engineering, reliability engineering, transportation systems engineering, environmental engineering, and water resources. Research opportunities in Electrical and Computer Engineering are available in the areas of parallel and distributed computer systems, VLSI design, computer architecture, image and signal processing, communications, control systems, and optical and solid-state devices. Research in combustion and propulsion sciences, laser diagnostics, supersonic flow, direct numerical simulation, computer-aided design, robotics, control theory, parameter identification, material processing, electron microscopy, and ceramic engineering are all available in Mechanical and Aerospace Engineering. The School also offers the M.S. degree in Engineering Management, a joint degree program with the Paul Merage School of Business; and the M.S. degree in Biotechnology Management, a joint degree program with the Francisco J. Ayala School of Biological Sciences and The Paul Merage School of Business.

Additional publications describing undergraduate and graduate academic study and research opportunities are available through The Henry Samueli School of Engineering, and the Departments of Biomedical Engineering, Chemical Engineering and Materials Science, Civil and Environmental Engineering, Electrical Engineering and Computer Science, and Mechanical and Aerospace Engineering.

Degrees

Aerospace Engineering	B.S.
Biomedical Engineering	B.S., M.S., Ph.D.
Biomedical Engineering: Premedical	B.S.
Biotechnology Management[1]	M.S.
Chemical and Biochemical Engineering	M.S., Ph.D.
Chemical Engineering	B.S.
Civil Engineering	B.S., M.S., Ph.D.
Computer Science and Engineering[2]	B.S.
Computer Engineering	B.S.
Electrical and Computer Engineering	M.S., Ph.D.
Electrical Engineering	B.S.
Engineering	B.S., M.S., Ph.D.
Engineering Management[3]	M.S.

Environmental Engineering	B.S.
Materials Science and Engineering	M.S., Ph.D.
Materials Science Engineering	B.S.
Mechanical and Aerospace Engineering	M.S., Ph.D.
Mechanical Engineering	B.S.
Networked Systems[2]	M.S., Ph.D.

1 Offered jointly with Franciscso J. Ayala School of Biological Sciences and The Paul Merage School of Business. See Franciscso J. Ayala School of Biological Sciences (p. 289) section of the *Catalogue* for information.

2 Offered jointly with the Donald Bren School of Information and Computer Sciences. See the Interdisciplinary Studies (p. 1102) section of the *Catalogue* for information.

3 Offered jointly with The Paul Merage School of Business.

Undergraduate Study

Student Affairs Office
305 Rockwell Engineering Center; 949-824-4334
John LaRue, **Associate Dean for Undergraduate Student Affairs**

- Admissions (p. 468)
- School Requirements (p. 469)
- General Undergraduate Major in Engineering (p. 474)

Planning a Program of Study

Advising

Academic advising is available from academic counselors and peer advisors in the School's Student Affairs Office, 305 Rockwell Engineering Center, and from faculty advisors. *Students must realize, however, that ultimately they alone are responsible for the planning of their own program and for satisfactory completion of the graduation requirements.* Students are encouraged to consult with the academic counselors in the Engineering Student Affairs Office whenever they desire to change their program of study. All Engineering majors are required to meet with their faculty advisor at least once each year.

Some engineering students will need *more than four years* to obtain their B.S. degree, particularly if part-time employment or extracurricular activities make heavy demands on their time. Normally, such students can stay on track, and are encouraged to do so, by enrolling in summer sessions at UCI or at other institutions when a petition has been approved in advance.

High-achieving students may declare a second major. Early consultation with the School is advisable.

Required courses may be replaced by other courses of equivalent content if the student substantiates the merits of the courses in the program of study and obtains prior approval from faculty in the School.

Students should be aware that most Engineering courses require the completion of prerequisites. The sample programs shown in each departmental description constitute preferred sequences which take into account all prerequisites.

School policy does not permit the deletion of Engineering courses after the second week or addition of Engineering courses after the third week of the quarter without the Associate Dean's approval.

Undergraduate students who have high academic standing, who have completed the necessary prerequisites, and who have obtained permission from the School may qualify to take certain graduate-level courses.

Students are required to complete UCI's lower-division writing requirement (see the Requirements for a Bachelor's Degree section) during the first two years. Thereafter, proficiency in writing and computing (using a higher-level language such as Python, C, C++, Java, or MATLAB) is expected in all Engineering courses.

The Pass/Not Pass option is available to encourage students to enroll in courses outside their major field. Pass/Not Pass option cannot be used to satisfy specific course requirements of the students school and major. Students must take courses to fulfill the UC Entry Level Writing requirement for a grade. For more complete information, see the Academic Regulations and Procedures (p. 109) section of this *Catalogue*.

Admissions

The sequential nature of the Engineering program and the fact that many courses are offered only once a year make it beneficial for students to begin their studies in the fall quarter. Applicants wishing to be admitted for the fall quarter, 2015, must have submitted their completed application forms during the priority filing period (November 1–30, 2014).

High school students wishing to enter the UCI Engineering program must have completed four years of mathematics through pre-calculus or math analysis and are advised to have completed one year each of physics and chemistry. That preparation, along with honors courses and advanced placement courses, is fundamental to success in the Engineering program and is vital to receiving first consideration for admittance to an Engineering major during periods of restricted enrollments. Students applying for admission for fall quarter should complete their examination requirements during May or June of their junior year or during their senior year, but no later than the December test date. (Typically, this means that students will take the SAT Reasoning Test or the ACT Plus Writing Test in October or November. Applicants are strongly encouraged to take the Math Level 2 SAT Subject Test and a science test, e.g. Biology E/M, Chemistry or Physics that is closely related to the applicant's intended major in November or December.) Applicants must apply for admission to a specific Engineering major or Engineering Undeclared.

If enrollment limitations make it necessary, unaccommodated Engineering applicants may be offered alternative majors at UCI.

Transfer students may be admitted to The Henry Samueli School of Engineering either from another major at UCI or from another college or university. A student seeking admission to The Henry Samueli School of Engineering from colleges and schools other than UCI must satisfy University requirements for admission with advanced standing and should complete appropriate prerequisites for their major of choice. It is to the student's advantage to complete the Intersegmental General Education Transfer Curriculum (IGETC) or UCI general education and lower-division requirements prior to transfer. Since requirements vary from major to major, those contemplating admission with advanced standing to the School should consult each Department's *Catalogue* section and the UCI Office of Admissions and Relations with Schools, (949) 824-6703, for the specific requirements of each program. All transfer students should arrange for early consultation with The Henry Samueli School of Engineering Student Affairs Office at 949-824-4334.

Change of Major: Students who wish to change their major to one offered by the School should contact the Engineering Student Affairs Office for information about change-of-major requirements, procedures, and policies. Information is also available at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Proficiency Examinations

A student may take a course by examination with the approval of the faculty member in charge of the course and the Dean of the School. Normally, ability will be demonstrated by a written or oral examination; if a portion of the capability involves laboratory exercises, the student may be required to perform experiments as well. The proficiency examination is not available for any course a student has completed at UCI.

Concentration: Engineering and Computer Science in the Global Context

The globalization of the marketplace for information technology services and products makes it likely that The Henry Samueli School of Engineering graduates will work in multicultural settings or be employed by companies with extensive international operations, or customer bases. The goal of the concentration is to help students develop and integrate knowledge of the history, language, and culture of a country or geographic region outside the United States, through course work both at UCI and an international host campus, followed by a technology-related internship in the host country.

All of The Henry Samueli School of Engineering majors in good standing may propose an academic plan that demonstrates the ability to complete the concentration (a minimum of eight courses) and other requirements for graduation in a reasonable time frame. It is expected that a student's proposal will reflect a high degree of planning that includes the guidance of academic counselors and those at the UCI Study Abroad Center regarding course selection, as well as considerations related to internship opportunities, housing, and financial aid. Each student's proposed program of study must be approved by the Associate Dean for Student Affairs in The Henry Samueli School of Engineering. The Associate Dean will be available to assist qualified students with the development of a satisfactory academic plan, as needed.

The concentration consists of the following components:

1. A minimum of eight courses at UCI or at the international campus with an emphasis on the culture, language (if applicable and necessary), history, literature of the country that corresponds to the international portion of the program, international law, international labor policy, global issues, global institutions, global conflict and negotiation, and global economics;
2. A one- or two-semester sequence of technical courses related to the major and, possibly, culture, history, and literature courses taken at an international university;
3. A two-month or longer technical internship experience in the same country as the international educational experience.

More information about the requirements for the concentration is available in The Henry Samueli School of Engineering Student Affairs Office.

The concentration in Engineering and Computer Science in the Global Context is open to students in Aerospace Engineering, Biomedical Engineering, Biomedical Engineering: Premedical, Chemical Engineering, Civil Engineering, Computer Engineering, Engineering (General), Electrical Engineering, Environmental Engineering, Materials Science Engineering, and Mechanical Engineering.

Requirements for the Bachelor's Degree

All students in The Henry Samueli School of Engineering must fulfill the following requirements.

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements:

The following are minimum subject-matter requirements for graduation:

Mathematics and Basic Science Courses: Students must complete a minimum of 48 units of college-level mathematics and basic sciences.

Engineering Topics Courses: Students must complete a minimum of 72 units of engineering topics. *Engineering topics* are defined as courses with applied content relevant to the field of engineering.

Design Units: All undergraduate Engineering courses indicate both a total and a design unit value. Design unit values are listed at the end of the course description. Each student is responsible for the inclusion of courses whose design units total that required by the program of study.

The Academic Plan and Advising Requirements to remain affiliated with The Henry Samueli School of Engineering: All students enrolled in The Henry Samueli School of Engineering are required to meet annually with their designated faculty for advising and mentoring and to have an academic plan on file with the Student Affairs Office which has been approved by their academic counselor. Students who do not have a plan on file, or deviate from this plan without approval from an academic counselor will be subject to probation. Students on probation for two consecutive quarters who do not have a plan on file, or deviate from this plan without approval from an academic counselor will be subject to disqualification. Students who fail to meet with a faculty advisor each year will be subject to disqualification.

Duplication of Subject Material: Students who take courses which involve considerable duplication of subject material may not receive full graduation credit for all units thus completed.

Residence Requirement: In addition to the University residence requirement, at least 36 upper-division engineering units specified by each major must be completed successfully at the University of California.

Variations: Variations from the general School degree requirements may be made subject to the approval of the faculty of the School. Students wishing to obtain variances should submit petitions to the School's Student Affairs Office.

Engineering Gateway Freshman-Year Curriculum

Students who know that they want to major in engineering but who are unsure of the specific major should apply for the Engineering Gateway Curriculum and follow the Sample Engineering Gateway Curriculum. Students following the Engineering Gateway Curriculum are required to meet with an academic advisor every quarter and are strongly encouraged to declare a major as soon as possible and then follow the appropriate sample program of study for that major.

Sample Engineering Gateway Curriculum - Freshman [1]

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
ENGR 7A	ENGR 7B	PHYSICS 7D
ENGR 1A	CHEM 1B	PHYSICS 7LD
or	PHYSICS 7C	Select one of the following:
CHEM 1A	PHYSICS 7LC	CHEM 1C and CHEM 1LC
Select one of the following:		General Education
EECS 10		
EECS 12		
ENGRMAE 10		
ENGRCEE 20		
CSE 42[2]		

1 Students who choose to major in Biomedical Engineering or Biomedical Engineering: Premedical should enroll in BME 1 in the fall quarter of the sophomore year. Students who choose to major in Computer Engineering should enroll in EECS 20 by the spring or summer quarter preceding their sophomore year.

2 Students who are considering the Computer Science and Engineering major should enroll in CSE 42.

Students who choose certain majors during the first year may replace Chemistry courses with required major courses.

Students should choose a major by the end of the spring quarter of their freshman year or earlier. Some modification in the program of study might be appropriate if the student chooses a major before the end of the freshman year. In any case, when the major is chosen, the student must meet immediately with an academic counselor to plan the program of study.

Undergraduate Programs

Specific information about courses fulfilling School and major requirements can be found in the department sections. Note that some majors require more units than the School requirements.

Aerospace Engineering (p. 598)
Biomedical Engineering (p. 488)
Biomedical Engineering: Premedical (p. 488)
Chemical Engineering (p. 508)
Civil Engineering (p. 534)
Computer Engineering (p. 564)
Computer Science and Engineering (p. 1102)
Electrical Engineering (p. 564)
Engineering (p. 474)
Environmental Engineering (p. 534)
Materials Science Engineering (p. 508)
Mechanical Engineering (p. 598)

Minors of Interest to Engineers

Minor in Earth and Atmospheric Sciences

The minor in Earth and Atmospheric Sciences focuses on the application of physical, chemical, and biological principles to understanding the complex interactions of the atmosphere, ocean, and land through climate and biogeochemical cycles. See the Department of Earth System Science (p. 1320) in the School of Physical Sciences section of this *Catalogue* for more information.

Minor in Global Sustainability

The interdisciplinary minor in Global Sustainability trains students to understand the changes that need to be made in order for the human population to live in a sustainable relationship with the resources available on this planet. See the Interdisciplinary Studies (p. 1095) section of this *Catalogue* for more information.

Career Advising

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center section for additional information. In addition, special career planning events are held throughout the year including an annual Career Fair. Individual career counseling is available, and students have access to the Career Library which contains information on graduate and professional schools in engineering, as well as general career information.

Honors

Graduation with Honors. Undergraduate honors at graduation in The Henry Samueli School of Engineering are computed by using 50 percent of the overall UCI GPA and 50 percent of the upper-division Engineering GPA. (Engineering E190 is not used in the calculation of the upper-division GPA.) A general criterion is that students must have completed at least 72 units in residence at a University of California campus. Approximately 1 percent of the graduating class shall be awarded *summa cum laude,* 3 percent *magna cum laude,* and 8 percent *cum laude,* with no more than 12 percent being awarded honors. Other important factors are considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext).

Dean's Honor List. The quarterly Dean's Honor List is composed of students who have received a 3.5 GPA while carrying a minimum of 12 graded units.

Gregory Bogaczyk Memorial Scholarship. This scholarship was established in memory of Gregory Bogaczyk, a former UCI Mechanical Engineering student, and is contributed by the Bogaczyk family and friends. An award is given each year to a junior or senior Mechanical Engineering student.

Haggai Memorial Endowed Scholarship. This memorial fund was established in honor of Ted Haggai, an electrical engineer. This scholarship is awarded to an outstanding senior electrical engineering student and member of Tau Beta Pi. Primary consideration will be given to members of Tau Beta Pi who have contributed outstanding service to both UCI and The Henry Samueli School of Engineering.

Christine Jones Memorial Scholarship. This scholarship was established in memory of Christine Jones, an Electrical Engineering graduate, Class of 1989. The primary focus of this scholarship is to provide financial support to a female undergraduate student in The Henry Samueli School of Engineering.

Deborah and Peter Pardoen Memorial Scholarship. This scholarship is awarded each year to a graduating senior in Mechanical Engineering or in Aerospace Engineering. The scholarship is based on outstanding service to The Henry Samueli School of Engineering and the community.

Henry Samueli Endowed Scholarship. This premier scholarship, established by Henry Samueli, is awarded to outstanding freshmen and transfer students in The Henry Samueli School of Engineering. Recipients are chosen by the School based on their academic excellence. The award is renewable up to four years for freshmen and up to two years for transfer students.

Additional awards in other categories are made throughout the academic year.

Center for Opportunities and Diversity in Engineering

305 Rockwell Engineering Center; (949-824-4334
Robin Jeffers, **Director**

The Center for Opportunities and Diversity in Engineering (CODE) houses a comprehensive recruitment, retention, and placement program in The Henry Samueli School of Engineering which attempts to provide academic support and professional development to students from backgrounds which have traditionally had limited access to the engineering profession. Services provided include advisement, tutoring, study rooms, notification of research opportunities, fellowships, guest speakers, and employment opportunities. At the core of its activity is the focus on community building, and students are encouraged to bond around their common interests and goals.

Special Programs and Courses

Campuswide Honors Program

The Campuswide Honors Program is available to selected high-achieving students from all academic majors from their freshman through senior years. For more information contact the Campuswide Honors Program, 1200 Student Services II; (949) 824-5461; honors@uci.edu; or visit the Campuswide Honors Program (http://www.honors.uci.edu) website.

Engineering 199

Every undergraduate student in The Henry Samueli School of Engineering has the opportunity to pursue independent research under the direct supervision of a professor in the School. Interested students should consult with a faculty member to discuss the proposed research project. If the project is agreed upon, the student must fill out a 199 Proposal Form and submit it to the Engineering Student Affairs Office.

Undergraduate Research Opportunities Program

The Undergraduate Research Opportunities Program (UROP) encourages and facilitates research and creative activities by undergraduates. Research opportunities are available not only from every discipline, interdisciplinary program, and school, but also from many outside agencies, including national laboratories, industrial partners, and other universities. UROP offers assistance to students and faculty through all phases of the research activity: proposal writing, developing research plans, resource support, conducting the research and analyzing data, and presenting results of the research at the annual spring UCI Undergraduate Research Symposium. Calls for proposals are issued in the fall and spring quarters. Projects supported by UROP may be done at any time during the academic year and/or summer, and the research performed must meet established academic standards and emphasize interaction between the student and the faculty supervisor. In addition, all students participating in faculty-guided research activities are welcome to submit their research papers for faculty review and possible publication in the annual *UCI Undergraduate Research Journal.* For more information, contact the UROP Office, 1100 Student Services II; (949) 824-4189; urop@uci.edu; or visit the Undergraduate Research Opportunities Program (http://www.urop.uci.edu) website.

Accelerated M.S. or Ph.D. Status Program in The Henry Samueli School of Engineering

Exceptionally promising UCI undergraduate Engineering students may, during their junior or senior year, petition for streamlined admissions into a graduate program within The Henry Samueli School of Engineering. Accelerated M.S. Status would allow a student to petition for exemption from UCI's Graduate Record Examination (GRE) requirement for graduate school admission. (The exemption applies only to current UCI students applying for admission to one of the M.S. programs in The Henry Samueli School of Engineering; other graduate schools may still require the GRE.) A current UCI undergraduate student whose ultimate goal is a Ph.D. may apply for Accelerated Status, however, a GRE score must be submitted.

Accelerated Status applicants would in all other ways be evaluated in the same manner as other applicants to the School's graduate programs. Occasionally, a candidate for Accelerated Status may be required by the faculty to submit GRE scores in support of the graduate application.

Students who successfully petition for Accelerated Status, upon matriculation to the graduate degree program, may petition to credit toward the M.S. degree up to 18 units (with a grade of B or better) of graduate-level course work completed in excess of requirements for the UCI bachelor's degree.

Visit the UCI Undergraduate Accelerated Status (http://www.eng.uci.edu/grad/services/accelerated) website for more detailed information about this program and its eligibility requirements.

UC Education Abroad Program

Upper-division and graduate Engineering students may participate in a number of programs which offer unique opportunities for education and training abroad. The University's Education Abroad Program (UCEAP) offers engineering course work for UCI academic credit at a number of universities. Some of the UCEAP-affiliated engineering schools require proficiency in the host country's language, while others are English speaking. Study abroad may postpone the student's graduation for one or two quarters, depending primarily on the student's language preparation (which can begin in the freshman

year), but the added experience can add to the student's maturity and professional competence. UCEAP students pay regular UCI fees and tuition and keep any scholarships they may have. Visit the Study Abroad Center (http://www.studyabroad.uci.edu) website for additional information.

Student Participation and Organizations

Faculty and committee meetings (except those involving personnel considerations) are open meetings; in addition to designated student representatives, all students are encouraged and expected to participate in the development of School policy. Student evaluation of the quality of instruction for each course is requested each quarter.

Engineering students may join any of a number of student organizations. Most of these organizations are professionally oriented and in many instances are local chapters of national engineering societies. A primary function of these groups is to provide regular technical and social meetings for students with common interests. Most of the groups also participate in the annual Engineering Week activities and in other School functions.

Associated General Contractors (AGC). A student chapter of the national organization, ACG at UCI is an academic engineering club for students interested in the construction field.

American Indian Science & Engineering Society (AISES). The mission of AISES is to increase the representation of American Indians in engineering, science, and technology. Chapters emphasize education as a tool that will facilitate personal and professional growth opportunities through mentor programs, leadership training, scholarships, conferences, and summer job opportunities.

American Institute of Aeronautics and Astronautics (AIAA). The AIAA is a technical society of 40,000 professional and student members devoted to science and engineering in the field of aerospace. The local chapter's primary activities include seminars, tours of industries, and mentoring for students by professional members.

American Institute of Chemical Engineers (AIChE). AIChE, a student chapter of the national organization, provides Chemical Engineering majors with the opportunity to interact with faculty and professionals in the field.

American Society for Civil Engineers (ASCE). One of the larger engineering clubs, ASCE at UCI is a student chapter of the national organization. The ASCE focuses its efforts on interactions with professional engineers, sponsorship of Engineering Week activities, and participation in the annual ASCE Southwest Conference.

American Society for Materials (ASM). The student chapter of ASM at UCI provides the opportunity for Materials Science Engineering (MSE) students to meet engineers and scientists from local industry, attend seminars organized by the Orange Coast Chapter of ASM International, and organize discussion sessions that focus on progress and advances in the MSE field and that promote interactions between MSE students and materials faculty.

American Society of Mechanical Engineers (ASME). The student chapter of ASME at UCI provides the opportunity for Mechanical Engineering majors to meet with professors, organize social events, and participate in events and competitions supported by the ASME national organization.

Biomedical Engineering Society. The student chapter of BMES at UCI is an academic club for students in the field of Biomedical Engineering.

Chi Epsilon. This organization is a national engineering honor society which is dedicated to the purpose of promoting and maintaining the status of civil engineering as an ideal profession. Chi Epsilon was organized to recognize the characteristics of the individual that are fundamental to the successful pursuit of an engineering career.

Electric Vehicle Association/UCI (EVA/UCI). EVA/UCI gives students an opportunity for hands-on work on electric car conversions coupled with design experience.

Engineering Student Council (ESC). The ESC is the umbrella organization that provides a voice for all Engineering student chapters. A significant activity of the Council is organizing UCI's annual Engineering Week celebration.

Engineers Without Borders (EWB). This humanitarian organization combines travel with the idea that engineers can play an instrumental role in addressing the world's assorted challenges. Through the implementation of equitable, economical, and sustainable engineering projects, EWB-UCI works to improve quality of life within developing communities abroad.

Eta Kappa Nu. A student chapter of the National Electrical Engineering Honor Society, Eta Kappa Nu's purpose is to promote creative interaction between electrical engineers and give them the opportunity to express themselves uniquely and innovatively to project the profession in the best possible manner.

Filipinos Unifying Student-Engineers in an Organized Network (FUSION). Fusion is the merging of diverse, distinct, or separate elements into a unified whole. The mission of FUSION is to promote the academic and professional development of student engineers by providing an organized network of support.

Institute of Electrical and Electronic Engineers (IEEE). A student chapter of a multinational organization, IEEE at UCI encompasses academic, professional, and social activities.

Institute of Transportation Engineers (ITE). ITE is a student chapter of a national group of transportation engineering professionals. Offering opportunities to meet both professionals and other students, ITE focuses its activities on an annual project with practical applications.

Mexican-American Engineers and Scientists (MAES). Open to all students, MAES is a student and professional organization with the purpose of aiding students in their academic, professional, and social endeavors.

National Society of Black Engineers (NSBE). The NSBE, with almost 6,000 members, is one of the largest student-managed organizations in the country. The Society is dedicated to the realization of a better tomorrow through the development of intensive programs to increase the recruitment, retention, and successful graduation of underrepresented students in engineering and other technical majors.

Omega Chi Epsilon. The student chapter of the National Chemical Engineering Honor Society aims to recognize and promote high scholarship, original investigation, and professional service in chemical engineering.

Phi Sigma Rho. This national sorority is open to women who are in engineering and engineering technology majors. Its purpose is to provide social opportunities, promote academic excellence, and provide encouragement and friendship.

Pi Tau Sigma. The mechanical engineering honor society, Pi Tau Sigma, is committed to recognizing those of high achievement. The goal of the organization is to promote excellence in academic, professional, and social activities.

Sigma Gamma Tau. The aerospace engineering honor society, Sigma Gamma Tau, is committed to recognizing those of high achievement. The goal of the organization is to promote excellence in academic, professional, and social activities.

Society of Hispanic Professional Engineers (SHPE). SHPE is both a student and professional organization. The UCI SHPE chapter works to recruit, retain, and graduate Latino engineers by providing a comprehensive program which includes high school visitations, coordinated study sessions, and industry speakers and tours. At the professional level there are opportunities for career positions and scholarships for members who are enrolled in undergraduate and graduate engineering and computer science programs.

Society of Automotive Engineers (SAE). Members of the SAE chapter at UCI participate in technical expositions, mini-Baja buggy races, student competitions, and social activities.

Society of Women Engineers (SWE). SWE is a national service organization dedicated to the advancement of women in engineering. UCI's student chapter encourages academic and social support, and membership is open to both men and women in technical majors interested in promoting camaraderie and in helping to make engineering study a positive experience.

Structural Engineers Association of Southern California (SEAOSC). The UCI student chapter of SEAOSC introduces students to the field of structural engineering through tours, speakers, and SEAOSC dinners with professional members of the organization.

Sustainable Energy Technology Club (SETC). With the common theme of energy, club members explore how science and technology can be used as a driving force behind making changes in society with respect to a cleaner environment and less wasteful lifestyles.

Tau Beta Pi. The national Engineering honor society, Tau Beta Pi acknowledges academic excellence in the wide variety of engineering disciplines. Tau Beta Pi at UCI sponsors community service activities, social events, and technical and nontechnical seminars.

Triangle. The national social fraternity is open to engineers, architects, and scientists

Schoolwide Program

Faculty in the Departments of Biomedical Engineering, Chemical Engineering and Materials Science, Civil and Environmental Engineering, Electrical Engineering and Computer Science, and Mechanical and Aerospace Engineering also teach courses in the major in Engineering program.

Descriptions and requirements for the undergraduate majors in Aerospace Engineering (AE), Biomedical Engineering (BME), Biomedical Engineering: Premedical (BMEP), Chemical Engineering (ChE), Civil Engineering (CE), Computer Engineering (CpE), Computer Science and Engineering (CSE), Electrical Engineering (EE), Engineering (a general program, GE), Environmental Engineering (EnE), Materials Science Engineering (MSE), and Mechanical Engineering (ME) may be found in subsequent sections.

General Undergraduate Major in Engineering

305 Rockwell Engineering Center; 949-824-4334

The Henry Samueli School of Engineering offers a general undergraduate major in Engineering to upper-division students who wish to pursue broad multidisciplinary programs of study or who wish to focus on a special area not offered in the four departments. Examples of other areas that may be of interest are biochemical engineering, electromechanical engineering, project management, or hydrology. The program of study in any area, aside from the established specializations, is determined in consultation with a faculty advisor.

Admissions

The general major in Engineering is only open to junior-standing students who have completed the required lower-division courses with a high level of achievement. Freshmen are not eligible to apply for this major. The sequential nature of the Engineering program and the fact that many courses are offered only once a year make it beneficial for students to begin their studies in the fall quarter.

Transfer Students: The general Engineering major is a specialized program for students who are seeking careers in areas other than traditional engineering disciplines and is open to upper-division students only. Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), one course in computational methods (e.g., C, C++), and one year of general chemistry (with laboratory).

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Engineering

Credit for at least 180 units, and no more than 196 units. All courses must be approved by a faculty advisor and the Associate Dean of Student Affairs prior to enrollment in the program.

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 469)**.**

Major Requirements

Mathematics and Basic Science Courses: MATH 2A-MATH 2B-MATH 2D, MATH 3A, and MATH 3D. PHYSICS 7C, PHYSICS 7LC. With the approval of a faculty advisor and the Associate Dean, students select all additional Mathematics and Basic Science courses.

Engineering Topics Courses: EECS 10. With the approval of a faculty advisor and the Associate Dean, students select all additional Engineering Topics courses.

Design unit values are indicated at the end of each course description. The faculty advisors and the Student Affairs Office can provide necessary guidance for satisfying the design requirements.

Program of Study

Students should keep in mind that the program for the major in Engineering is based upon a rigid set of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Therefore, the course sequence should not be changed except for the most compelling reasons. Students must have their programs approved by an academic counselor in Engineering. A sample program of study is available in the Student Affairs Office.

Graduate Study

Graduate Student Affairs Office
5400 Engineering Hall; 949-824-8090
A. Lee Swindlehurst, **Associate Dean for Research and Graduate Studies**

Admissions

For information on requirements for admission to graduate study at UCI, contact the appropriate Engineering department, concentration director, or the Graduate Student Affairs Office in The Henry Samueli School of Engineering. Additional information is available in the *Catalogue's* Graduate Division (p. 154) section. Admission to graduate standing in The Henry Samueli School of Engineering is generally accorded to those possessing a B.S. degree in engineering or an allied field obtained with an acceptable level of scholarship from an institution of recognized standing. Those seeking admission without the prerequisite scholarship record may, in some cases, undertake remedial work; if completed at the stipulated academic level, they will be considered for admission. Those admitted from an allied field may be required to take supplementary upper-division courses in basic engineering subjects. The Graduate Record Examination (GRE) General Test is required of all applicants.

Financial Support

Teaching assistantships and fellowships are available to qualified applicants. (Applicants should contact the Department or concentration director to which they are applying for information.) Research assistantships are available through individual faculty members. Although not required, it is beneficial for applicants to contact the faculty member directly to establish the potential for research support. Early applications have a stronger chance for financial support.

Part-Time Study

Those students who are employed may pursue the M.S. degree on a part-time basis, carrying fewer units per quarter. Since University residency requirements necessitate the successful completion of a minimum number of units in graduate or upper-division work in each of at least three regular

University quarters, part-time students should seek the advice of a counselor in The Henry Samueli School of Engineering Graduate Student Affairs Office and the approval of the Graduate Advisor in their program. M.S. programs must be completed in four calendar years from the date of admission. Students taking courses in University Extension prior to enrollment in a graduate program should consult the following section on Transfer of Courses.

Transfer and Substitution of Courses

Upon petition, a limited number of *upper-division undergraduate or graduate-level courses* taken through University Extension, at another UC campus, or in another accredited university may be credited toward the M.S. degree after admission. The applicability of transfer or substitution courses must be approved by the student's department, the School's Associate Dean, and the Graduate Dean of the University, in accordance with Academic Senate regulations. Also in accordance with UC Academic Senate policy, transfer credit for the M.S. degree cannot be used to reduce the minimum requirement in strictly graduate (200 series) courses.

Graduate Specialization in Teaching

The graduate specialization in Teaching will allow Engineering Ph.D. students to receive practical training in pedagogy designed to enhance their knowledge and skill set for future teaching careers. Students will gain knowledge and background in college-level teaching and learning from a variety of sources, and experience in instructional practices. Students completing the specialization in Teaching must fulfill all of their Ph.D. requirements in addition to the specialization requirements. Upon fulfillment of the requirements, students will be provided with a certificate of completion. Upon receipt of the certificate of completion, the students can then append "Specialization in Teaching" to their curricula vitae. For details visit the Graduate Specialization in Teaching (http://www.eng.uci.edu/grad/services/specialization) website.

The graduate specialization in Teaching is available only for certain degree programs and concentrations:

- Ph.D. degree in Biomedical Engineering
- Ph.D. degree in Electrical and Computer Engineering
- Ph.D. degree in Engineering with a concentration in Materials and Manufacturing Technology

Graduate Programs

For specific information about program requirements, click on the links below.

Biomedical Engineering (p. 493)
Biotechnology Management (p. 482)
Chemical and Biochemical Engineering (p. 516)
Civil Engineering (p. 541)
Electrical and Computer Engineering (Concentration in Computer Engineering) (p. 572)
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The M.S. and Ph.D. degree program in Networked Systems (p. 1081) is supervised by an interdepartmental faculty group. Information is available in the Interdisciplinary Studies section of the *Catalogue.*

M.S. and Ph.D. in Engineering with a Concentration in Materials and Manufacturing Technology

5400 Engineering Hall; 949-824-8090
http://www.eng.uci.edu/grad/concentration/mmt
Chin C. Lee, **Director and Graduate Advisor**

Materials and Manufacturing Technology (MMT) is concerned with the generation and application of knowledge relating the composition, structure, and processing of materials to their properties and applications, as well as the manufacturing technologies needed for production. During the past two decades, MMT has become an important component of modern engineering education, partly because of the increased level of sophistication required of engineering materials in a rapidly changing technological society, and partly because the selection of materials has increasingly become an integral part of almost every modern engineering design. In fact, further improvements in design are now viewed more and more as primarily materials and manufacturing issues. Both the development of new materials and the understanding of present-day materials demand a thorough knowledge of basic engineering and scientific principles including, for example, crystal structure, mechanics, mechanical behavior, electronic, optical and magnetic properties, thermodynamics, phase equilibria, heat transfer, diffusion, and the physics and chemistry of solids and chemical reactions.

The field of MMT ranks high on the list of top careers for scientists and engineers. The services of these engineers and scientists are required in a variety of engineering operations dealing, for example, with design of semiconductors and optoelectronic devices, development of new technologies based on composites and high-temperature materials, biomedical products, performance (quality, reliability, safety, energy efficiency) in automobile

and aircraft components, improvement in nondestructive testing techniques, corrosion behavior in refineries, radiation damage in nuclear power plants, fabrication of steels, and construction of highways and bridges.

Subjects of interest in Materials and Manufacturing Technology cover a wide spectrum, ranging from metals, optical and electronic materials to superconductive materials, ceramics, advanced composites, and biomaterials. In addition, the emerging new research and technological areas in materials are in many cases interdisciplinary. Accordingly, the principal objective of the graduate curriculum is to integrate a student's area of emphasis—whether it be chemical processing and production, electronic and photonic materials and devices, electronic manufacturing and packaging, or materials engineering—into the whole of materials and manufacturing technology. Such integration will increase familiarity with other disciplines and provide students with the breadth they need to face the challenges of current and future technology.

Students with a bachelor's degree may pursue either the M.S. or Ph.D. degree in Engineering with a concentration in Materials and Manufacturing Technology (MMT). If students choose to enter the Ph.D. program directly, it is a requirement that they earn an M.S. degree along the way toward the completion of their Ph.D. degree.

Recommended Background

Given the nature of Materials and Manufacturing Technology as an interdisciplinary program, students having a background and suitable training in either Materials, Engineering (Biomedical, Civil, Chemical, Electrical, and Mechanical), or the Physical Sciences (Physics, Chemistry, Geology) are encouraged to participate. Recommended background courses include an introduction to materials, thermodynamics, mechanical properties, and electrical/optical/magnetic properties. A student with an insufficient background may be required to take remedial undergraduate courses following matriculation as a graduate student.

Core Requirement

Because of the interdepartmental nature of the concentration, it is important to establish a common foundation in Materials and Manufacturing Technology (MMT) for students from various backgrounds. This foundation is sufficiently covered in MMT courses that are listed below and that deal with the following topics: ENGRMSE 200 Crystalline Solids: Structure, Imperfections and Properties; ENGRMAE 252 Fundamentals of Microfabrication or ENGR 265 Advanced Manufacturing; ENGRMAE 259 Mechanical Behavior of Solids - Atomistic Theories; EECS 274 Biomedical Microdevices (MEMOS). Core courses must be completed with a grade of B (3.0) or better.

Electives

Electives are grouped into four areas of emphasis.

Chemical Processing and Production:	
CHEM 213	Chemical Kinetics
CBEMS 210	Reaction Engineering
CBEMS 220	Transport Phenomena
CBEMS 230	Applied Engineering Mathematics I
CBEMS 240	Advanced Engineering Thermodynamics
Electronic and Photonic Materials and Devices:	
BME 210	Molecular and Cellular Engineering
EECS 174	Semiconductor Devices
EECS 188	Optical Electronics
EECS 277A	Advanced Semiconductor Devices I
EECS 277B	Advanced Semiconductor Devices II
EECS 277C	Nanotechnology
EECS 285A	Optical Communications
EECS 285B	Lasers and Photonics
EECS 280A	Advanced Engineering Electromagnetics I
EECS 280B	Advanced Engineering Electromagnetics II
Biomedical and Electronic Manufacturing:	
BME 260	Microfluids and Lab-On-A-Chip
BME 261	Biomedical Microdevices
BME 262	Microimplants
EECS 273	Electronics Packaging
EECS 279/ENGRMAE 249	Micro-Sensors and Actuators
EECS 285A	Optical Communications
EECS 285B	Lasers and Photonics
ENGRMAE 212	Engineering Electrochemistry: Fundamentals and Applications

ENGRMAE 247/EECS 278	Micro-System Design
ENGRMAE 250	Biorobotics
ENGRMAE 253	Advanced BIOMEMS Manufacturing Techniques
Materials Engineering:	
CHEM 225	Polymer Chemistry: Synthesis and Characterization of Polymers
ENGRCEE 243	Mechanics of Composite Materials
ENGRMSE 205	Materials Physics
ENGRMSE 251	Dislocation Theory
ENGRMSE 252	Theory of Diffusion
ENGRMSE 254	Polymer Science and Engineering
ENGRMSE 255A	Design with Ceramic Materials
ENGRMSE 256A	Mechanical Behavior of Engineering Materials
ENGRMSE 256B	Fracture of Engineering Materials
ENGRMSE 268	Principles of Coatings, Thin Films and Multi-layers
PHYSICS 238A- 238B- 238C	Condensed Matter Physics and Condensed Matter Physics and Condensed Matter Physics

It should be noted that specific course requirements within the area of emphasis are decided based on consultation with the Director of the MMT concentration.

Master of Science Degree

Two options are available for M.S. degree students: a thesis option and a comprehensive examination option. Both options require the completion of at least 12 courses of study.

Plan I. Thesis Option

For the thesis option, students are required to complete an original research project and write an M.S. thesis. A committee of three full-time faculty members is appointed to guide the development of the thesis. Students must also obtain approval for a complete program of study from the program director. At least seven courses (3-unit or 4-unit) must be taken from courses numbered 200–289, among which at least four courses (3-unit or 4-unit) are from MMT core courses and at least three courses (3-unit or 4-unit) are in the area of emphasis approved by the faculty advisor and the graduate advisor. Four units of BME 296, CBEMS 296, EECS 296, ENGR 296, ENGRCEE 296, or ENGRMAE 296 count as the equivalence of one course. Up to three courses equivalent of BME 296, CBEMS 296, EECS 296, ENGR 296, ENGRCEE 296, or ENGRMAE 296 and up to two courses (3-unit or 4-unit) of upper-division undergraduate elective courses taken as a graduate student at UCI can be applied toward the 12-course requirement.

Plan II. Comprehensive Examination Option

For the comprehensive examination option, students are required to complete minimally 12 courses (3-unit or 4-unit) of study. At least eight courses (3-unit or 4-unit) must be taken from courses numbered 200–289, among which at least four courses (3-unit or 4-unit) are from MMT core courses and at least four courses (3-unit or 4-unit) are in the area of emphasis approved by the faculty advisor and the graduate advisor. Four units of BME 299, CBEMS 299, EECS 299, ENGRCEE 299, or ENGRMAE 299 count as the equivalence of one course. One course equivalent of BME 299, CBEMS 299, EECS 299, ENGRCEE 299, or ENGRMAE 299 and up to two courses (3-unit or 4-unit) of upper-division undergraduate elective courses taken as a graduate student at UCI can be applied toward the 12-course requirement.

In the last quarter, an oral comprehensive examination on the contents of study will be given by a committee of three faculty members including the advisor and two members appointed by the program director. Part-time study for the M.S. degree is available and encouraged for engineers working in local industries. Registration for part-time study must be approved in advance by the MMT program director, the School’s Associate Dean, and the Graduate Dean.

NOTE: Students who entered prior to fall of 2012 should follow the course requirements outlined within the *Catalogue* of the year they entered. The change in number of units per course is not intended to change the course requirements for the degree nor to have any impact in the number of courses students are taking. As such, students will need to continue to meet the same high standards and plan of study requirements as previously required. Students will work with their advisor to create a plan of study encompassing the equivalent topical requirements, as well as the equivalent number of courses to the previous 36-unit requirement.

In addition to fulfilling the course requirements outlined above, it is a University requirement for the Master of Science degree that students fulfill a minimum of 36 units of study.

Concurrent Study in the Program in Law and Graduate Studies (PLGS)

Students have the option to pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Master's or Ph.D. degree in Engineering with a concentration in Materials and Manufacturing Technology. For students pursuing the M.S. thesis option, 8 units of research

can be substituted for law electives, and comprehensive exam students can petition two course (non-course or area of emphasis courses) to be substituted by law electives.

Doctor of Philosophy Degree

The Ph.D. degree in Engineering with a concentration in Materials and Manufacturing Technology requires a commitment on the part of the student to dedicated study and collaboration with the faculty. Ph.D. students are selected on the basis of outstanding demonstrated potential and scholarship. Applicants must hold the appropriate prerequisite degrees from recognized institutions of high standing. Students entering with a master's degree may be required to take additional course work, to be decided in consultation with the graduate advisor and the program director. Students without a master's degree may be admitted into the Ph.D. program. However, these students will be required to complete the degree requirements above for the master's degree prior to working on doctoral studies. After substantial academic preparation, Ph.D. candidates work under the supervision of faculty advisors. The process involves immersion in a research atmosphere and culminates in the production of original research results presented in a dissertation.

Milestones to be passed in the Ph.D. program include the following: acceptance into a research group by the faculty advisor during the student's first year of study, successful completion of the Ph.D. preliminary examination during years one or two, development of a research proposal, passing the qualifying examination during year three (second year for those who entered with a master's degree), and the successful completion and defense of the dissertation during the fourth or fifth year. There is no foreign language requirement.

The degree is granted upon the recommendation of the doctoral committee and the Dean of Graduate Division. The normative time for completion of the Ph.D. is five years (four years for students who entered with a master's degree). The maximum time permitted is seven years.

M.S. in Engineering Management

5400 Engineering Hall; 949-824-8090
http://www.eng.uci.edu/grad/programs/em
A. Lee Swindlehurst, **Associate Dean for Research and Graduate Studies, The Henry Samueli School of Engineering**
Alladi Venkatesh, **Associate Dean of Master's Programs, The Paul Merage School of Business**

Engineering Management Steering Committee

Imran S. Currim: Marketing research, customer choice, design and marketing of products and services, customer behavior online, and assessing the impact of competitive product and service features and marketing efforts on consumer choice and market share

Peter Burke: Nano-electronics, bio-nanotechnology

John C. LaRue: Fluid mechanics, micro-electrical-mechanical systems (MEMS), turbulence, heat transfer, instrumentation

Marc J. Madou: Fundamental aspects of micro/nano-electromechanical systems (MEMS/NEMS), biosensors, nanofluidics, biomimetics

Jean-Daniel M. Saphores: Transportation economics, planning and policy, environmental and natural resource economics and policy, quantitative methods

A. Lee Swindlehurst: Signal processing, estimation and detection theory, applications in wireless communications, geo-positioning, radar, sonar, biomedicine

Alladi Venkatesh: Community-based technologies: home informatics and networking; youth and new media; consumers and electronic environments, and cross-cultural research

The Master of Science in Engineering Management is a graduate degree jointly offered by The Paul Merage School of Business and The Henry Samueli School of Engineering that will prepare engineers for leadership roles in technology, science, government, and engineering-based companies and organizations. The curriculum includes courses in engineering from The Henry Samueli School of Engineering and courses in business administration from The Paul Merage School of Business. Students will emerge as innovators by taking on the role of business and engineering project managers tasked with solving complex engineering product development challenges through consulting projects, business plans, and exposure to current issues within the engineering sector. Through this process, quantitative and qualitative skills along with business communication skills will be developed.

This competitive major teaches business from the engineering perspective and engineering from the business perspective, and students will learn to think about their work through the lens of innovation and to develop a crucial view to enhance their careers.

Admissions

Applicants apply directly to The Samueli School for the M.S. in Engineering Management. Applicants must meet any applicable prerequisite requirements for the specific engineering specialization they wish to pursue. Admission to graduate standing in The Samueli School of Engineering is generally accorded to those possessing at least a B.S. degree in engineering or an allied field obtained with an acceptable level of scholarship from an institution of recognized standing. Those seeking admission without the prerequisite scholarship record may, in some cases, undertake remedial work; if completed at the stipulated academic level, they will be considered for admission. Those admitted from an allied field may be required to take supplementary upper-division courses in basic engineering subjects.

The Samueli and Merage Schools will evaluate applicants on their prior academic record and their potential for management and leadership as demonstrated in submitted application materials including work experience and in an interview. These materials will include university transcripts, GRE test scores, letters of recommendation, and a Statement of Purpose. Competitive applicants will be interviewed by the Merage School.

Master of Science Degree: Plan II: Comprehensive Exam Option

The M.S. degree requires the completion of designated course work which corresponds to a minimum of 17 courses beyond the bachelor's degree. As part of the program, students must complete a two-week orientation and an intensive course in early to mid-September preceding the fall quarter which presents fundamental concepts of management to initiate students into the concrete challenges that managers in high-performing organizations typically confront.

Core Requirements

Due to the interdisciplinary nature of this degree, it is important to establish a common foundation in Engineering Management for students from various backgrounds. This foundation is sufficiently covered in Engineering Management courses that are listed below and that deal with the following topics:

ENGR 280	Entrepreneurship for Scientists and Engineers
MGMTMBA 200	Management of Innovative Organizations
MGMTMBA 211	MBA Proseminar
MGMTMBA 298	Experiential Learning (or equivalent)
Plus, a departmental seminar based on specialization area, for example:	
BME 298	Seminars in Biomedical Engineering
CBEMS 298	Seminars in Engineering
EECS 290	Curricular Practical Training
or EECS 294	Electrical Engineering and Computer Science Colloquium
ENGRCEE 295	Seminars in Engineering
ENGRMAE 298	Seminars in Mechanical and Aerospace Engineering

Electives

Business. In addition to the core courses listed above, at least five additional courses from The Merage School of Business are required. (Students will be recommended certain classes based on career tracks they plan to pursue.)

- Three Merage School M.B.A. core courses;
- Two additional courses from a selected group of either core or elective courses.

M.B.A. Courses

Core:	
MGMTMBA 201A	Statistics for Management
MGMTMBA 201B	Management Science
MGMTMBA 202	Organizational Analysis for Management
MGMTMBA 203A	Financial Accounting for Management
MGMTMBA 203B	Managerial Accounting for Management
MGMTMBA 204A	Microeconomics for Management
MGMTMBA 204B	Macroeconomics for Management
MGMTMBA 205	Marketing Management
MGMTMBA 206	Business and Government
MGMTMBA 207	Information Technology for Management
MGMTMBA 208	Operations Management
MGMTMBA 209A	Managerial Finance
MGMTMBA 210	Business Strategy
Electives:	
Refer to the Business School section of the Catalogue for a list of current M.B.A. electives.	

Engineering. In addition to the core courses listed above, at least five courses from The Samueli School are required. (Students will be recommended certain classes based on career tracks they plan to pursue.)

- Three courses from a chosen primary specialization in Engineering: Biomedical Engineering, Chemical and Biochemical Engineering, Civil Engineering, Electrical and Computer Engineering, Materials Science and Engineering, or Mechanical and Aerospace Engineering;

- Two additional elective courses chosen from the primary specialization, from another specialization, or from other courses within or outside The Samueli School as approved by the Director or Director-Elect.

Approved Specialization Courses

Biomedical Engineering:	
BME 210	Molecular and Cellular Engineering
BME 213	Systems Cell and Developmental Biology
BME 220	Sensory Motor Systems
BME 221	Organ Transport Systems
BME 230A	Applied Engineering Mathematics I
BME 230B	Applied Engineering Mathematics II
BME 233	Dynamic Systems in Biology and Medicine
BME 251	Engineering Medical Optics
BME 260	Microfluids and Lab-On-A-Chip
BME 261	Biomedical Microdevices
BME 262	Microimplants
Chemical and Biochemical Engineering:	
CBEMS 195	Special Topics in Chemical Engineering and Materials Science
CBEMS 218	Bioengineering with Recombinant Microorganisms
CBEMS 221	Drug Delivery
CBEMS 232	Bioseparation Processes
CBEMS 249	Special Topics in Chemical Engineering and Materials Science
Civil Engineering:	
ENGRCEE 220A	Travel Demand Analysis I
ENGRCEE 221A	Transportation Systems Analysis I
ENGRCEE 225B	Transportation Planning Models II
ENGRCEE 249	Earthquake Engineering
ENGRCEE 250	Finite Element Method in Structural Engineering
ENGRCEE 262	Environmental Chemistry II
ENGRCEE 263	Advanced Biological Treatment Processes
ENGRCEE 265	Physical-Chemical Treatment Processes
ENGRCEE 272	Groundwater Hydrology
ENGRCEE 273	Watershed Modeling
ENGRCEE 276	Hydrology
ENGRCEE 281	Structural Reliability
Electrical and Computer Engineering:	
EECS 202A	Principles of Imaging
EECS 210	Modeling and Rendering for Image Synthesis
EECS 211	Advanced System Software
EECS 213	Computer Architecture
EECS 215	Design and Analysis of Algorithms
EECS 217	VLSI System Design
EECS 222	Embedded System Modeling
EECS 225	Embedded Systems Design
EECS 241A	Digital Communications I
EECS 248A	Computer and Communication Networks
EECS 261A	Linear Optimization Methods
EECS 267A	Industrial and Power Electronics
EECS 273	Electronics Packaging
EECS 274	Biomedical Microdevices (MEMOS)
EECS 277C	Nanotechnology
EECS 278	Micro-System Design
EECS 279	Micro-Sensors and Actuators

Materials Science and Engineering:	
CBEMS 221	Drug Delivery
CBEMS 249	Special Topics in Chemical Engineering and Materials Science
EECS 273	Electronics Packaging
EECS 277C	Nanotechnology
ENGRMAE 252	Fundamentals of Microfabrication
ENGRMSE 254	Polymer Science and Engineering
ENGRMSE 255A	Design with Ceramic Materials
ENGRMSE 261	High Temperature Deformation of Engineering Materials
ENGRMSE 268	Principles of Coatings, Thin Films and Multi-layers
Mechanical and Aerospace Engineering:	
ENGRMAE 207	Methods of Computer Modeling in Engineering and the Sciences
ENGRMAE 218	Sustainable Energy Systems
ENGRMAE 247	Micro-System Design
ENGRMAE 249	Micro-Sensors and Actuators
ENGRMAE 250	Biorobotics
ENGRMAE 252	Fundamentals of Microfabrication
ENGRMAE 253	Advanced BIOMEMS Manufacturing Techniques
ENGRMAE 274	Optimal Control

M.S. in Biotechnology Management

The M.S. in Biotechnology Management is a joint graduate degree that will prepare scientists for leadership roles in biotechnology, science, and engineering-based companies through a curriculum comprised of courses from the Department of Molecular Biology and Biochemistry (MB&B) in the Francisco J. Ayala School of Biological Sciences, the Department of Biomedical Engineering in The Henry Samueli School of Engineering, and The Paul Merage School of Business. Students will receive advanced training in biotechnology through course work, a teaching laboratory, and two quarters of independent research in a faculty laboratory of their choosing. They will also learn to think as a business manager by solving product development challenges through consulting projects, creating business plans, and by exposure to current issues within the biotechnology sector. Students will develop quantitative and qualitative skills along with business communication skills. Students will learn about business from the biotechnology perspective and biotechnology from the business perspective, and will be taught to think about their work through the lens of innovation, a crucial view for their careers.

Complete program information is available in the Francisco J. Ayala School of Biological Sciences (p. 289) section of the *Catalogue*.

Courses

ENGR 1A. General Chemistry for Engineers. 4 Units.
Emphasis on solid-state chemistry. Quantum theory, atomic structure, periodic trends, chemical bonding, molecular orbitals, electronic band structure, gases, liquids, intermolecular forces, unit cells, crystal lattices, phase transformations, and electrochemistry.

(Design units: 0)

Prerequisite: A score of 2 or 3 on the AP Chemistry exam, or a score of 550 or higher on the SAT Chemistry Subject exam, or Engineering Chemistry Placement Exam (fee required).

Overlaps with CHEM 1A.

Restriction: School of Engineering majors only.

(II)

ENGR 5. Freshman Seminar In Engineering. 1 Unit.
An introduction to the engineering profession. Weekly seminars by both faculty and representatives from industry present an overview of each engineering discipline. Students learn about current trends and issues in engineering, and career and academic options.

Grading Option: Pass/no pass only.

Restriction: Freshmen only.

ENGR 7A. Introduction to Engineering I. 2 Units.
Introduction to engineering disciplines and the design process. Course may be offered online. Materials fee.

(Design units: 1)

Grading Option: In progress only.

ENGR 7B. Introduction to Engineering II. 2 Units.
Introduction to engineering disciplines and the design process. Course may be offered online. Materials fee.

(Design units: 2)

Prerequisite: ENGR 7A.

ENGR 10. Computational Methods in Engineering. 4 Units.
Procedures and procedure followers, algorithms and flow charts, computer languages, subprograms. Computer macro- and microelements, number systems. Methods of differentiation, integration, curve fitting, list processing. Error analysis. Must qualify in BASIC and FORTRAN at end of course through computer use.

(Design units: 0)

Prerequisite: Prerequisite or corequisite: MATH 2A.

Overlaps with ENGRMAE 10, EECS 10, EECS 12.

ENGR 15. Problem Solving in Engineering. 4 Units.
Introduction to scientific computing to solve engineering problems. Problem identification, algorithmic design, and solution using appropriate computational tools. Design and application documentation.

(Design units: 1)

Corequisite: MATH 3D.
Prerequisite: (EECS 10 or EECS 12 or ENGRMAE 10 or CSE 41 or I&C SCI 31) and MATH 3A.

Overlaps with ENGRCEE 20.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

ENGR 30. Statics. 4 Units.
Addition and resolution of forces distributed forces, equivalent system of forces centroids, first moments, moments and products on inertia, equilibrium of rigid bodies, trusses, beams, cables.

(Design units: 0)

Corequisite: MATH 2D.
Prerequisite: MATH 2D and PHYSICS 7C.

Same as ENGRCEE 30, ENGRMAE 30.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGR 54. Principles of Materials Science and Engineering. 4 Units.
Superconductors to biodegradable polymers. Structure and properties of materials, including metal, ceramics, polymers, semiconductors, composites, traditional materials. Atomic structure, bonding, defects, phase equilibria, mechanical properties, electrical, optical and magnetic properties. Introduction to materials processing and synthesis. Materials fee.

(Design units: 0)

Prerequisite: (ENGR 1A or CHEM 1A) and PHYSICS 7C.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGR 69. Energy Facilities Inspection. 1 Workload Unit.
Inspection of power-generating stations of various types, oil and gas processing facilities, and end-use facilities.

Repeatability: May be repeated for credit unlimited times.

ENGR 80. Dynamics. 4 Units.
Introduction to the kinetics and dynamics of particles and rigid bodies. The Newton-Euler, Work/Energy, and Impulse/Momentum methods are explored for ascertaining the dynamics of particles and rigid bodies. An engineering design problem using these fundamental principles is also undertaken. Course may be offered online.

(Design units: 0.5)

Prerequisite: MATH 2D and PHYSICS 7C.

Same as ENGRCEE 80, ENGRMAE 80.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGR 92. Engineering and Computer Educational Laboratory. 1-4 Workload Units.
Comprehensive academic support designed primarily for underrepresented or underprepared students in Engineering, ICS, or selected areas of the physical sciences. Typical program activities: tutoring, study skills, career planning, self-esteem enhancement, library research techniques.

(Design units: 0)

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 12 units.

ENGR 93. Public and Professional Service in Engineering. 1-2 Workload Units.
Student participation in public and professional service activities related to engineering.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

ENGR 98. Group Study . 1-4 Units.
Group study of selected topics in engineering.

(Design units: 1-4)

Repeatability: Unlimited as topics vary.

ENGR 100. Special Topics in Fabrication Safety. 1 Workload Unit.
Hands on training in the safe use of item fabrication: metalworking, woodworking, electronics fabrication, composites, welding, adhesives, water disposal, and others. Safety certification will be granted from this course and is required for access to Engineering School fabrication facilities.

(Design units: 0)

Repeatability: Unlimited as topics vary.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGR 150. Mechanics of Structures. 4 Units.
Stresses and strains. Torsion. Bending. Beam deflection. Shear force and moment distributions in beams. Yielding and buckling of columns. Combined loading. Transformation of stresses and strain. Yielding criteria. Finite elements analysis of frames. Dynamic of two-bar truss.

(Design units: 2)

Prerequisite: (ENGRCEE 30 or ENGR 30 or ENGRMAE 30) and MATH 3A.

Same as ENGRMAE 150.
Overlaps with ENGRCEE 150.

Restriction: Aerospace Engineering, Chemical Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGR 165. Advanced Manufacturing. 4 Units.
Principles in manufacturing processes. All machining requires energy: mechanical (cutting and shaping), heat energy (laser cutting), photochemical (photolithography), chemical energy (electro chemical machining and chemical vapor deposition). These methods and their fundamentals are examined.

(Design units: 2)

Restriction: School of Engineering majors only. Seniors only.

Concurrent with ENGR 265.

ENGR 180. Entrepreneurship for Scientists and Engineers. 4 Units.
Real-world introduction to the theory and practice of entrepreneurship. Explore organizational, strategic, and financial challenges; start-up strategies; business idea evaluation; and business plan writing. Presentations by prestigious entrepreneurs and industry leaders.

(Design units: 0)

Restriction: Upper-division students only. School of Engineering majors have first consideration for enrollment.

Concurrent with ENGR 280.

ENGR 189. Senior Project - Topics Vary. 1-4 Units.
Multidisciplinary group senior project of theoretical or applied nature involving design.

(Design units: 1-4)

Repeatability: May be taken for credit for 12 units as topics vary.

Restriction: Seniors only.

ENGR 190W. Communications in the Professional World. 4 Units.
Workshop in technical and scientific writing. Oral presentation with video monitoring. Communication with various publics. Real-world professionalism.

(Design units: 0)

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Aerospace Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Environmental Engineering, Materials Science Engineering and Mechanical Engineering majors have first consideration for enrollment.

(Ib)

ENGR 195. Special Topics in Engineering. 1-4 Units.
Studies in selected areas of Engineering. Topics addressed vary each quarter.

(Design units: 1-4)

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ENGR 196. Engineering Thesis. 4 Units.
Preparation of final presentation and paper describing individual research in Engineering completed in one or more quarters of individual study (i.e., ENGR 199).

Prerequisite: Completion of at least 4 units of Individual Research in Engineering.

ENGR 196W. Engineering Thesis. 4 Units.
Preparation of final presentation and paper describing individual research in Engineering completed in one or more quarters of individual study (i.e., ENGR 199).

Prerequisite: Completion of at least 4 units of Individual Research in Engineering. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

ENGR H196. Honors Thesis. 4 Units.
Preparation of final presentation and paper describing individual research in Engineering. For participants in the Campuswide Honors Program.

(Design units: 1-4)

Prerequisite: ENGR H199.

Restriction: Campuswide Honors Program students only.

ENGR H196W. Honors Thesis. 4 Units.
Preparation of final presentation and paper describing individual research in Engineering. For participants in the Campuswide Honors Program.

(Design units: 1-4)

Prerequisite: ENGR H199. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Campuswide Honors Program students only.

(Ib)

ENGR 197A. Educational Strategies for Tutoring and Teacher Aiding . 4 Units.
Placement in a public elementary or secondary school to gain experience as a tutor or teacher aide. Emphasis on cognitive learning and the development of instructional strategies and resources which can be used in effective cross-age and cross-cultural experiences.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Same as EDUC 100.

ENGR 199. Individual Study. 1-4 Units.
Supervised independent reading, research, or design for undergraduate Engineering majors. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Repeatability: May be taken for credit for 8 units.

Restriction: School of Engineering majors only.

ENGR 199P. Individual Study. 1-4 Units.
Supervised independent reading, research, or design for undergraduate Engineering majors. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

ENGR H199. Individual Study for Honors Students. 1-5 Units.
Supervised research in Engineering for participants in the Campuswide Honors Program. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-5)

Repeatability: May be repeated for credit unlimited times.

Restriction: Campuswide Honors Program students only.

ENGR 260A. Technology for Life. 4 Units.
Engineering techniques including physics, chemistry, biology, and micro/nano technology for enabling life sciences research in the areas of genomics/proteomics, cells, tissues/organs, and biomolecules.

Prerequisite: PHYSICS 106 or CHEM 128L or BIO SCI M118L.

ENGR 260B. Technology of Life. 4 Units.
Engineering perspectives of evolution in life sciences including the physics, chemistry, and mechanics of various life systems such as DNA, RNA, biomolecules, cells, organs.

Prerequisite: PHYSICS 146A or CHEM 128 or BIO SCI D114 or BME 50A or BME 50B.

ENGR 265. Advanced Manufacturing. 4 Units.
Principles in manufacturing processes. All machining requires energy: mechanical (cutting and shaping), heat energy (laser cutting), photochemical (photolithography), chemical energy (electro chemical machining and chemical vapor deposition). These methods and their fundamentals are examined.

Restriction: School of Engineering graduate students only.

Concurrent with ENGR 165.

ENGR 280. Entrepreneurship for Scientists and Engineers. 4 Units.
Real-world introduction to the theory and practice of entrepreneurship. Explore organizational, strategic, and financial challenges; start-up strategies; business idea evaluation; and business plan writing. Presentations by prestigious entrepreneurs and industry leaders.

(Design units: 0)

Restriction: Graduate students only. School of Engineering majors have first consideration for enrollment.

Concurrent with ENGR 180.

ENGR 295. Special Topics in Engineering. 1-4 Units.
Studies in selected areas of Engineering. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ENGR 296. Master of Science Thesis Research. 1-16 Units.
Individual research or investigation conducted in the pursuit of preparing and completing the thesis required for the M.S. in Engineering.

Repeatability: May be repeated for credit unlimited times.

ENGR 297. Doctor of Philosophy Dissertation Research. 1-16 Units.
Individual research or or investigation conducted in the pursuit of preparing and completing the dissertation required for the Ph.D. in Engineering.

Repeatability: May be repeated for credit unlimited times.

ENGR 299. Individual Research. 1-16 Units.
Individual research or investigation under the direction of an individual faculty.

Repeatability: May be repeated for credit unlimited times.

ENGR 399. University Teaching. 4 Units.
University teaching with Engineering faculty.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Teaching assistants only.

Department of Biomedical Engineering

3120 Natural Sciences II; (949) 824-9196
http://www.eng.uci.edu/dept/bme
Abraham Lee, **Department Chair**

Biomedical engineering combines engineering expertise with medical needs for the enhancement of health care. It is a branch of engineering in which knowledge and skills are developed and applied to define and solve problems in biology and medicine. Students choose the biomedical engineering field to be of service to people, for the excitement of working with living systems, and to apply advanced technology to the complex problems of medical

care. Biomedical engineers may be called upon to design instruments and devices, to bring together knowledge from many sources to develop new procedures, or to carry out research to acquire knowledge needed to solve new problems.

During the last 20 years, we have witnessed unprecedented advances in engineering, medical care, and the life sciences. The combination of exploding knowledge and technology in biology, medicine, the physical sciences, and engineering, coupled with the changes in the way health care will be delivered in the next century, provide a fertile ground for biomedical engineering. Biomedical engineering, at the confluence of these fields, has played a vital role in this progress. Traditionally, engineers have been concerned with inanimate materials, devices, and systems, while life scientists have investigated biological structure and function. Biomedical engineers integrate these disciplines in a unique way, combining the methodologies of the physical sciences and engineering with the study of biological and medical problems. The collaboration between engineers, physicians, biologists, and physical scientists is an integral part of this endeavor and has produced many important discoveries in the areas of artificial organs, artificial implants, and diagnostic equipment.

The Department offers a B.S. degree in Biomedical Engineering (BME), a four-year engineering curriculum accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org), http://www.abet.org. This program prepares students for a wide variety of careers in Biomedical Engineering in industry, hospitals, and research laboratories or for further education in graduate school.

The Department also offers a B.S. degree in Biomedical Engineering: Premedical (BMEP), a four-year engineering curriculum taken with required premedical courses. It is one of many majors that can serve as preparation for further training in medical, veterinary, or allied health professions. It is also suitable for students interested in pursuing graduate work in Biomedical Engineering and other biomedical areas such as physiology, neurosciences, and bioinformatics. The curriculum has less engineering content but more biological sciences and chemistry course work than the Biomedical Engineering major. The undergraduate major in Biomedical Engineering: Premedical is not designed to be accredited, therefore is not accredited by ABET.

Areas of graduate study and research include biophotonics, biomedical nanoscale systems, biomedical computational technologies, and tissue engineering.

- Biomedical Engineering (p. 488)
- Biomedical Engineering: Premedical (p. 490)

Undergraduate Major in Biomedical Engineering

Program Educational Objectives: Graduates of the Biomedical Engineering program will (1) promote continuous improvement in the field of biomedical engineering; (2) communicate effectively the relevant biomedical engineering problem to be solved across the engineering, life science, and medical disciplines; (3) apply critical reasoning as well as quantitative and design skills to identify and solve problems in biomedical engineering; (4) lead and manage biomedical engineering projects in industry, government, or academia that involve multidisciplinary team members. (Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

Biomedical Engineering students learn engineering and principles of biology, physiology, chemistry, and physics. They may go on to design devices to diagnose and treat disease, engineer tissues to repair wounds, develop cutting-edge genetic treatments, or create computer programs to understand how the human body works.

The curriculum emphasizes education in the fundamentals of engineering sciences that form the common basis of all engineering sub-specialties. Education with this focus is intended to provide students with a solid engineering foundation for a career in which engineering practice may change rapidly. In addition, elements of bioengineering design are incorporated at every level in the curriculum. This is accomplished by integration of laboratory experimentation, computer applications, and exposure to real bioengineering problems throughout the program. Students also work as teams in senior design project courses to solve multidisciplinary problems suggested by industrial and clinical experience.

NOTE: Students may complete only one of the following programs: the major in Biomedical Engineering, the major in Biomedical Engineering: Premedical, or the minor in Biomedical Engineering.

Admissions

High School Students: See School admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one year of chemistry (with laboratory), and one additional approved course for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Biomedical Engineering

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 468)**.**

Major Requirements

Mathematics and Basic Science Courses:	
Students must complete a minimum of 48 units of mathematics and basic sciences including:	
Core Courses:	
BIO SCI 194S	Safety and Ethics for Research
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM 1LC	General Chemistry Laboratory
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 2E	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C	Classical Physics
PHYSICS 7LC	Classical Physics Laboratory
PHYSICS 7D- 7E	Classical Physics and Classical Physics
PHYSICS 7LD	Classical Physics Laboratory
STATS 8	Introduction to Biological Statistics
Engineering Topics Courses:	
Students must complete a minimum of 28 units of engineering design including:	
Core Courses:	
BME 1	Introduction to Biomedical Engineering
BME 50A- 50B	Cell and Molecular Engineering and Cell and Molecular Engineering
BME 60A- 60B- 60C	Engineering Analysis/Design: Data Acquisition and Engineering Analysis/Design:Data Analysis and Engineering Analysis/Design: Computer-Aided Design
BME 110A- 110B- 110C	Biomechanics I and Biomechanics II and Biomechanics III
BME 111	Design of Biomaterials
BME 120	Sensory Motor Systems
BME 121	Quantitative Physiology: Organ Transport Systems
BME 130	Biomedical Signals and Systems
BME 140	Design of Biomedical Electronics
BME 150	Biotransport Phenomena
BME 160	Tissue Engineering
BME 170	Biomedical Engineering Laboratory
BME 180A- 180B- 180C	Biomedical Engineering Design and Biomedical Engineering Design and Biomedical Engineering Design
Engineering Electives:	
Students select, with the approval of a faculty advisor a minimum of 12 units of engineering topics needed to satisfy school and major requirements.	
(The nominal Biomedical Engineering program will require 186 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary.)	
Engineering Professional Topics Course:	
ENGR 190W	Communications in the Professional World

Optional Specialization in Biophotonics

Requires:	
BME 135	Photomedicine
BME 136	Engineering Medical Optics
BME 137	Introduction to Biomedical Imaging
or EECS 180A	Engineering Electromagnetics I

These courses will also satisfy the Engineering Electives requirement.

Optional Specialization in Micro and Nano Biomedical Engineering

Requires:	
BME 149	Biomedical Microdevices
Select two of the following:	
BME 147	Microfluidics and Lab-on-a-Chip
BME 148	Microimplants
EECS 179	Microelectromechanical Systems (MEMS)
or ENGRMAE 153	Advanced BIOMEMS Manufacturing Techniques

These courses will also satisfy the Engineering Electives requirement.

Planning a Program of Study

The sample program of study chart shown is typical for the major in Biomedical Engineering. Students should keep in mind that this program is based upon a sequence of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Students who are not adequately prepared, or who wish to make changes in the sequence for other reasons, must have their program approved by their faculty advisor. Biomedical Engineering majors must consult at least once every year with the academic counselors in the Student Affairs Office and with their faculty advisors.

Sample Program of Study — Biomedical Engineering

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
CHEM 1A	CHEM 1B	CHEM 1C
BME 1	PHYSICS 7C	CHEM 1LC
General Education	PHYSICS 7LC	PHYSICS 7D
	General Education	PHYSICS 7LD
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
PHYSICS 7E	BME 50A	BME 50B
BME 60A	BME 60B	BME 60C
	General Education	STATS 8
Junior		
Fall	**Winter**	**Spring**
BME 110A	BME 110B	BME 110C
BME 120	BME 121	BME 111
BME 130	BME 140	BME 150
ENGR 190W	General Education	BIO SCI 194S
		General Education
Senior		
Fall	**Winter**	**Spring**
BME 180A	BME 180B	BME 180C
BME 160	Engineering Elective	BME 170
Engineering Elective	General Education	Engineering Elective
General Education	General Education	General Education

Undergraduate Major in Biomedical Engineering: Premedical

Program Educational Objectives: Graduates of the Biomedical Engineering: Premedical program will: (1) demonstrate a broad knowledge in the field of biomedical engineering; (2) demonstrate critical reasoning as well as quantitative skills to identify, formulate, analyze and solve biomedical

problems; (3) qualify to pursue entry into a medical college, or medical research in biomedical engineering, or other professional heal programs. (Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.) The major program objective is to prepare students for medical school. The curriculum is designed to meet the requirements for admission to medical schools, but is also suitable for those planning to enter graduate school in biomedical engineering, physiology, biology, neurosciences, or related fields. It has less engineering content and more biological sciences than the accompanying Biomedical Engineering major. It is one of many majors that can serve as preparation for further training in medical, veterinary, or allied health professions.

The Biomedical Engineering: Premedical curriculum provides future physicians with a quantitative background in biomechanics, physiology, and biotransport. Such a background is increasingly important because of the heavy utilization of biomedical technology in modern medical practice. The curriculum includes courses in the sciences that satisfy the requirements of most medical schools.

Admissions

High School Students: See School admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one year of chemistry (with laboratory), and one additional approved course for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Biomedical Engineering: Premedical

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 468)**.**

Major Requirements

Mathematics and Basic Science Courses:	
Students must complete a minimum of 48 units of mathematics and basic sciences including:	
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM 1LC- 1LD	General Chemistry Laboratory and General Chemistry Laboratory
CHEM 51A- 51B- 51C	Organic Chemistry and Organic Chemistry and Organic Chemistry
CHEM 51LB- 51LC	Organic Chemistry Laboratory and Organic Chemistry Laboratory
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C	Classical Physics
PHYSICS 7LC	Classical Physics Laboratory
PHYSICS 7D- 7E	Classical Physics and Classical Physics
PHYSICS 7LD	Classical Physics Laboratory
Students select, with the approval of a faculty advisor, any additional basic science course needed to satisfy school and major requirements.	
Engineering Topics Courses:	
Students must complete the following engineering topics including:	
BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
BIO SCI 100	Scientific Writing
BIO SCI D103	Cell Biology
or BIO SCI D104	Developmental Biology

BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI E112L- M114L- M116L	Physiology Laboratory and Biochemistry Laboratory and Molecular Biology Laboratory (select two of these three courses)
BIO SCI 194S	Safety and Ethics for Research
BME 1	Introduction to Biomedical Engineering
BME 60A- 60B- 60C	Engineering Analysis/Design: Data Acquisition and Engineering Analysis/Design:Data Analysis and Engineering Analysis/Design: Computer-Aided Design
BME 110A- 110B	Biomechanics I and Biomechanics II
BME 111	Design of Biomaterials
BME 120	Sensory Motor Systems
BME 121	Quantitative Physiology: Organ Transport Systems
BME 130	Biomedical Signals and Systems
BME 150	Biotransport Phenomena
BME 160	Tissue Engineering

Students select, with the approval of a faculty advisor, at least three additional engineering topics courses needed to satisfy school and major requirements.

(The nominal Biomedical Engineering: Premedical program will require 193 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary).

Planning a Program of Study

The sample program of study chart shown is typical for the major in Biomedical Engineering: Premedical. Students should keep in mind that this program is based upon a sequence of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Students who are not adequately prepared, or who wish to make changes in the sequence for other reasons, must have their program approved by their faculty advisor. Biomedical Engineering: Premedical majors must consult at least once every year with the academic counselors in the Student Affairs Office and with their faculty advisors.

Sample Program of Study — Biomedical Engineering: Premedical

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
CHEM 1A	CHEM 1B	CHEM 1C
BME 1	PHYSICS 7C	CHEM 1LC
General Education	PHYSICS 7LC	PHYSICS 7D
	General Education	PHYSICS 7LD
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	CHEM 51C
CHEM 1LD	CHEM 51B	CHEM 51LC
CHEM 51A	CHEM 51LB	BME 60C
PHYSICS 7E	BME 60B	General Education
BME 60A	General Education	General Education
Junior		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
BME 110A	BME 110B	BME 111
BME 120	BME 121	BME 150
BME 130	Engineering Elective	General Education
Senior		
Fall	**Winter**	**Spring**
BIO SCI 100	BIO SCI D103 or D104	BIO SCI E112L[1]
BIO SCI 194S	BIO SCI D111L	BIO SCI M114L[1]
BME 160	Engineering Elective	BIO SCI M116L[1]

General Education	General Education	Engineering Elective General Education

[1] Select two of BIO SCI E112L, BIO SCI M114L, BIO SCI M116L.

Minor in Biomedical Engineering

The minor in Biomedical Engineering requires a total of nine courses—two advanced mathematics courses, five core Biomedical Engineering courses, and two Biomedical Engineering electives. Some of these courses may include prerequisites that may or may not be part of a student's course requirements for their major. Private biomedical industry has indicated a keen interest in engineers that have a more traditional engineering degree (i.e., electrical engineering), but also possess some in-depth knowledge of biomedical systems. Hence, the minor in Biomedical Engineering is designed to provide a student with the introductory skills necessary to perform as an engineer in the biomedical arena.

Admissions. Students interested in the minor in Biomedical Engineering must have a UCI cumulative GPA of 2.5 or higher.

NOTE: Students may not receive both a minor in Biomedical Engineering and a specialization in Biochemical Engineering within the Chemical Engineering major.

Requirements for the Minor in Biomedical Engineering

Mathematics Courses:	
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
Engineering Topics Courses:	
BME 1	Introduction to Biomedical Engineering
BME 50A- 50B	Cell and Molecular Engineering and Cell and Molecular Engineering
BME 120	Sensory Motor Systems
BME 121 Quantitative Physiology: Organ Transport Systems	
Technical Electives:	
Students select, with the approval of a faculty advisor, two technical elective courses:	
BME 110A	Biomechanics I
BME 110B	Biomechanics II
BME 130	Biomedical Signals and Systems
BME 135/BIO SCI D130	Photomedicine
BME 136	Engineering Medical Optics
BME 140	Design of Biomedical Electronics
BME 160	Tissue Engineering
BME 199	Individual Study
CBEMS 154	Polymer Science and Engineering
EECS 179	Microelectromechanical Systems (MEMS)
EECS 188	Optical Electronics

Graduate Study in Biomedical Engineering

The Biomedical Engineering faculty have special interest and expertise in four thrust areas: Biophotonics, Biomedical Micro/Nanoscale Systems, Bioimaging & Computation, and Molecular & Cellular Engineering. Biophotonics faculty are interested in photomedicine, laser microscopy, optical coherence tomography, medical imaging, and phototherapy. Biomedical Micro/Nanoscale Systems faculty are interested in molecular engineering, polymer chemistry, molecular motors, design and fabrication of microelectromechanical systems (MEMS), integrated microsystems to study intercellular signaling, and single molecule studies of protein dynamics. Biomedical Computation faculty are interested in computational biology, biomedical signal and image processing, medical imaging, computational methods in protein engineering, and data mining.

The Department offers the M.S. and Ph.D. degrees in Biomedical Engineering.

Required Background

Because of its interdisciplinary nature, biomedical engineering attracts students with a variety of backgrounds. Thus, the requirements for admission are tailored to students who have a bachelor's degree in an engineering, physical science, or biological science discipline, with a grade point average of 3.20 or higher in their upper-division course work. The minimum course work requirements for admission are six quarters of calculus through linear algebra and ordinary differential equations, three quarters of calculus-based physics, three quarters of chemistry, and two quarters of biology. Students without a physics, chemistry, or engineering undergraduate degree may be required to take additional relevant undergraduate engineering courses during their

first year in the program; any such requirements will be specifically determined by the BME Graduate Committee on a case-by-case basis and will be made known to the applicant at the time of acceptance to the program.

The recommended minimum combined verbal and quantitative portion of the GRE is 310, or a minimum combined MCAT score in Verbal Reasoning, Physical Sciences, and Biological Sciences problems of 30. A minimum score of 94 on the Test of English as a Foreign Language (TOEFL iBT) is recommended of all international students whose native language is not English. In addition, all applicants must submit three letters of recommendation.

Exceptionally promising UCI undergraduates may apply for admission through The Henry Samueli School of Engineering's accelerated M.S. and M.S./Ph.D. program, however, these students must satisfy the course work and letters of recommendation requirements described above.

Core Requirement

Both the M.S. and Ph.D. degrees require the students to complete 42 course units. These units include six core courses, the BME 298 seminar series, two elective courses, and four units of independent research. The core courses cover the basics of cells, tissues, and physiology at the microscopic and macroscopic scale, engineering mathematics, and clinical theory. The core courses are BME 210, BME 220, BME 221, BME 230A, BME 230B, BME 240, and three quarters of BME 298. Core requirements can be waived for students entering the Ph.D. program with an M.S. degree in Biomedical Engineering.

Elective Requirement

The two elective courses required to fulfill the course requirements for the M.S. and Ph.D. degree are offered within The Henry Samueli School of Engineering and the Schools of Biological Sciences, Physical Sciences, and Medicine. The electives must provide breadth in biomedical engineering, but also provide specific skills necessary to the specific research the student may undertake as part of the degree requirements. The selection of these courses should be based upon approval of the student's faculty advisor. Upper-division undergraduate courses and courses outside of the HSSoE may be selected upon approval of the BME Graduate Advisor. Elective requirements can be waived for students entering the Ph.D. program with an M.S. degree in Biomedical Engineering.

Areas of Emphasis

Although a student is not required to formally choose a specific research focus area, four research thrust areas have been identified for the program: Biophotonics, Biomedical Micro/Nanoscale Systems, Bioimaging & Computation, and Molecular & Cellular Engineering. These areas capitalize on existing strengths within The Henry Samueli School of Engineering and UCI as a whole, interact in a synergistic fashion, and will train biomedical engineers who are in demand in both private industry and academia.

Biophotonics. This research area includes the use of light to probe individual cells and tissues and whole organs for diagnostic and therapeutic purposes. The research areas include both fundamental investigation on the basic mechanisms of light interaction with biological systems and the clinical application of light to treat and diagnose disease. Current and future foci of the faculty are (1) microscope-based optical techniques to manipulate and study cells and organelles; (2) development of optically based technologies for the non-invasive diagnosis of cells and tissues using techniques that include fiber-optic-based sensors, delivery systems, and imaging systems; and (3) development of optically based devices for minimally invasive surgery.

Biomedical Micro/Nanoscale Systems. This class of research areas encompasses the understanding, use and design of biomedical devices and systems that are at the micron or submicron level. Current strengths within The Henry Samueli School of Engineering and the UCI faculty as a whole include biomaterials, micro-electromechanical systems (MEMS), and the design of new biomedical molecules. The focus of biomedical engineering research in this area is the integration of micro and nano-scale systems with the needs of clinical medicine. Projected areas of growth include (1) micro/nano-electromechanical systems (M/NEMS) for biomedical devices, biofluid assay and micro implantable prosthesis (2) programmable DNA/ molecular microchip for sequencing and diagnostics; (3) cellular, tissue, and organ constructs on-a-chip; and (4) biomaterials and self-assembled nanostructures for biosensors and drug delivery.

Biomedical Imaging & Computation. Biomedical computational technologies include both advanced computational techniques, as well as advanced biomedical database systems and knowledge-base systems. Computational technologies that will be developed in this research area include (1) methods for biomedical analysis and diagnosis such as physical modeling of light-tissue interactions, atomic-level interactions, image processing, pattern recognition, and machine-learning algorithms; (2) language instruction and platform standardization; and (3) machine-patient interfaces. Areas of research related to biomedical database systems include the development of new technologies which can capture the rich semantics of biomedical information for intelligent reasoning.

Molecular & Cellular Engineering. Rapid developments in genetics, molecular biology, and cellular biology have extended the reach of engineering into the subcellular, cellular, and tissue size scales. As a result, several new fields including genetic engineering, cell-based therapy, and tissue engineering have emerged and matured in the past decades with the broad goal of extracting and applying engineering design principles to the most fundamental levels of biological organization.

Master of Science Degree

Students must successfully complete a minimum of 42 units of course work, as listed under "Core Requirement" and "Elective Requirement" above. A maximum of eight M.S. research units (i.e., BME 296) may be applied toward the 42-unit requirement.

In addition, the M.S. degree requires conducting a focused research project. Students must select a thesis advisor and complete an original research investigation including a written thesis, and obtain approval of the thesis by a thesis committee. During their research project, students are expected to enroll in at least 12 units of independent research per quarter.

The degree will be granted upon the recommendation of the Chair of the Department of Biomedical Engineering and The Henry Samueli School of Engineering Associate Dean for Student Affairs. The maximum time permitted is three years.

NOTE: Students who entered prior to fall of 2012 should follow the course requirements outlined within the *Catalogue* of the year they entered. The changes in number of units per course is not intended to change the course requirements for the degree nor to have any impact in the number of courses students are taking.

Doctor of Philosophy Degree

The Ph.D. degree requires the achievement of an original and significant body of research that advances the discipline. Students with a B.S. degree may enter the Ph.D. program directly, provided they meet the background requirements described above. The Graduate Committee will handle applicants on a case-by-case basis, and any specific additional courses required by the student will be made explicit at the time of admission.

Each student will match with a faculty advisor, and an individual program of study is designed by the student and their faculty advisor. Two depth courses are required beyond that of the M.S. degree in preparation for the qualifying examination. Six milestones are required: (1) successful completion of 42 units of course work beyond the bachelor's degree, as listed under "Core Requirement" and "Elective Requirement" above; (2) successful completion of a preliminary examination; (3) establishing an area of specialization by taking two depth courses and three quarters of BME 298 during the second year; (4) formal advancement to candidacy by successfully passing the qualifying examination; (5) students in their third or fourth year must present results of their current research in the BME seminar series; and (6) completion of a significant body of original research and the submission of an acceptable written dissertation and its successful oral defense. During their research project, students are expected to enroll in at least 12 units of independent research per quarter. Students entering the Ph.D. program with an M.S. degree in Biomedical Engineering cannot receive another M.S. degree in Biomedical Engineering from UCI. Therefore, the requirements for milestone (1) can be waived, and the award of the Ph.D. degree is based on achieving milestones (2)–(6).

The preliminary examination will normally be taken at the end of the first year (May). A student must take it within two years of matriculating in the program, and must either have passed all of the core courses or have an M.S. degree in Biomedical Engineering prior to taking the examination. The Preliminary Examination Committee prepares the examination and sets the minimum competency level for continuing on in the Ph.D. program. Students who fail may retake the examination the following year. Students who fail the second attempt will not be allowed to continue in the program. However, they may be eligible to receive a Master's degree upon completion of an original research investigation including a written thesis (refer to Master of Science Degree requirements). In the event a Ph.D. student decides not to continue in the program, the thesis-only option for the M.S. degree will still be enforced. After passing the preliminary examination at the Ph.D. competency level, students will match with a BME faculty advisor and design an individual program of study with their advisor.

Advancement to candidacy must be completed by the end of the summer of the second year following the passing of the preliminary examination. (Special exceptions can be made, but a formal request with justification must be supplied in writing to the BME Graduate Advisor.) The qualifying examination follows campus and The Henry Samueli School of Engineering guidelines and consists of an oral and written presentation of original work completed thus far, and a coherent plan for completing a body of original research. The qualifying examination is presented to the student's graduate advisory committee, which is selected by the student and faculty advisor and must have a minimum of five faculty (including the faculty advisor). Of these five faculty, three must be BME faculty. In addition, one faculty member must have his/her primary appointment outside the Department of Biomedical Engineering. The fifth member must have his/her primary appointment outside of The Henry Samueli School of Engineering.

The Ph.D. is awarded upon submission of an acceptable written dissertation and its successful oral defense. The degree is granted upon the recommendation of the graduate advisory committee and the Dean of Graduate Division. The normative time for completion of the Ph.D. is five years (four years for students who entered with a master's degree). The maximum time permitted is seven years.

Requirements listed here pertain to students enrolled in academic year 2012–13 or later. Students enrolled before this date may refer to a previous version of this *Catalogue*.

Program in Law and Graduate Studies (J.D./M.S.-BME; J.D./Ph.D.-BME)

Highly qualified students interested in combining the study of law with graduate qualifications in the BME program are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students in this program pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Master's or Ph.D. degree in the BME program. Additional information is available from the PLGS Program Director's Office, (949) 824-4158, or by e-mail to plgs@law.uci.edu. A full description of the program, with links to all relevant application information, can be found at the School of Law Concurrent Degree Programs (http://catalogue.uci.edu/thehenrysamuelischoolofengineering/departmentofbiomedicalengineering/%20http://www.law.uci.edu/plgs) website and in the Law School section of the *Catalogue.*

Graduate Program in Mathematical and Computation Biology

The graduate program in Mathematical and Computational Biology (MCB) is a one-year “gateway” program designed to function in concert with selected department programs, including the Ph.D. in Biomedical Engineering. Detailed information is available at the Mathematical, Computational and Systems Biology (http://mcsb.bio.uci.edu) website and in the Francisco J. Ayala School of Biological Sciences (p. 289) section of the *Catalogue*.

Graduate Specialization in Teaching

The graduate specialization in Teaching will allow Engineering Ph.D. students to receive practical training in pedagogy designed to enhance their knowledge and skill set for future teaching careers. Students will gain knowledge and background in college-level teaching and learning from a variety of sources, and experience in instructional practices. Students completing the specialization in Teaching must fulfill all of their Ph.D. requirements in addition to the specialization requirements. Upon fulfillment of the requirements, students will be provided with a certificate of completion. Upon receipt of the certificate of completion, the students can then append "Specialization in Teaching" to their curricula vitae. For details visit the Graduate Specialization in Teaching website.

The graduate specialization in Teaching is available only for certain degree programs and concentrations:

- Ph.D. degree in Biomedical Engineering
- Ph.D. degree in Electrical and Computer Engineering
- Ph.D. degree in Engineering with a concentration in Materials and Manufacturing Technology

Faculty

Alpesh N. Amin, M.D. Northwestern University, *Thomas and Mary Cesario Endowed Chair in Medicine* and *Professor of Medicine; Biomedical Engineering; Paul Merage School of Business; Program in Nursing Science* (hospital medicine, quality/safety, new technologies in healthcare)

Mark G. Bachman, Ph.D. University of Texas at Austin, *Assistant Professor of Electrical Engineering and Computer Science; Biomedical Engineering* (integrated microsystems, microfabrication technology, biomedical microdevices, sensor systems, human sensing, human-machine interface)

Pierre F. Baldi, Ph.D. California Institute of Technology, *UCI Chancellor's Professor of Computer Science; Biological Chemistry; Biomedical Engineering; Developmental and Cell Biology* (bioinformatics, computational biology)

Michael W. Berns, Ph.D. Cornell University, *Arnold and Mabel Beckman Chair in Laser Biomedicine* and *Professor of Surgery; Biomedical Engineering; Developmental and Cell Biology* (photomedicine, laser microscopy, biomedical devices)

Lubomir Bic, Ph.D. University of California, Irvine, *Professor of Computer Science; Biomedical Engineering; Electrical Engineering and Computer Science* (parallel and distributed computing, mobile agents)

Bruce Blumberg, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering; Environmental Health Sciences; Pharmaceutical Sciences* (gene regulation by nuclear hormone receptors in vertebrate development physiology, endocrine disruption)

Elliot L. Botvinick, Ph.D. University of California, San Diego, *Associate Professor of Surgery; Biomedical Engineering* (laser microbeams, cellular mechanotransduction, mechanobiology)

Gregory J. Brewer, Ph.D. University of California, San Diego, *Adjunct Professor of Biomedical Engineering* (neuronal networks, decoding brain learning and memory, brain-inspired computing, Alzheimer's disease, brain aging, neuron cell culture)

James P. Brody, Ph.D. Princeton University, *Associate Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (bioinformatics, micro-nanoscale systems)

Donald J. Brown, Ph.D. University of Colorado Denver, *Associate Professor in Residence of Ophthalmology; Biomedical Engineering* (glaucoma, optic nerve, non-linear optics)

Peter J. Burke, Ph.D. Yale University, *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Chemical Engineering and Materials Science* (nano-electronics, bio-nanotechnology)

Zhongping Chen, Ph.D. Cornell University, *Professor of Biomedical Engineering; Chemical Engineering and Materials Science; Electrical Engineering and Computer Science; Otolaryngology; Surgery* (biomedical optics, optical coherence tomography, bioMEMS, biomedical devices)

Bernard H. Choi, Ph.D. University of Texas at Austin, *Associate Professor in Residence of Surgery; Biomedical Engineering* (biomedical optics, in vivo optical imaging, microvasculature, light-based therapeutics)

Dan M. Cooper, M.D. University of California, San Francisco, *Professor of Pediatrics; Biomedical Engineering* (impact of exercise on exhaled biological gases, novel methods of assessing physical activity in infants and children using bioMEMS, impact of oxygen gradients on neutrophil trafficking)

Robert Corn, Ph.D. University of California, Berkeley, *Professor of Chemistry; Biomedical Engineering* (analytical, chemical biology, physical chemistry and chemical physics, polymer, materials, nanoscience)

Carl W. Cotman, Ph.D. Indiana University, *Professor of Neurology; Biomedical Engineering; Neurobiology and Behavior* (amyloid, C1q, Alzheimer's disease, apoptosis, successful aging, dementia)

Nancy A. Da Silva, Ph.D. California Institute of Technology, *Professor of Chemical Engineering and Materials Science; Biomedical Engineering* (molecular biotechnology)

Michelle Digman, Ph.D. University of Illinois at Chicago, *Assistant Professor of Biomedical Engineering* (quantitative imaging techniques to study spatial-temporal dynamics of signaling protein networks in live cells and tissues)

Hamid Djalilian, M.D. University of Minnesota, *Associate Professor of Otolaryngology; Biomedical Engineering* (medical devices, hearing loss, tinnitus, dizziness/imbalance, clinical research)

James Earthman, Ph.D. Stanford University, *Professor of Chemical Engineering and Materials Science; Biomedical Engineering* (biomaterials, dental and orthopaedic implants, green materials, nanocrystalline alloys, deformation and damage processes)

Aaron P. Esser-Kahn, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Biomedical Engineering; Chemical Engineering and Materials Science* (chemical biology, organic and synthetic, polymer, materials, nanoscience)

Gregory R. Evans, M.D. University of Southern California, *Professor of Surgery; Biomedical Engineering* (aesthetic surgery, breast augmentation, cosmetic plastic surgery, craniomaxillofacial, hand surgery, head and neck reconstruction, liposuction, oncology, pelvic bone reconstruction, peripheral nerve regeneration, reconstructive microsurgery, replantation, tissue engineering)

Lisa Flanagan-Monuki, Ph.D. University of California, San Diego, *Assistant Professor of Neurology; Biomedical Engineering* (stem cells, neural, embryonic, neuron)

Ron D. Frostig, Ph.D. University of California, Los Angeles, *Professor of Neurobiology and Behavior; Biomedical Engineering* (optical methods for brain imaging, functional organization of the cortex)

John P. Fruehauf, M.D. Rush University, *Professor of Medicine; Biological Chemistry; Biomedical Engineering; Pharmaceutical Sciences* (in-vitro cancer models using 3-D tissue systems to predict drug response)

Steven C. George, Ph.D. University of Washington, *Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (physiological and multi-scale integrative modeling, gas exchange, computational methods, tissue engineering)

Enrico Gratton, Ph.D. University of Rome, *Professor of Biomedical Engineering; Developmental and Cell Biology; Physics and Astronomy* (design of new fluorescence instruments, protein dynamics, single molecule, fluorescence microscopy, photon migration in tissues)

Anna Grosberg, Ph.D. California Institute of Technology, *Assistant Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (computational modeling of biological systems, biomechanics, cardiac tissue engineering)

Steven P. Gross, Ph.D. University of Texas at Austin, *Professor of Developmental and Cell Biology; Biomedical Engineering; Physics and Astronomy* (force generation by molecular motors in living cells)

Zhibin Guan, Ph.D. University of North Carolina at Chapel Hill, *Professor of Chemistry; Biomedical Engineering* (chemical biology, organic and synthetic, polymer, materials, nanoscience)

Gultekin Gulsen, Ph.D. Bogazici University, *Associate Professor of Radiological Sciences; Biomedical Engineering; Electrical Engineering and Computer Science; Physics and Astronomy* (in vivo molecular imaging, diffuse optical tomography, fluorescence tomography, photo-magnetic imaging, multi-modality imaging)

Ranjan Gupta, M.D. Albany Medical College, *Professor of Orthopaedic Surgery; Anatomy and Neurobiology; Biomedical Engineering* (hand and upper extremity surgery)

Jered Haun, Ph.D. University of Pennsylvania, *Assistant Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (nanotechnology, molecular engineering, computational simulations, targeted drug delivery, clinical cancer detection)

Frank P. Hsu, M.D. University of Maryland, College Park, *Department Chair and Professor of Neurological Surgery; Biomedical Engineering; Otolaryngology* (biomechanics of cerebral aneurysms, functional neurosurgery, epilepsy)

Christopher C. Hughes, Ph.D. University of London, *Director of Edwards Lifesciences Cardiovascular Technology Center and Professor of Molecular Biology and Biochemistry; Biomedical Engineering* (tissue engineering, growth and patterning of blood vessels)

Elliot E. Hui, Ph.D. University of California, Berkeley, *Assistant Professor of Biomedical Engineering* (microscale tissue engineering, bioMEMS, cell-cell interactions, global health diagnostics)

James V. Jester, Ph.D. University of Southern California, *Jack H. Skirball Endowed Chair* and *Professor of Ophthalmology; Biomedical Engineering* (mechanics of wound healing and the inter-relationship of mechanical force, cell-matrix interaction, and gene expression, cellular basis of corneal transparency and the role of water-soluble proteins in isolated cell light scattering, three-dimensional and temporal imaging of cells in intact living tissue)

Tibor Juhasz, Ph.D. Attila József University, *Professor of Ophthalmology; Biomedical Engineering* (laser-tissue interactions, high-precision microsurgery with lasers, laser applications in ophthalmology, corneal biomechanics)

Joyce H. Keyak, Ph.D. University of California, San Francisco, *Professor in Residence of Radiological Sciences; Biomedical Engineering; Mechanical and Aerospace Engineering* (bone mechanics, finite element modeling, quantitative computed tomography, prosthetic implants, osteoporosis, metastatic tumors in bone, radiation therapy)

Arash Kheradvar, Ph.D. California Institute of Technology, *Associate Professor of Biomedical Engineering; Mechanical and Aerospace Engineering* (cardiac mechanics, cardiovascular devices, cardiac imaging)

Michelle Khine, Ph.D. University of California, Berkeley, *Associate Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (development of novel nano- and micro-fabrication technologies and systems for single cell analysis, stem cell research, in-vitro diagnostics)

Frithjof Kruggel, M.D. Ludwig Maximilian University of Munich, *Professor of Biomedical Engineering* (biomedical signal and image processing, anatomical and functional neuroimaging in humans, structure-function relationship in the human brain)

Baruch D. Kuppermann, M.D. University of Miami, *Professor of Ophthalmology; Biomedical Engineering* (ocular manifestations of AIDS, risk factors for the development of retinopathy of prematurity post partum, photodynamic therapy for the treatment of choroidal melanomas)

Young Jik Kwon, Ph.D. University of Southern California, *Associate Professor of Pharmaceutical Sciences; Biomedical Engineering; Chemical Engineering and Materials Science; Molecular Biology and Biochemistry* (gene therapy, drug delivery, cancer-targeted therapeutics, combined molecular imaging and therapy, cancer vaccine)

Jonathan Lakey, Ph.D. University of Alberta, *Associate Professor of Surgery; Biomedical Engineering* (islet transplantation for patients with diabetes, improving methods of islet isolation, characterization and developing novel methods of islet transplantation, biopolymer and encapsulation technologies)

Arthur D. Lander, Ph.D. University of California, San Francisco, *Donald Bren Professor* and *Professor of Developmental and Cell Biology; Biomedical Engineering; Logic and Philosophy of Science; Pharmacology* (systems biology of development, pattern formation, growth control)

Richard H. Lathrop, Ph.D. Massachusetts Institute of Technology, *Professor of Computer Science; Biomedical Engineering* (modeling structure and function, machine learning, intelligent systems and molecular biology, protein structure/function prediction)

Abraham P. Lee, Ph.D. University of California, Berkeley, *William J. Link Chair in Biomedical Engineering and Department Chair* and *Professor of Biomedical Engineering; Mechanical and Aerospace Engineering* (Lab-on-a-Chip health monitoring instruments, drug delivery micro/nanoparticles, integrated cell sorting microdevices, lipid vesicles as carriers for cells and biomolecules, high throughput droplet bioassays, microfluidic tactile sensors)

Thay Q. Lee, Ph.D. Gothenburg School of Business, Economics and Law, *Professor in Residence of Orthopaedic Surgery; Biomedical Engineering; Physical Medicine and Rehabilitation* (research biomechanics)

Guann-Pyng Li, Ph.D. University of California, Los Angeles, *Director of the UCI Division of the California Institute for Telecommunications and Information Technology (Calit2), Director of the Integrated Nanosystems Research Facility and Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Chemical Engineering and Materials Science* (high-speed semiconductor technology, optoelectronic devices, integrated circuit fabrication and testing)

Shin Lin, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering* (combined use of biochemistry, cell biology, molecular biology, molecular biophysics to study the structure and function of proteins involved in cytoskeletal/contractile functions and signal transduction in muscle and nonmuscle cells)

Chang C. Liu, Ph.D. Scripps Research Institute, *Assistant Professor of Biomedical Engineering; Chemistry* (genetic engineering, directed evolution, synthetic biology, chemical biology)

Wendy F. Liu, Ph.D. Johns Hopkins University, *Assistant Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (biomaterials, microdevices in cardiovascular engineering, cell-cell and cell-micro-environment interactions, cell functions and controls)

Beth A. Lopour, Ph.D. University of California, Berkeley, *Assistant Professor of Biomedical Engineering* (computational neuroscience, signal processing, mathematical modeling, epilepsy, translational research)

John S. Lowengrub, Ph.D. Courant Institute of Mathematical Sciences, *UCI Chancellor's Professor of Mathematics; Biomedical Engineering; Chemical Engineering and Materials Science* (applied and computational mathematics, mathematical and computational biology)

Ray Luo, Ph.D. University of Maryland, College Park, *Professor of Molecular Biology and Biochemistry; Biomedical Engineering* (protein structure, noncovalent associations involving proteins)

Marc J. Madou, Ph.D. Ghent University, *UCI Chancellor's Professor of Mechanical and Aerospace Engineering; Biomedical Engineering; Chemical Engineering and Materials Science* (fundamental aspects of micro/nano-electro-mechanical systems (MEMS/NEMS), biosensors, nanofluidics, biomimetics)

John Middlebrooks, Ph.D. University of California, San Francisco, *Professor of Otolaryngology; Biomedical Engineering; Cognitive Sciences; Neurobiology and Behavior* (hearing research, neurophysiology, auditory prosthesis, computational neuroscience, auditory cortex)

Sabee Y. Molloi, Ph.D. University of Wisconsin-Madison, *Professor of Radiological Sciences; Biomedical Engineering; Electrical Engineering and Computer Science* (quantitative aspects of medical x-ray imaging and its applications to cardiac and breast imaging)

J. Stuart Nelson, Ph.D. University of California, Irvine, *Professor of Surgery; Biomedical Engineering* (laser surgery, port wine stains, hemangiomas, vascular birthmarks)

Zoran Nenadic, Ph.D. Washington University, *Associate Professor of Biomedical Engineering; Electrical Engineering and Computer Science* (adaptive biomedical signal processing, control algorithms for biomedical devices, brain-machine interfaces, modeling and analysis of biological neural networks)

Hung Duc Nguyen, Ph.D. North Carolina State University at Raleigh, *Assistant Professor of Chemical Engineering and Materials Science; Biomedical Engineering* (self-assembly of biological and biomimetic nanoscale materials based on amino acids and on nucleic acids)

Qing Nie, Ph.D. Ohio State University, *Professor of Mathematics; Biomedical Engineering* (computational mathematics, systems biology, cell signaling, stem cell)

Pranav Patel, M.D. Saint Louis University, *Chief, Division of Cardiology; Director of Cardiac Catheterization Laboratory and Cardiac Care Unit (CCU) and Health Sciences Associate Clinical Professor of Medicine; Biomedical Engineering* (intravascular imaging (OCT and IVUS), interventional cardiology research-coronary artery disease and peripheral vascular disease, medical quality and outcomes research, cardiac hemodynamics: fractional flow reserve and coronary flow reserve, preventive cardiology research)

Susanne M. Rafelski, Ph.D. Stanford University, *Assistant Professor of Developmental and Cell Biology; Biomedical Engineering* (control of mitochondrial network size, topology and function in budding yeast cells)

David J. Reinkensmeyer, Ph.D. University of California, Berkeley, *Professor of Anatomy and Neurobiology; Biomedical Engineering; Mechanical and Aerospace Engineering; Physical Medicine and Rehabilitation* (robotics, mechatronics, biomedical engineering, rehabilitation, biomechanics, neural control of movement)

Phillip C-Y Sheu, Ph.D. University of California, Berkeley, *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Computer Science* (database systems, interactive multimedia systems)

Andrei M. Shkel, Ph.D. University of Wisconsin-Madison, *Professor of Mechanical and Aerospace Engineering; Biomedical Engineering; Electrical Engineering and Computer Science* (design and advanced control of micro-electro-mechanical systems (MEMS), precision micro-sensors and actuators for telecommunication and information technologies, MEMS-based health monitoring systems, disposable diagnostic devices, prosthetic implants)

Zuzanna S. Siwy, Ph.D. Silesian University of Technology, *Professor of Physics and Astronomy; Biomedical Engineering; Chemistry* (biosensing, nanotechnology, condensed matter physics)

Ramesh Srinivasan, Ph.D. Tulane University, *Professor of Cognitive Sciences; Biomedical Engineering* (cognitive neuroscience, brain development, consciousness, perception, EEG, brain dynamics)

Roger F. Steinert, M.D. Harvard University, *Irving H. Leopold Chair in Ophthalmology* and *Professor of Ophthalmology; Biomedical Engineering* (cataract surgical technique and management of complications, refractive surgery, corneal transplantation)

William C. Tang, Ph.D. University of California, Berkeley, *Professor of Biomedical Engineering; Electrical Engineering and Computer Science* (micro-electro-mechanical systems (MEMS) nanoscale engineering for biomedical applications, microsystems integration, microimplants, microbiomechanics, microfluidics)

Bruce Tromberg, Ph.D. University of Tennessee, *Director of Surgery; Biomedical Engineering; Physiology and Biophysics* (photon migration, diffuse optical imaging, non-linear optical microscopy, photodynamic therapy)

Vasan Venugopalan, ScD Massachusetts Institute of Technology, *Department Chair and Professor of Chemical Engineering and Materials Science; Biomedical Engineering; Mechanical and Aerospace Engineering; Surgery* (laser-induced thermal, mechanical and radiative transport processes for application in medical diagnostics, therapeutics, biotechnology, micro-electro-mechanical systems (MEMS))

Szu-Wen Wang, Ph.D. Stanford University, *Associate Professor of Chemical Engineering and Materials Science; Biomedical Engineering* (combining principles of self-assembly with nature-inspired macromolecular systems to engineer new materials and therapeutic strategies)

H. Kumar Wickramasinghe, Ph.D. University of London, *Henry Samueli Endowed Chair in Engineering and Department Chair* and *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Chemical Engineering and Materials Science* (nanoscale measurements and characterization, scanning probe microscopy, storage technology, nano-bio measurement technology)

Brian Wong, M.D. Johns Hopkins University, *Professor of Otolaryngology; Biomedical Engineering* (biomedical optics, tissue engineering, development of surgical instrumentation)

Xiangmin Xu, Ph.D. Vanderbilt University, *Assistant Professor of Anatomy and Neurobiology; Biomedical Engineering; Electrical Engineering and Computer Science; Microbiology and Molecular Genetics* (local cortical circuits)

Albert Fan Yee, Ph.D. University of California, Berkeley, *Professor of Chemical Engineering and Materials Science; Biomedical Engineering; Chemistry* (materials science aspects of polymers and soft materials, particularly on how they are used to impact nanotechnology)

Fan-Gang Zeng, Ph.D. Syracuse University, *Director of Hearing Research and Professor of Otolaryngology; Anatomy and Neurobiology; Biomedical Engineering; Cognitive Sciences* (cochlear implants and auditory neuroscience)

Weian Zhao, Ph.D. McMaster University, *Assistant Professor of Pharmaceutical Sciences; Biomedical Engineering* (stem cell therapy, diagnostics, biosensors, nano- and microtechnology, aptamers)

Courses

BME 1. Introduction to Biomedical Engineering. 3 Units.
Introduction to the central topics of biomedical engineering. Offers a perspective on bioengineering as a discipline in a seminar format. Principles of problem definition, team design, engineering inventiveness, information access, communication, ethics, and social responsibility are emphasized.

(Design units: 1)

Restriction: Biomedical Engineering and Biomedical Engineering: Premedical majors have first consideration for enrollment.

BME 50A. Cell and Molecular Engineering. 4 Units.
Physiological function from a cellular, molecular, and biophysical perspective. Applications to bioengineering design.

(Design units: 2)

Corequisite: BME 1.

Restriction: Biomedical Engineering, Chemical Engineering, and Materials Science Engineering majors have first consideration for enrollment.

BME 50B. Cell and Molecular Engineering. 4 Units.
Physiological function from a cellular, molecular, and biophysical perspective. Applications to bioengineering design.

(Design units: 2)

Prerequisite: BME 50A and PHYSICS 7D.

Restriction: Biomedical Engineering, Biomedical Engineering: Premedical, and Chemical Engineering majors have first consideration for enrollment.

BME 60A. Engineering Analysis/Design: Data Acquisition. 4 Units.
Fundamentals of LabVIEW programming, basics of computer-based experimentation, establishing interface between computer and data acquisition instrumentation, signal conditioning basics.

(Design units: 2)

Corequisite: BME 1.
Prerequisite: Physics 7D.

Restriction: Biomedical Engineering and Biomedical Engineering: Premedical majors have first consideration for enrollment.

BME 60B. Engineering Analysis/Design:Data Analysis. 4 Units.
Overview of MATLAB; numeric, cell, and structurs arrays; file management; plotting and model building; solving linear algebraic equations; differential equations; symbolic process.

(Design units: 1)

Corequisite: MATH 3D.
Prerequisite: BME 60A and MATH 3A.

Restriction: Biomedical Engineering and Biomedical Engineering: Premedical majors have first consideration for enrollment.

BME 60C. Engineering Analysis/Design: Computer-Aided Design. 4 Units.
Introduction to SolidWorks and Computer-Aided Design software; design; analysis; rapid prototyping; visualization and presentation; planning and manufacturing.

(Design units: 2)

Prerequisite: BME 60B.

Restriction: Biomedical Engineering and Biomedical Engineering: Premedical majors have first consideration for enrollment.

BME 110A. Biomechanics I. 4 Units.
Introduction to statics. Rigid bodies, analysis of structures, forces in beams, moments of inertia.

(Design units: 1)

Prerequisite: PHYSICS 7D and PHYSICS 7LD and PHYSICS 7E and BME 60C and MATH 3A and MATH 3D.

Restriction: BME 110A-BME 110B-BME 110C must be taken in the same academic year. Biomedical Engineering, Biomedical Engineering: Premedical, and Materials Science Engineering majors have first consideration for enrollment.

BME 110B. Biomechanics II. 4 Units.
Introdution to dynamics. Kinematics of Particles, Newton's Second Law, System's of Particles, Kinematics of Rigid Bodies, Motion in three dimensions.

(Design units: 1)

Prerequisite: BME 110A. BME 110A-BME 110B-BME 110C must be taken in the same academic year.

Restriction: Biomedical Engineering, Biomedical Engineering: Premedical, and Materials Science Engineering majors have first consideration for enrollment.

BME 110C. Biomechanics III. 4 Units.
Applications of statics and dynamics to biomedical systems. Cellular biomechanics, hemodynamics, circulatory system, respiratory system, muscles and movement, skeletal biomechanics. Applications to bioengineering design.

(Design units: 1)

Prerequisite: BME 110B. BME 110A-BME 110B-BME 110C must be taken in the same academic year.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

BME 111. Design of Biomaterials. 4 Units.
Natural and synthetic polymeric materials. Metal and ceramics implant materials. Materials and surface characterization and design. Wound repair, blood clotting, foreign body response, transplanation biology, biocompatibility of material. Artificial organs and medical devices. Government regulations.

(Design units: 3)

Corequisite: BME 50B or BIO SCI 99.
Prerequisite: BME 60C.

Restriction: Biomedical Engineering, Biomedical Engineering: Premedical, and Materials Science Engineering majors have first consideration for enrollment.

BME 114. Genetic Engineering and Synthetic Biology. 4 Units.
Exploring how biological function can be engineered and "synthesized" from the DNA level up.

Prerequisite: MATH 3D and BME 50A and BME 50B.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

BME 120. Sensory Motor Systems. 4 Units.
A quantitative and systems approach to understanding physiological systems. Systems covered include the nervous and musculoskeletal systems.

(Design units: 2)

Prerequisite: BME 60C and MATH 3A and MATH 3D.

Restriction: Biomedical Engineering, Biomedical Engineering: Premedical, and Materials Science Engineering majors have first consideration for enrollment.

Concurrent with BME 220.

BME 121. Quantitative Physiology: Organ Transport Systems. 4 Units.
A quantitative and systems approach to understanding physiological systems. Systems covered include the cardiopulmonary, circulatory, and renal systems.

(Design units: 1)

Prerequisite: BME 60C and MATH 3A and MATH 3D.

Restriction: Biomedical Engineering, Biomedical Engineering: Premedical, and Chemical Engineering majors have first consideration for enrollment.

BME 130. Biomedical Signals and Systems. 4 Units.
Analysis of analog and digital biomedical signals; Fourier Series expansions; difference and differential equations; convolutions. System models: discrete-time and continuous-time linear time-invariant systems; Laplace and Fourier transforms. Analysis of signals and systems using computer programs.

(Design units: 1)

Prerequisite: BME 60C and MATH 3A and MATH 3D. Recommended: STATS 8.

Restriction: Biomedical Engineering and Biomedical Engineering: Premedical majors have first consideration for enrollment.

BME 135. Photomedicine. 4 Units.
Studies the use of optical and engineering-based systems (laser-based) for diagnosis, treating diseases, manipulation of cells and cell function. Physical, optical, and electro-optical principles are explored regarding molecular, cellular, organ, and organism applications.

(Design units: 0)

Prerequisite: PHYSICS 3C or PHYSICS 7D.

Same as BIO SCI D130.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

BME 136. Engineering Medical Optics. 4 Units.
Principles of optics and photonics, integration of optical components into systems and devices, and analysis of physiological signals obtained from Biophotonics measurements.

(Design units: 3)

Prerequisite: BME 130 and BME 135.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

Concurrent with BME 251.

BME 137. Introduction to Biomedical Imaging. 4 Units.
Introduction to imaging modalities widely used in medicine and biology, including X-ray, computed tomography (CT), nuclear medicine (PET and SPET), ultrasonic imaging, magnetic resonance imaging (MRI), optical tomography, imaging contrast, imaging processing, and complementary nature of the imaging modalities.

(Design units: 1)

Prerequisite: BME 130 or EECS 50 or EECS 150.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

BME 138. Spectroscopy and Imaging of Biological Systems. 4 Units.
Principles of spectroscopy; absorption; molecular orbitals; multiphoton transitions; Jablonski diagram; fluorescence anisotropy; fluorescence decay; quenching; FRET; excited state reactions; solvent relaxations; instruments; microscopy: wide field, LSM, TPE; fluorescent probes, fluctuations spectroscopy; optical resolution and super-resolution; CARS and SHG microscopy.

(Design units: 1)

Prerequisite: MATH 3A and MATH 3D. Recommended: STATS 8.

Restriction: Biomedical Engineering and Biomedical Engineering: Premedical majors only.

Concurrent with BME 238.

BME 140. Design of Biomedical Electronics. 4 Units.
Analog and digital circuits in bioinstrumentation. AC and DC circuit analysis, design and construction of filter and amplifiers using operational amplifier, digitization of signal and data acquisition, bioelectrical signal, design and construction of ECG instrument, bioelectrical signal measurement and analysis. Materials fee.

(Design units: 3)

Prerequisite: BME 60C and BME 130.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

BME 147. Microfluidics and Lab-on-a-Chip. 4 Units.
Introduction to principles of microfluidics and state-of-the-art micro Total Analysis Systems (uTAS). Lab-on-a-Chip for bimolecular assays with device design principles for microscale sample preparation, flow transport, bimolecular manipulation, separation & detection, and the technologies for integrating these devices into microsystems.

(Design units: 1)

Prerequisite: BME 111.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

Concurrent with BME 260.

BME 148. Microimplants. 4 Units.
Essential concepts of biomedical implants at the micro scale. Design, fabrication, and applications of several microimplantable devices including cochlear, retinal, neural, and muscular implants.

(Design units: 1)

Prerequisite: BME 111 and EECS 179.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

Concurrent with BME 262.

BME 149. Biomedical Microdevices . 4 Units.
In-depth review of microfabricated devices designed for biological and medical applications. Studies of the design, implementation, manufacturing, and marketing of commercial and research bio-medical devices.

(Design units: 0)

Concurrent with BME 261.

BME 150. Biotransport Phenomena. 4 Units.
Fundamentals of heat and mass transfer, similarities in the respective rate equations. Emphasis on practical application of fundamental principles.

(Design units: 1)

Prerequisite: BME 60C and MATH 3A and MATH 3D.

Overlaps with CBEMS 125C.

Restriction: Biomedical Engineering and Biomedical Engineering: Premedical majors have first consideration for enrollment.

BME 160. Tissue Engineering. 4 Units.
Quantitative analysis of cell and tissue functions. Emerging developments in stem cell technology, biodegradable scaffolds, growth factors, and others important in developing clinical products. Applications of bioengineering.

(Design units: 2)

Prerequisite: (BME 50B or BIO SCI 99) and BME 111 and BME 121 and BME 150.

Restriction: Biomedical Engineering and Biomedical Engineering: Premedical majors have first consideration for enrollment.

BME 170. Biomedical Engineering Laboratory. 4 Units.
Measurement and analysis of biological systems using engineering tools and techniques. Laboratory experiments involve living systems with the emphasis on measuring physiological parameters. Labs: Introduction to Electroenecephalography, Fiberoptic thermometry, Neurorehabilitation Engineering, Spectroscopy principles of the common pulse oximeter. Materials fee.

(Design units: 1)

Prerequisite: BME 111 and BME 120 and BME 121 and BME 130 and BME 140.

Restriction: Biomedical Engineering majors have first consideration for enrollment.

BME 180A. Biomedical Engineering Design. 3 Units.
Design strategies, techniques, tools, and protocols commonly encountered in biomedical engineering; clinical experience at the UCI Medical Center and Beckman Laser Institute; industrial design experience in group projects with local biomedical companies; ethics, economic analysis, and FDA product approval. Materials fee.

(Design units: 3)

Prerequisite: BME 110C and BME 111 and BME 120 and BME 121 and BME 140. BME 180A, BME 180B, and BME 180C must be taken in the same academic year.

Grading Option: In progress only.

Restriction: Seniors only. Biomedical Engineering majors only.

BME 180B. Biomedical Engineering Design. 3 Units.
Design strategies, techniques, tools, and protocols commonly encountered in biomedical engineering; clinical experience at the UCI Medical Center and Beckman Laser Institute; industrial design experience in group projects with local biomedical companies; ethics, economic analysis, and FDA product approval. Materials fee.

(Design units: 3)

Prerequisite: BME 180A. BME 180A, BME 180B, and BME 180C must be taken in the same academic year.

Grading Option: In progress only.

Restriction: Seniors only. Biomedical Engineering majors only.

BME 180C. Biomedical Engineering Design. 3 Units.
Design strategies, techniques, tools, and protocols commonly encountered in biomedical engineering; clinical experience at the UCI Medical Center and Beckman Laser Institute; industrial design experience in group projects with local biomedical companies; ethics, economic analysis, marketing, and FDA product approval. Materials fee.

(Design units: 3)

Prerequisite: BME 180B. BME 180A, BME 180B, and BME 180C must be taken in the same academic year.

Restriction: Seniors only. Biomedical Engineering majors only.

BME 195. Special Topics in Biomedical Engineering. 1-4 Units.
Studies in selected areas of Biomedical Engineering. Topics addressed vary each quarter.

(Design units: 1-4)

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

BME 197. Seminars in Biomedical Engineering. 2 Units.
Presentation of advanced topics and reports of current research efforts in Biomedical Engineering.

(Design units: 1-2)

Restriction: Seniors only. Biomedical Engineering majors have first consideration for enrollment.

Concurrent with BME 298.

BME 199. Individual Study. 1-4 Units.
Independent research conducted in the lab of a biomedical engineering core faculty member. A formal written report of the research conducted is required at the conclusion of the quarter.

(Design units: 1-4)

Prerequisite: BIO SCI 194S.

Repeatability: May be taken for credit for 8 units.

BME 199P. Individual Study. 1-4 Units.
Supervised independent reading, research, or design for undergraduate Engineering majors. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

BME 210. Molecular and Cellular Engineering. 4 Units.
Engineering of physiological function at the genetic, cellular, and tissue scales. Topics include cloning and genetic engineering, extracellular matrix biomaterials, principles of regenerative medicine and tissue engineering, and experimental design.

Restriction: Graduate students only.

BME 211. Microscale Tissue Engineering. 4 Units.
Engineering of physiological function at the scale of individual cells. Topics include cell micropatterning, microfluidic tissue culture, engineering the cellular microenvironment, and microphysiological systems.

Restriction: Graduate students only.

BME 212. Cardiovascular Tissue Engineering. 4 Units.
Advanced topics in biomaterials and tissue engineering with a special focus on applications in the cardiovascular system. Devices including vascular grafts and stents, heart valves, and cardiac tissue patches will be examined.

Restriction: Graduate students only.

BME 213. Systems Cell and Developmental Biology. 4 Units.
Introduces concepts needed to understand cell and developmental biology at the systems level, i.e., how the parts (molecules) work together to create a complex output. Emphasis on using mathematical/computational modeling to expand/modify insights provided by intuition.

Same as DEV BIO 232.

Restriction: Graduate students only.

BME 215. Linking Modeling and Experiments in Bioengineering. 4 Units.
Overview of modeling based on experimental techniques in bioengineering. Construct and evaluate models of varying complexity and to relate them to experimental data.

Prerequisite: BME 220 and BME 221.

Restriction: Graduate students only.

BME 216. Stem Cell Therapy . 4 Units.
Introduces new paradigms in regenerative medicine particularly those that involve stem cells, and emerging molecular, nano- and micro-engineered tools for in vivo imaging that is critical for studying and monitoring regeneration.

(Design units: 0)

Same as PHRMSCI 278.

Restriction: Graduate student only.

BME 218. Directed Evolution. 4 Units.
Directed evolution harnesses the processes of Darwinian evolution for biomolecular engineering goals. This class will begin with fundamental principles in evolutionary biology and move on to the experimental evolution techniques and their applications.

Restriction: Graduate students only.

BME 220. Sensory Motor Systems. 4 Units.
A quantitative and systems approach to understanding physiological systems. Systems covered include the nervous and musculoskeletal systems.

Restriction: Graduate students only.

Concurrent with BME 120.

BME 221. Organ Transport Systems. 4 Units.
A quantitative and systems approach to understanding physiological systems. Systems covered include the cardiopulmonary, circulatory, and renal systems.

Restriction: Graduate students only.

BME 222. Biofluid Mechanics . 4 Units.
Introduces principles of biofluid mechanics in a research oriented scheme and approaches a wide spectrum of biofluid related problems in human body and solutions that involves engineering concepts.

Restriction: Graduate students only.

BME 223. Critical Thinking in Cardiovascular Research. 2 Units.
Interpretation and critical assessment of current cardiovascular research in basic science, application of engineering tools, and clinical cardiology and cardiovascular surgery. Open only to graduate students engaged in research.

Restriction: Graduate students only.

BME 230A. Applied Engineering Mathematics I. 4 Units.
Analytical techniques applied to engineering problems in transport phenomena, process dynamics and control, and thermodynamics.

BME 230B. Applied Engineering Mathematics II. 4 Units.
Focuses on biomedical system identification. Includes fundamental techniques of model building and testing such as formulation, solution of governing equations, sensitivity theory, identifiability theory, and uncertainty analysis.

Restriction: Graduate students only.

BME 233. Dynamic Systems in Biology and Medicine. 4 Units.
Introduces principles of system theory to analyze biological, biochemical, physiological, and bioengineering systems. Analytical and computational tools are used to model and analyze dynamic systems such as population, neuronal and heart dynamics, biochemical and physiological systems, oxygen diffusion and similar.

Restriction: Graduate students only.

BME 234. Neuroimaging Data Analysis. 4 Units.
Knowledge and understanding of recent techniques for the analysis of healthy and pathological structure and function in neuroimaging data.

Restriction: Graduate students only.

BME 238. Spectroscopy and Imaging of Biological Systems. 4 Units.
Principles of spectroscopy; absorption; molecular orbitals; multiphoton transitions; Jablonski diagram; fluorescence anisotropy; fluorescence decay; quenching; FRET; excited state reactions; solvent relaxations; instruments; microscopy: wide field, LSM, TPE; fluorescent probes, fluctuations spectroscopy; optical resolution and super-resolution; CARS and SHG microscopy.

Restriction: Graduate students only.

Concurrent with BME 138.

BME 240. Introduction to Clinical Medicine for Biomedical Engineering. 4 Units.
An introduction to clinical medicine for graduate students in biomedical engineering. Lectures and rotations through Nephology, Gastroenterology, Pulmonary & Critical Care Cardiology.

Restriction: Biomedical Engineering graduate students only.

BME 250. Biospectroscopy . 4 Units.
Principles of optical spectroscopy for biomedical engineering. Will focus on optical spectroscopy of biological relevant molecules, spectroscopy in cells and tissue. Spectroscopy techniques based on fluorescence.

Restriction: Graduate students only.

BME 251. Engineering Medical Optics. 4 Units.
Principles of optics and photonics, integration of optical components into systems and devices, and analysis of physiologic signals obtained from Biophotonics measurements.

Restriction: Graduate students only.

Concurrent with BME 136.

BME 252. Critical Thinking in Biophotonics. 2 Units.
Critical thematic review of current research papers in the field of Biophotonics.

Repeatability: May be taken for credit 2 times.

Restriction: Graduate students only.

BME 260. Microfluids and Lab-On-A-Chip. 4 Units.
Introduction to microfluidics and state-of-the-art micro Total Analysis Systems (uTAS). Lab-on-a-Chip for biomolecular assays with device design principles for microscale sample preparation, flow transport, biolmolecular manipulation, separation and detection, and the technologies for integrating these devices into microsystems.

Restriction: Graduate students only.

Concurrent with BME 147.

BME 261. Biomedical Microdevices. 4 Units.
In-depth review of microfabricated devices designed for biological and medical applications. Studies of the design, implementation, manufacturing, and marketing of commercial and research bio-medical devices.

Restriction: Graduate students only.

Concurrent with BME 149.

BME 262. Microimplants. 4 Units.
Essential concepts of biomedical implants at the micro scale. Design, fabrication, and applications of several microimplantable devices including cochlear, retinal, neural, and muscular implants.

Restriction: Graduate students only.

Concurrent with BME 148.

BME 263. Nanomedicine . 4 Units.
Covers the use of inorganic nanocrystals and nanocarriers for molecular detection of human disease and targeted drug delivery. Techniques for synthesis and bioconjugation, molecular targeting, adhesion dynamics, and unique physical properties of nanomaterials.

Restriction: Graduate students only.

BME 264. Auditory Science and Technology. 2 Units.
Advanced topics in auditory science and technology from cochlear mechanics to cochlear implants.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

BME 290. Critical Thinking and Writing. 4 Units.
Critical thinking and writing are essential ingredients for success in scientific research. Examines examples from the scientific literature to extract principles of good scientific reasoning, experimental design, and writing.

Restriction: Graduate students only.

BME 295. Special Topics in Biomedical Engineering. 1-4 Units.
Studies in selected areas of Biomedical Engineering. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

BME 296. Master of Science Thesis Research. 1-16 Units.
Individual research or investigation conducted in the pursuit of preparing and completing the thesis required for the M.S. in Engineering.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

BME 297. Doctor of Philosophy Dissertation Research. 1-16 Units.
Individual research or investigation conducted in the pursuit of preparing and completing the dissertation required for the Ph.D. in Engineering.

Repeatability: May be repeated for credit unlimited times.

BME 298. Seminars in Biomedical Engineering. 2 Units.
Presentation of advanced topics and reports of current research efforts in biomedical engineering. Designed for graduate students in the Biomedical Engineering program.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Concurrent with BME 197.

BME 299. Individual Research. 1-16 Units.
Individual research or investigation under the direction of an individual faculty.

Repeatability: May be repeated for credit unlimited times.

Department of Chemical Engineering and Materials Science

916 Engineering Tower; 949-824-5802
http://www.eng.uci.edu/dept/chems
Vasan Venugopalan, **Department Chair**

The Department of Chemical Engineering and Materials Science offers the B.S. degree in Chemical Engineering, the B.S. degree in Materials Science Engineering, the M.S. and Ph.D. degrees in Chemical and Biochemical Engineering, and the M.S. and Ph.D. degrees in Materials Science and Engineering.

- Chemical Engineering (p. 508)
- Materials Science Engineering (p. 511)

Undergraduate Major in Chemical Engineering

Program Educational Objectives: Graduates of the Chemical Engineering program will (1) demonstrate achievement by applying a broad knowledge of chemical engineering; (2) apply critical reasoning and quantitative skills to identify and solve problems in chemical engineering; (3) implement skills for effective communication and teamwork; (4) demonstrate the potential to effectively lead chemical engineering projects in industry, government, or academia; (5) exhibit a commitment to lifelong learning.

(Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

Chemical Engineering uses knowledge of chemistry, mathematics, physics, biology, and humanities to solve societal problems in areas such as energy, health, the environment, food, clothing, shelter, and materials and serves a variety of processing industries whose vast array of products include chemicals, petroleum products, plastics, pharmaceuticals, foods, textiles, fuels, consumer products, and electronic and cryogenic materials. Chemical engineers also serve society in improving the environment by reducing and eliminating pollution.

The undergraduate curriculum in Chemical Engineering builds on basic courses in chemical engineering, other branches of engineering, and electives which provide a strong background in humanities and human behavior. Elective programs developed by the student with a faculty advisor may include such areas as applied chemistry, biochemical engineering, chemical reaction engineering, chemical processing, environmental engineering, materials science, process control systems engineering, and biomedical engineering.

Admissions

High School Students: See School Admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one year of general chemistry (with laboratory), and one additional approved course for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Chemical Engineering

All students are required to meet the University Requirements (p. 71)**.**

All students are required to meet the School Requirements (p. 468)**.**

Major Requirements

Mathematics and Basic Science Courses:	
CHEM 1A- 1B- 1C- 1LC- 1LD	General Chemistry and General Chemistry and General Chemistry and General Chemistry Laboratory and General Chemistry Laboratory
CHEM 51A- 51B- 51C- 51LB- 51LC	Organic Chemistry and Organic Chemistry and Organic Chemistry and Organic Chemistry Laboratory and Organic Chemistry Laboratory
or	
CHEM H52A- H52B- H52C- H52LA- H52LB	Honors Organic Chemistry and Honors Organic Chemistry and Honors Organic Chemistry and Honors Organic Chemistry Laboratory and Honors Organic Chemistry Laboratory
CHEM 131A- 131B	Quantum Principles and Molecular Structure and Elementary Statistical Mechanics
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 2E	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C- 7LC	Classical Physics and Classical Physics Laboratory
PHYSICS 7D- 7LD	Classical Physics and Classical Physics Laboratory
Engineering Topics Courses:	

Students must complete a minimum of 18 units of engineering design.

CBEMS 45A- 45B- 45C	Chemical Processing and Materials Balances and Chemical Processing and Energy Balances and Chemical Engineering Thermodynamics
CBEMS 110	Reaction Kinetics and Reactor Design
CBEMS 125A- 125B- 125C	Momentum Transfer and Heat Transfer and Mass Transfer
CBEMS 130	Separation Processes
CBEMS 135	Chemical Process Control
CBEMS 140A- 140B	Chemical Engineering Laboratory I and Chemical Engineering Laboratory II
CBEMS 149A- 149B	Chemical Engineering Design I and Chemical Engineering Design II
ENGR 54	Principles of Materials Science and Engineering
ENGRMAE 10	Introduction to Engineering Computations
or EECS 10	Computational Methods in Electrical and Computer

Students select, with the approval of a faculty advisor, any additional engineering topics courses needed to satisfy school and department requirements.

Technical Elective Courses:

Students select, with the approval of a faculty advisor, a minimum of 22 units of technical electives. Students may select an area of specialization and complete the associated requirements, as shown below.

(The nominal Chemical Engineering program will require 192 units of courses to satisfy all university and major requirements. Students typically need at least 17 units of engineering topics from technical electives to meet school requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary.)

Engineering Professional Topics Course:

ENGR 190W	Communications in the Professional World

Specialization in Biomolecular Engineering:

Requires:

CBEMS 112	Introduction to Biochemical Engineering

and a minimum of 8 units from the following:

BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
BME 50A	Cell and Molecular Engineering
BME 50B	Cell and Molecular Engineering
BME 121	Quantitative Physiology: Organ Transport Systems
BME 160	Tissue Engineering
CBEMS 115	Kinetics of Biochemical Networks
CBEMS 119	Biomaterials: Structural Biology and Assembly
CBEMS 199	Individual Study (up to 4 units; or CBEMS H199, up to 4 units)

Specialization in Energy and the Environment:

Requires a minimum of 11 units including at least one course from the following:

CBEMS 133	Nuclear and Radiochemistry
CBEMS 141	Nano-Scale Materials and Applications
CBEMS 143	Chemistry and Technology for the Nuclear Fuel Cycle
CBEMS 199	Individual Study (up to 4 units; or CBEMS H199, up to 4 units)

and select the remaining units from the following:

ENGRCEE 162	Introduction to Environmental Chemistry
ENGRCEE 163	Biological Treatment Process Design
ENGRCEE 171	Water Resources Engineering
ENGRCEE 172	Groundwater Hydrology
ENGRMAE 110	Combustion and Fuel Cell Systems
ENGRMAE 115	Applied Engineering Thermodynamics
ENGRMAE 164	Air Pollution and Control

Specialization in Materials Science:	
Requires a minimum of 12 units from:	
CBEMS 154	Polymer Science and Engineering
CBEMS 155	Mechanical Behavior and Design Principles
CBEMS 158	Ceramic Materials
CBEMS 163	Computer Techniques in Experimental Materials Research
CBEMS 174	Semiconductor Device Packaging
CBEMS 175	Design Failure Investigation
CBEMS 191	Materials Outreach
CBEMS 199	Individual Study (up to 4 units; or CBEMS H199, up to 4 units)
ENGR 150	Mechanics of Structures [1]
ENGRMAE 155	Composite Materials and Structures

1 Requires ENGR 30, not included in total.

Planning a Program of Study

The sample program of study chart shown is typical for the major in Chemical Engineering. Students should keep in mind that this program is based upon a sequence of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Students who are not adequately prepared, or who wish to make changes in the sequence for other reasons, must have their program approved by their faculty advisor. Chemical Engineering majors must consult at least once every year with the academic counselors in the Student Affairs Office and with their faculty advisors.

Sample Program of Study — Chemical Engineering

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
EECS 10 or ENGRMAE 10	PHYSICS 7C	PHYSICS 7D
CHEM 1A	PHYSICS 7LC	PHYSICS 7LD
General Education	CHEM 1B	CHEM 1C
	General Education	CHEM 1LC
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
CHEM 51A	CHEM 51B	CHEM 51C
CHEM 1LD	CHEM 51LB	CHEM 51LC
CBEMS 45A	CBEMS 45B	CBEMS 45C
General Education	ENGR 54	General Education
Junior		
Fall	**Winter**	**Spring**
CBEMS 125A	CBEMS 125B	CBEMS 125C
CBEMS 110	CBEMS 130	Technical Elective
CHEM 131A	CHEM 131B	Technical Elective
General Education	General Education	General Education
Senior		
Fall	**Winter**	**Spring**
CBEMS 135	CBEMS 149A	CBEMS 149B
CBEMS 140A	CBEMS 140B	Technical Elective
ENGR 190W	Technical Elective	Technical Elective
Technical Elective	General Education	General Education

Undergraduate Major in Materials Science Engineering

Program Educational Objectives: Graduates of the Materials Science Engineering program will (1) establish a productive Materials Science and Engineering career in industry, government or academia; (2) apply critical reasoning and the requisite analytical/ quantitative skills in seeking solutions to materials science and engineering problems; (3) promote innovation in materials development and design through effective leadership, skilled communications, and multidisciplinary teamwork; (4) exhibit a commitment to engineering ethics, environmental stewardship, continued learning, and professional development.

(Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

Since the beginning of history, materials have played a crucial role in the growth, prosperity, security, and quality of human life. In fact, materials have been so intimately related to the emergence of human culture and civilization that anthropologists and historians have identified early cultures by the name of the significant materials dominating those cultures. These include the stone, bronze, and iron ages of the past. At the present time, the scope of materials science and engineering has become very diverse; it is no longer confined to topics related to metals and alloys but includes those relevant to ceramics, composites, polymers, biomaterials, nanostructures, intelligent materials, and electronic devices. In addition, present activities in materials science and engineering cover not only areas whose utility can be identified today, but also areas whose utility may be unforeseen. The services of materials scientists and engineers are required in a variety of engineering operations dealing, for example, with emerging energy systems, design of semiconductors and optoelectronic and nano devices, development of new technologies based on composites and high-temperature super-conductivity, biomedical products, performance (e.g., quality, reliability, safety, energy efficiency) in automobile and aircraft components, improvement in nondestructive testing techniques, corrosion behavior in refineries, radiation damage in nuclear power plants, and fabrication of advanced materials.

The undergraduate major in Material Science Engineering (MSE) provides students with a thorough knowledge of basic engineering and scientific principles. The undergraduate curriculum in MSE includes (a) a core of Chemistry, Physics, and Mathematics; (b) basic Engineering courses; (c) Materials and Engineering core; and (d) technical courses in Materials Science, Engineering, and Sciences.

Because of the interdisciplinary nature of MSE and its intimate relations with other Engineering disciplines (Aerospace, Biomedical, Chemical, Civil, Computer, Electrical, Environmental, and Mechanical Engineering), qualified students will be able to satisfy in a straightforward manner the degree requirements of their Engineering major and the MSE major.

Admissions

High School Students: See School Admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one year of general chemistry (with laboratory), and one additional approved course for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Materials Science Engineering

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 468)**.**

Major Requirements

Mathematics and Basic Science Courses:	
Core Courses:	
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM 1LC	General Chemistry Laboratory
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
MATH 2E	Multivariable Calculus
PHYSICS 7C- 7LC	Classical Physics and Classical Physics Laboratory
PHYSICS 7D- 7E	Classical Physics and Classical Physics
PHYSICS 7LD	Classical Physics Laboratory
Basic Engineering or Science Elective Courses:	
Select four (4) units from the following:	
BIO SCI 93	From DNA to Organisms
BME 50A	Cell and Molecular Engineering

CHEM 51A	Organic Chemistry
EECS 70B	Network Analysis II
ENGR 7A- 7B	Introduction to Engineering I and Introduction to Engineering II *
ENGRCEE 20	Introduction to Computational Engineering Problem Solving
ENGRMAE 52	Computer-Aided Design
ENGRMAE 80	Dynamics
or ENGRCEE 80	Dynamics
PHYSICS 51A	Modern Physics
STATS 7	Basic Statistics
Engineering Topics Courses:	
Students must complete a minimum of 22 units of engineering design.	
Core Courses:	
CBEMS 45A	Chemical Processing and Materials Balances
or ENGRMAE 91	Introduction to Thermodynamics
CBEMS 45B- 45C	Chemical Processing and Energy Balances and Chemical Engineering Thermodynamics
or ENGRMAE 115	Applied Engineering Thermodynamics
CBEMS 125A	Momentum Transfer
or ENGRMAE 130A	Introduction to Fluid Mechanics
CBEMS 125B	Heat Transfer
or ENGRMAE 120	Heat and Mass Transfer
CBEMS 155	Mechanical Behavior and Design Principles
CBEMS 155L	Mechanical Behavior Laboratory
CBEMS 160	Advanced Laboratory in Chemistry and Synthesis of Materials
CBEMS 164	X-ray Diffraction, Electron Microscopy, and Microanalysis
CBEMS 164L	X-ray Diffraction, Electron Microscopy, and Microanalysis Lab
CBEMS 165	Diffusion and Phase Transformations
CBEMS 169	Electronic and Optical Properties in Materials
CBEMS 175	Design Failure Investigation
CBEMS 189A- 189B- 189C	Senior Design Project I and Senior Design Project II and Senior Design Project III
EECS 70A	Network Analysis I
or ENGRMAE 60	Electric Circuits
ENGR 54	Principles of Materials Science and Engineering
ENGR 150	Mechanics of Structures
ENGRMAE 10	Introduction to Engineering Computations
ENGRMAE 30	Statics
or ENGR 30	Statics
or ENGRCEE 30	Statics
ENGRMAE 150L	Mechanics of Structures Laboratory
Engineering Electives:	
Students must complete a minimum of 23 units from:	
BME 50A	Cell and Molecular Engineering
BME 110A- 110B	Biomechanics I and Biomechanics II
BME 111	Design of Biomaterials
BME 120	Sensory Motor Systems
CBEMS 110	Reaction Kinetics and Reactor Design
CBEMS 130	Separation Processes
CBEMS 141	Nano-Scale Materials and Applications
CBEMS 154	Polymer Science and Engineering

CBEMS 158	Ceramic Materials
CBEMS 163	Computer Techniques in Experimental Materials Research
CBEMS 174	Semiconductor Device Packaging
CBEMS 191	Materials Outreach
CBEMS 199	Individual Study
EECS 70B	Network Analysis II
EECS 170LA	Electronics I Laboratory
EECS 170B	Electronics II
EECS 174	Semiconductor Devices
EECS 176	Fundamentals of Solid-State Electronics and Materials
EECS 180A	Engineering Electromagnetics I
ENGR 165	Advanced Manufacturing
ENGRMAE 106	Mechanical Systems Laboratory
ENGRMAE 145	Theory of Machines and Mechanisms
ENGRMAE 147	Vibrations
ENGRMAE 151	Mechanical Engineering Design
ENGRMAE 152	Introduction to Computer-Aided Engineering
ENGRMAE 155	Composite Materials and Structures
ENGRMAE 157	Lightweight Structures
ENGRMAE 170	Introduction to Control Systems
Students select, with the approval of a faculty advisor, any additional engineering topics courses needed to satisfy school and department requirements.	
Engineering Professional Topics Course:	
ENGR 190W	Communications in the Professional World
(The nominal Materials Science Engineering program will require 189 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary. Dual engineering majors are reminded that they are required to satisfy all requirements of both majors individually. Students should not assume that courses for one, such as senior design, will satisfy the requirements of the other, without prior approval.)	

* ENGR 7A-7B is available only to first year students. Both ENGR 7A-7B must be taken to be counted as a Basic Engineering or Science Elective course.

Students majoring in MSE may elect, with approval of their faculty advisor, to use available engineering electives to complete one of the following specializations.

Specialization in Biomaterials:	
Requires a minimum of 14 units from:	
BME 50A	Cell and Molecular Engineering
BME 110A- 110B	Biomechanics I and Biomechanics II
BME 111	Design of Biomaterials
BME 120	Sensory Motor Systems
CBEMS 154	Polymer Science and Engineering
CBEMS 199	Individual Study
Specialization in Electronics Processing and Materials:	
Requires a minimum of 14 units from:	
CBEMS 174	Semiconductor Device Packaging
CBEMS 199	Individual Study (up to 3 units; or CBEMS H199, up to 3 units)
EECS 70B	Network Analysis II
EECS 170LA	Electronics I Laboratory
EECS 174	Semiconductor Devices
ENGR 165	Advanced Manufacturing
Specialization in Materials and Mechanical Design:	
Requires a minimum of 14 units from:	
CBEMS 199	Individual Study (up to 3 units; or CBEMS H199, up to 3 units)

ENGRMAE 106	Mechanical Systems Laboratory
ENGRMAE 145	Theory of Machines and Mechanisms
ENGRMAE 147	Vibrations
ENGRMAE 151	Mechanical Engineering Design
ENGRMAE 152	Introduction to Computer-Aided Engineering
ENGRMAE 155	Composite Materials and Structures
ENGRMAE 157	Lightweight Structures
ENGRMAE 170	Introduction to Control Systems

Planning a Program of Study

A sample program of study chart for the major in Materials Science Engineering is available in the Undergraduate Student Affairs Office. Students should keep in mind that this program is based upon a sequence of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Students who are not adequately prepared, or who wish to make changes in the sequence for other reasons, must have their program approved by their faculty advisor. Materials Science Engineering majors must consult at least once every year with the academic counselors in the Undergraduate Student Affairs Office and with their faculty advisors.

Sample Program of Study — Materials Science Engineering

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
CHEM 1A	CHEM 1B	CHEM 1C
ENGRMAE 10	PHYSICS 7C	CHEM 1LC
General Education	PHYSICS 7LC	PHYSICS 7D
	General Education	PHYSICS 7LD
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
ENGR 30	ENGR 54	EECS 70A
CBEMS 45A	CBEMS 45B	CBEMS 45C
PHYSICS 7E	General Education	Basic Engineering/Science Elective
Junior		
Fall	**Winter**	**Spring**
CBEMS 125A	CBEMS 125B	CBEMS 160
CBEMS 164	CBEMS 155	CBEMS 165
CBEMS 164L	CBEMS 155L	CBEMS 169
ENGR 150	Engineering Elective	General Education
ENGRMAE 150L	General Education	
General Education		
Senior		
Fall	**Winter**	**Spring**
CBEMS 189A	CBEMS 189B	CBEMS 189C
ENGR 190W	Engineering Elective	CBEMS 175
Engineering Elective	Engineering Elective	Engineering Elective
General Education	General Education	General Education

Minor in Materials Science Engineering

The interdisciplinary field of materials science and engineering has become critical to many emerging areas of advanced technology and their applications. As a result, there are needs and opportunities for engineers and scientists with education and training in materials science and engineering. The goal of the minor in Materials Science Engineering (MSE) is to provide students at UCI with such education and training that will enable them, upon graduation, to not only participate in projects or programs of an interdisciplinary nature but also address challenging societal needs and complex technological advances.

Admission. Admission in the MSE minor requires a minimum 2.5 overall UCI GPA. Students are required to complete all prerequisites for required courses and selected electives. In particular, students need to complete the following courses before applying:

CHEM 1A	General Chemistry
CHEM 1LE	Accelerated General Chemistry Lab
MATH 2D	Multivariable Calculus
MATH 2E	Multivariable Calculus

MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C	Classical Physics
PHYSICS 7LC	Classical Physics Laboratory
PHYSICS 7D	Classical Physics
PHYSICS 7LD	Classical Physics Laboratory

Requirements

The minor in Materials Science Engineering requires a total of seven courses—five required courses and two electives:

Required courses:	
CBEMS 155	Mechanical Behavior and Design Principles
ENGR 54	Principles of Materials Science and Engineering
Select three of the following:	
CBEMS 165	Diffusion and Phase Transformations [1]
CBEMS 169	Electronic and Optical Properties in Materials
CBEMS 175	Design Failure Investigation
CBEMS 199	Individual Study (contingent upon the availability of research positions in the Materials Science Engineering faculty's research groups)
Electives:	
Select two of the following:	
BME 110A- 110B	Biomechanics I and Biomechanics II
BME 111	Design of Biomaterials
BME 120	Sensory Motor Systems
CBEMS 141	Nano-Scale Materials and Applications
CBEMS 154	Polymer Science and Engineering
CBEMS 158	Ceramic Materials
CBEMS 163	Computer Techniques in Experimental Materials Research
CBEMS 174	Semiconductor Device Packaging
CBEMS 191	Materials Outreach
CHEM 225	Polymer Chemistry: Synthesis and Characterization of Polymers
EECS 170A- 170B	Electronics I and Electronics II
ENGR 150	Mechanics of Structures
ENGR 165	Advanced Manufacturing
ENGRMAE 151	Mechanical Engineering Design
ENGRMAE 155	Composite Materials and Structures
ENGRMAE 157	Lightweight Structures
MATH 112A	Introduction to Partial Differential Equations and Applications
or ENGRMAE 140	Introduction to Engineering Analysis
PHYSICS 112A	Electromagnetic Theory
PHYSICS 133	Introduction to Condensed Matter Physics
PHYSICS 135	Plasma Physics

[1] For students who plan to pursue a graduate degree in MSE, it is highly recommended that they take CBEMS 165 in addition to two of the following courses: CBEMS 169, CBEMS 175, or CBEMS 199.

- Chemical and Biochemical Engineering (p. 516)
- Materials Science and Engineering (p. 518)

Graduate Study in Chemical and Biochemical Engineering

Chemical engineering uses the knowledge of chemistry, mathematics, physics, biology, and social sciences to solve societal problems such as energy, health, environment, food, clothing, shelter, and transportation. It serves a variety of processing industries whose vast array of products include

chemicals, petroleum products, plastics, pharmaceuticals, foods, semiconductors, textiles, fuels, consumer products, and electronic and cryogenic materials. It also serves society to improve the environment by reducing and eliminating pollution. Chemical engineering is an engineering discipline that has its strongest ties with the molecular sciences. This is an important asset since sciences such as chemistry, molecular biology, biomedicine, and solid-state physics are providing the seeds for future technologies. Chemical engineering has a bright future as the discipline which will bridge science with engineering in multidisciplinary environments.

Biochemical Engineering is concerned with the processing of biological materials and processes that use biological agents such as living cells, enzymes, or antibodies. Biochemical Engineering, with integrated knowledge of the principles of biology and chemical engineering, plays a major engineering role in the rapidly developing area of biotechnology. Career opportunities in Biochemical Engineering are available in a variety of industries such as biotechnology, chemical, environmental, food, petrochemical, and pharmaceutical industries.

The principal objectives of the graduate curriculum in Chemical and Biochemical Engineering are to develop and expand students' abilities to solve new and more challenging engineering problems and to promote their skills in independent thinking and learning in preparation for careers in manufacturing, research, or teaching. These objectives are reached through a program of course work and research designed by each student with the assistance, advice, and approval of a primary faculty advisor and a faculty advisory committee. Programs of study leading to the M.S. and Ph.D. degrees in Chemical and Biochemical Engineering are offered.

Recommended Background

It is strongly recommended that students have background and training in core Chemical Engineering topics (transport phenomena, thermodynamics, and reaction kinetics) as well as a strong background in mathematics, chemistry, and physics. A student who enters the program without undergraduate preparation in chemical engineering is required to take three to five additional prerequisite courses (MATH 3A and MATH 3D, and CBEMS 45B-CBEMS 45C, CBEMS 110, CBEMS 112, and CBEMS 125A).

Required Courses

Students are required to take the following courses for the M.S. degree and as a basis for the Ph.D. preliminary examination.

CBEMS 210	Reaction Engineering
CBEMS 220	Transport Phenomena
CBEMS 230	Applied Engineering Mathematics I
CBEMS 240	Advanced Engineering Thermodynamics

Electives

Graduate advisors should be consulted on the selection of elective courses. All graduate courses offered in CBEMS are potential electives. Graduate-level courses offered in other Engineering departments and relevant graduate courses from other schools may also be taken as electives.

Additional Information

Students are required to consult the graduate student handbook for more specific details regarding the course, exam, and unit requirements.

Master of Science Degree

Two plans are available for the M.S. degree: a thesis option and a comprehensive examination option. Opportunities are available for part-time study toward the M.S. degree.

Plan I: Thesis Option

For the M.S. thesis option, students are required to complete a research study of great depth and originality and obtain approval for a complete program of study. A minimum of 36 units is required for the M.S. degree. The following are required: four required core courses, three quarters of CBEMS 298 (Department Seminar), three additional Chemical Engineering-related graduate elective courses numbered 200–289 approved by the graduate advisor, and two additional non-Chemical Engineering-related graduate elective courses numbered 200–295 approved by the graduate advisor. Up to two of these elective courses can be substituted by up to eight units of CBEMS 296 (M.S. Thesis Research), and one of the elective courses may be substituted by an upper-division undergraduate elective course approved by the CBE graduate advisor.

Full-time graduate students must enroll in the departmental seminar each quarter during their first year unless exempt by petition.

Plan II: Comprehensive Examination Option

For the comprehensive examination option, students are required to complete 36 units of study and a comprehensive examination. The following are required: four required core courses, three quarters of CBEMS 298 (Department Seminar), three additional Chemical Engineering-related graduate elective courses numbered 200–289 approved by the graduate advisor, and two additional non-Chemical Engineering-related graduate elective courses numbered 200–295 approved by the graduate advisor. Up to two of the elective courses may be substituted by upper-division undergraduate elective courses if these courses are approved by the CBE graduate advisor. Research units (CBEMS 296/CBEMS 299) do not count towards the degree requirements of the Comprehensive Exam Option.

Full-time graduate students must enroll in the departmental seminar each quarter during their first year unless exempt by petition.

NOTE: Students who entered prior to fall 2012 should follow the course requirements outlined within the *Catalogue* of the year they entered. The change in number of units per course is not intended to change the course requirements for the degree nor to have any impact in the number of courses students are taking. As such, students will need to continue to meet the same high standards and plan of study requirements as previously required. Students will work with their advisor to create a plan of study encompassing the equivalent topical requirements, as well as the equivalent number of courses to the previous 36-unit requirement.

In addition to fulfilling the course requirements outlined above, it is a University requirement for the Master of Science degree that students fulfill a minimum of 36 units of study.

Doctor of Philosophy Degree

The Ph.D. degree in Chemical and Biochemical Engineering requires a commitment on the part or the student to dedicated study and collaboration with the faculty. Ph.D. students are selected on the basis of outstanding demonstrated potential and scholarship. Applicants must hold the appropriate prerequisite degrees from recognized institutions of high standing. After substantial preparation, Ph.D. candidates work under the supervision of faculty advisors. The process involves extended immersion in a research atmosphere and culminates in the production of original research results presented in a dissertation.

Milestones to be passed in the Ph.D. program in order to remain in good standing include the following: acceptance into a research group by the faculty advisor at the end of the student's first year of study; successful completion of the Ph.D. preliminary examination by the end of the second year; preparation for pursuing research and the development of a research proposal culminating in passing the Qualifying Examination by the end of the third year of the Ph.D. program. The Qualifying Examination includes faculty evaluation of a written research dossier and an oral presentation. Students must advance to candidacy in their third year (second year for students who entered with a master's degree).

The core course requirements for the Ph.D. degree are the same as for the M.S. degree. Students must enroll in the departmental seminar each quarter during their first year unless exempt by petition. Ph.D. students must take two additional elective courses beyond the M.S. degree requirements. These courses are to be taken after the first year of graduate work, should be relevant to the Ph.D. dissertation topic, and must be selected in consultation with the research advisor and approved by the CBE graduate advisor. The preliminary examination is based on the four core courses and the ability of the student to comprehend and present a research paper. M.S. students who have completed a CBE M.S. degree elsewhere must have a written approval by the graduate advisor to waive required CBE core courses, if they have taken the equivalent courses elsewhere.

Final examination involves the oral presentation and defense of an acceptable dissertation in a seminar attended by students and faculty. The Ph.D. degree is granted upon the recommendation of the Doctoral Committee and the Dean of the Graduate Division. The normative time for completion of the Ph.D. is five years (four years for students who entered with a master's degree). The maximum time permitted is seven years.

Relationship of M.S. and Ph.D. Programs

Students applying with the objective of a Ph.D. are admitted to the M.S./Ph.D. program only if they are likely to successfully complete a Ph.D. program. These students do not formally reapply to the Ph.D. program after completing the M.S. degree. Students who apply to the M.S.-only program must formally apply for the Ph.D. program if they desire to continue on for the Ph.D. Financial support is usually reserved for those students who plan to complete the Ph.D. The normative time to complete M.S. and Ph.D. degrees is two and five years, respectively.

Graduate Study in Materials Science and Engineering

Materials Science and Engineering focuses on the development of new materials and new applications for materials in engineering. Current research programs include nanomaterials, nanostructures, nanoelectronics, nanodevices, nanocharacterization, device/system packaging materials, materials for fuel cells and related alternative energy systems, biocompatible materials, soft materials such as biological materials and polymeric materials, electronic and photonic materials, hybrid materials, interfacial engineering of materials, and multifunctional materials. Faculty with relevant research are affiliated with the Integrated Nanofabrication Research Facility (INRF), the National Fuel Cell Research Center (NFCRC), the California Institute for Telecommunications and Information Technology (Calit2), the Advanced Power and Energy Program (APEP), and the Laboratory for Electron and X-ray Instrumentation (LEXI), among others.

The MSE graduate degree program is hosted by the Department of Chemical Engineering and Materials Science (ChEMS). Faculty who may serve as advisors are listed as affiliated with the ChEMS Department and include faculty with strong materials science and engineering research programs from other departments. The formal degree that is awarded upon successful completion of the program is either the M.S. or Ph.D. in Materials Science and Engineering.

Recommended Background

Given the nature of Materials Science and Engineering as a cross-disciplinary program, students having a background, and suitable training, in Materials, Engineering (Mechanical, Electrical, Civil, Chemical, Aerospace), and the Physical Sciences (Physics, Chemistry, Geology) are encouraged to participate. A student with an insufficient background may be required to take remedial undergraduate courses. Recommended background courses include an introduction to materials, thermodynamics, mechanical behavior, and electrical/optical/magnetic behavior.

Specific Fields of Emphasis

The Materials faculty at UCI have special interest and expertise in all areas of modern materials and technologies, including biomaterials, energy materials, advanced ceramics, polymers and nanocomposite materials, structural and nanostructured metallic materials, micro/nano-device materials, device/system packaging materials, and multifunctional materials.

Required Courses

Students are required to take one course from each area for the M.S. degree and as a basis for the Ph.D. preliminary examination.

Crystal Structure and Defects:	
ENGRMSE 200	Crystalline Solids: Structure, Imperfections and Properties
Electrical and Optical Behavior:	
ENGRMSE 205	Materials Physics
Mechanical Behavior:	
ENGRMSE 256A	Mechanical Behavior of Engineering Materials
Thermodynamics and Kinetics:	
Select one of the following:	
ENGRMSE 252	Theory of Diffusion
ENGRMSE 265	Phase Transformations

Electives

Faculty advisors should be consulted on the selection of elective courses. All graduate courses offered in CBEMS are potential electives. Graduate-level courses offered in other Engineering departments and relevant graduate courses from other schools may also be taken as electives.

Master of Science Degree

The M.S. degree reflects achievement of an advanced level of competence for professional practice of materials science and engineering. Two options are available: a thesis option and a comprehensive examination option.

Plan I: Thesis Option

For the M.S. thesis option, students are required to complete a research study of great depth and originality and obtain approval for a complete program of study. A committee of three full-time faculty members is appointed to guide development of the thesis. A minimum of 36 units is required for the M.S. degree.

For the thesis option, the following are required: four required core courses; three quarters of CBEMS 298 (Department Seminar), five additional graduate elective courses numbered 200–289 (or 200-295 if offered by other departments) approved by the graduate advisor. Up to two of these elective courses can be substituted by up to eight units of CBEMS 296 (M.S. Thesis Research), and one of these elective courses may be substituted by an upper-division undergraduate elective course approved by the MSE graduate advisor.

Full-time graduate students must enroll in the departmental seminar each quarter unless exempt by petition.

Plan II: Comprehensive Examination Option

For the comprehensive examination option, students are required to complete 36 units of study and a comprehensive examination.

The following are required: four required core courses; three quarters of CBEMS 298 (Department Seminar), and a minimum of five additional graduate elective courses numbered 200–289 (or 200-295 if offered by other departments) approved by the graduate advisor. Up to two of these elective courses may be substituted by upper-division undergraduate elective courses if these courses are approved by the MSE graduate advisor.

Research units (CBEMS 296/CBEMS 299) do not count towards the degree requirements of the Comprehensive Exam Option. Full-time graduate students must enroll in the departmental seminar each quarter during their first year unless exempt by petition.

NOTE: Students who entered prior to fall of 2012 should follow the course requirements outlined within the *Catalogue* of the year they entered. The change in number of units per course is not intended to change the course requirements for the degree nor to have any impact in the number of courses students are taking. As such, students will need to continue to meet the same high standards and plan of study requirements as previously required. Students will work with their advisor to create a plan of study encompassing the equivalent topical requirements, as well as the equivalent number of courses to the previous 36-unit requirement.

In addition to fulfilling the course requirements outlined above, it is a University requirement for the Master of Science degree that students fulfill a minimum of 36 units of study.

Doctor of Philosophy Degree

The Ph.D. degree in Materials Science and Engineering requires a commitment on the part of the student to dedicated study and collaboration with the faculty. Ph.D. students are selected on the basis of outstanding demonstrated potential and scholarship. Applicants must hold the appropriate prerequisite degrees from recognized institutions of high standing. After substantial preparation, Ph.D. candidates work under the supervision of faculty advisors. The process involves extended immersion in a research atmosphere and culminates in the production of original research results presented in a dissertation. Milestones to be passed in the Ph.D. program in order to remain in good standing include the following: acceptance into a research group by the faculty advisor at the end of the student's first year of study; successful completion of the Ph.D. preliminary examination by the end of the second year; preparation for pursuing research and the development of a research proposal culminating in passing the Qualifying Examination by the end of the third year of the Ph.D. program. The Qualifying Examination includes faculty evaluation of a written research dossier and an oral presentation. Students must advance to candidacy in their third year (second year for students who entered with a master's degree).

The core course requirements for the Ph.D. are the same as for the M.S. Students must enroll in the departmental seminar each quarter during their first year unless exempt by petition. Ph.D. students must take two additional elective courses beyond the M.S. degree requirements. These courses are to be taken after the first year of graduate work, should be relevant to the Ph.D. dissertation topic, and must be selected in consultation with the research advisor and approved by the MSE graduate advisor. The preliminary examination is based on the four core courses for the M.S. Students who have completed an MSE M.S. degree elsewhere must have a written approval by the graduate advisor to waive required MSE core courses, if they have taken the equivalent courses elsewhere.

Final examination involves the oral presentation and defense of an acceptable dissertation in a seminar attended by students and faculty. The Ph.D. degree is granted upon the recommendation of the Doctoral Committee and the Dean of the Graduate Division. The normative time for completion of the Ph.D. is five years (four years for students who entered with a master's degree). The maximum time permitted is seven years.

Relationship of M.S. and Ph.D. programs. Students applying with the objective of a Ph.D. are admitted to the M.S./Ph.D. program only if they are likely to successfully complete a Ph.D. program. These students do not formally reapply to the Ph.D. program after completing the M.S. degree. Students who apply to the M.S.-only program must formally apply for the Ph.D. program if they desire to continue on for a Ph.D. Financial support is usually reserved for those students who plan to complete the Ph.D. The normative time to complete M.S. and Ph.D. degrees is two and five years, respectively.

Faculty

Shane Ardo, Ph.D. Johns Hopkins University, *Assistant Professor of Chemistry; Chemical Engineering and Materials Science* (inorganic and organometallic, physical chemistry and chemical physics, polymer, materials, nanoscience)

Peter J. Burke, Ph.D. Yale University, *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Chemical Engineering and Materials Science* (nano-electronics, bio-nanotechnology)

Zhongping Chen, Ph.D. Cornell University, *Professor of Biomedical Engineering; Chemical Engineering and Materials Science; Electrical Engineering and Computer Science; Otolaryngology; Surgery* (biomedical optics, optical coherence tomography, bioMEMS, biomedical devices)

Nancy A. Da Silva, Ph.D. California Institute of Technology, *Professor of Chemical Engineering and Materials Science; Biomedical Engineering* (molecular biotechnology)

James Earthman, Ph.D. Stanford University, *Professor of Chemical Engineering and Materials Science; Biomedical Engineering* (biomaterials, dental and orthopaedic implants, green materials, nanocrystalline alloys, deformation and damage processes)

Aaron P. Esser-Kahn, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Biomedical Engineering; Chemical Engineering and Materials Science* (chemical biology, organic and synthetic, polymer, materials, nanoscience)

Steven C. George, Ph.D. University of Washington, *Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (physiological and multi-scale integrative modeling, gas exchange, computational methods, tissue engineering)

Alon A. Gorodetsky, Ph.D. California Institute of Technology, *Assistant Professor of Chemical Engineering and Materials Science; Chemistry* (organic photovoltaics, electrical biosensors, nanotechnology, DNA, materials chemistry)

Stanley B. Grant, Ph.D. California Institute of Technology, *Professor of Civil and Environmental Engineering; Chemical Engineering and Materials Science* (environmental engineering, inland and coastal water quality, coagulation and filtration of colloidal contaminants, environmental microbiology)

Anna Grosberg, Ph.D. California Institute of Technology, *Assistant Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (computational modeling of biological systems, biomechanics, cardiac tissue engineering)

Jered Haun, Ph.D. University of Pennsylvania, *Assistant Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (nanotechnology, molecular engineering, computational simulations, targeted drug delivery, clinical cancer detection)

Allon I. Hochbaum, Ph.D. University of California, Berkeley, *Assistant Professor of Chemical Engineering and Materials Science; Chemistry* (nanoscale materials and hybrid bio-inorganic devices for applications in clean energy)

Juan Hong, Ph.D. Purdue University, *Professor Emeritus of Chemical Engineering and Materials Science*

Michelle Khine, Ph.D. University of California, Berkeley, *Associate Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (development of novel nano- and micro-fabrication technologies and systems for single cell analysis, stem cell research, in-vitro diagnostics)

Young Jik Kwon, Ph.D. University of Southern California, *Associate Professor of Pharmaceutical Sciences; Biomedical Engineering; Chemical Engineering and Materials Science; Molecular Biology and Biochemistry* (gene therapy, drug delivery, cancer-targeted therapeutics, combined molecular imaging and therapy, cancer vaccine)

Matthew Law, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Chemical Engineering and Materials Science* (inorganic and organometallic, physical chemistry and chemical physics, polymer, materials, nanoscience)

Guann-Pyng Li, Ph.D. University of California, Los Angeles, *Director of the UCI Division of the California Institute for Telecommunications and Information Technology (Calit2), Director of the Integrated Nanosystems Research Facility and Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Chemical Engineering and Materials Science* (high-speed semiconductor technology, optoelectronic devices, integrated circuit fabrication and testing)

Henry C. Lim, Ph.D. Northwestern University, *Professor Emeritus of Chemical Engineering and Materials Science*

Wendy F. Liu, Ph.D. Johns Hopkins University, *Assistant Professor of Biomedical Engineering; Chemical Engineering and Materials Science* (biomaterials, microdevices in cardiovascular engineering, cell-cell and cell-micro-environment interactions, cell functions and controls)

John S. Lowengrub, Ph.D. Courant Institute of Mathematical Sciences, *UCI Chancellor's Professor of Mathematics; Biomedical Engineering; Chemical Engineering and Materials Science* (applied and computational mathematics, mathematical and computational biology)

Marc J. Madou, Ph.D. Ghent University, *UCI Chancellor's Professor of Mechanical and Aerospace Engineering; Biomedical Engineering; Chemical Engineering and Materials Science* (fundamental aspects of micro/nano-electro-mechanical systems (MEMS/NEMS), biosensors, nanofluidics, biomimetics)

Martha L. Mecartney, Ph.D. Stanford University, *UCI Endowed Chair* and *Professor of Chemical Engineering and Materials Science* (ceramics for energy applications and for use in extreme environments, interfacial design for enhanced physical properties, transmission electron microscopy)

Farghalli A. Mohamed, Ph.D. University of California, Berkeley, *Professor Emeritus of Chemical Engineering and Materials Science; Mechanical and Aerospace Engineering* (mechanical behavior of engineering materials such as metals, composites and ceramics, the correlation between behavior and microstructure, creep and superplasticity, mechanisms responsible for strengthening and fracture)

Ali Mohraz, Ph.D. University of Michigan, *Associate Professor of Chemical Engineering and Materials Science* (understand and exploit colloidal interactions, chemistry, assembly, and response to external fields to design microstructured materials with enhanced functionality for composites, biomimetic applications, alternative energy, environmental remediation)

Daniel R. Mumm, Ph.D. Northwestern University, *Associate Professor of Chemical Engineering and Materials Science* (development of materials for power generation systems, propulsion, integrated sensing, advanced vehicle concepts and platform protection)

Hung Duc Nguyen, Ph.D. North Carolina State University at Raleigh, *Assistant Professor of Chemical Engineering and Materials Science; Biomedical Engineering* (self-assembly of biological and biomimetic nanoscale materials based on amino acids and on nucleic acids)

Mikael Nilsson, Ph.D. Chalmers University of Technology, *Assistant Professor of Chemical Engineering and Materials Science* (actinide chemistry, solvent extraction fundamental chemistry and process development, extraction and detection equipment development, radiolysis and phase composition of organic solvent)

Reginald M. Penner, Ph.D. Texas A&M University, *Department Chair and UCI Chancellor's Professor of Chemistry; Chemical Engineering and Materials Science* (analytical, physical chemistry and chemical physics, polymer, materials, nanoscience)

Regina Ragan, Ph.D. California Institute of Technology, *Associate Professor of Chemical Engineering and Materials Science* (exploration and development of novel material systems for nanoscale electronic and optoelectronic devices)

Elizabeth L. Read, Ph.D. University of California, Berkeley, *Assistant Professor of Chemical Engineering and Materials Science* (dynamics of complex biochemical systems, regulation of immune responses)

Peter M. Rentzepis, Ph.D. Cambridge University, *UC Presidential Chair* and *Professor of Chemistry; Chemical Engineering and Materials Science* (physical chemistry and chemical physics)

Diego Rosso, Ph.D. University of California, Los Angeles, *Director of the Urban Water Research Center and Associate Professor of Civil and Environmental Engineering; Chemical Engineering and Materials Science* (environmental process engineering, mass transfer, wastewater treatment, carbon- and energy-footprint analysis)

Timothy Rupert, Ph.D. Massachusetts Institute of Technology, *Assistant Professor of Mechanical and Aerospace Engineering; Chemical Engineering and Materials Science* (mechanical behavior, nanomaterials, structure property relationships, microstructural stability, grain boundaries and interfaces, materials characterization)

Suzanne B. Sandmeyer, Ph.D. University of Washington, *Grace Beekhuis Bell Chair in Biological Chemistry* and *Professor of Biological Chemistry; Chemical Engineering and Materials Science; Microbiology and Molecular Genetics* (retroelements, metabolic molding, genomics)

Kenneth J. Shea, Ph.D. Pennsylvania State University, *Professor of Chemistry; Chemical Engineering and Materials Science* (analytical, chemical biology, organic and synthetic, polymer, materials, nanoscience)

Frank G. Shi, Ph.D. California Institute of Technology, *Professor of Chemical Engineering and Materials Science; Electrical Engineering and Computer Science* (optoelectronic devices and materials, optoelectronic device packaging materials, optoelectronic medical devices and packaging, white LED technologies, high power LED packaging)

Lizhi Sun, Ph.D. University of California, Los Angeles, *Professor of Civil and Environmental Engineering; Chemical Engineering and Materials Science* (micro- and nano-mechanics, composites and nanocomposites, smart materials and structures, multiscale modeling, elastography)

Lorenzo Valdevit, Ph.D. Princeton University, *Associate Professor of Mechanical and Aerospace Engineering; Chemical Engineering and Materials Science* (multifunctional sandwich structures, thermal protection systems, morphing structures, active materials, MEMS, electronic packaging, cell mechanics)

Vasan Venugopalan, ScD Massachusetts Institute of Technology, *Department Chair and Professor of Chemical Engineering and Materials Science; Biomedical Engineering; Mechanical and Aerospace Engineering; Surgery* (laser-induced thermal, mechanical and radiative transport processes for application in medical diagnostics, therapeutics, biotechnology, micro-electro-mechanical systems (MEMS))

Szu-Wen Wang, Ph.D. Stanford University, *Associate Professor of Chemical Engineering and Materials Science; Biomedical Engineering* (combining principles of self-assembly with nature-inspired macromolecular systems to engineer new materials and therapeutic strategies)

H. Kumar Wickramasinghe, Ph.D. University of London, *Henry Samueli Endowed Chair in Engineering and Department Chair* and *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Chemical Engineering and Materials Science* (nanoscale measurements and characterization, scanning probe microscopy, storage technology, nano-bio measurement technology)

Albert Fan Yee, Ph.D. University of California, Berkeley, *Professor of Chemical Engineering and Materials Science; Biomedical Engineering; Chemistry* (materials science aspects of polymers and soft materials, particularly on how they are used to impact nanotechnology)

Chemical and Biochemical Engineering and Materials Science Courses

CBEMS 45A. Chemical Processing and Materials Balances. 4 Units.
Introduction to chemical engineering and the industries where chemical engineers play vital roles. Problem-solving skills and techniques. Quantitative calculations and applications using mass and energy balances. Stoichiometric equations, multiple bypasses, and others in process industries.

(Design units: 0)

Prerequisite: MATH 2B and CHEM 1B and PHYSICS 7C.

Restriction: Chemical Engineering, Environmental Engineering, and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 45B. Chemical Processing and Energy Balances. 3 Units.
Principles of thermodynamics: definitions, basic concepts, and laws; property relationships; construction of thermodynamic charts and tables; energy balances; phase and chemical equilibria; combined mass and energy balances.

(Design units: 0)

Prerequisite: CBEMS 45A and MATH 3A. CBEMS 45A with a C- or better.

Overlaps with ENGRMAE 91.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 45C. Chemical Engineering Thermodynamics. 4 Units.
Elements of chemical engineering thermodynamics, including equilibrium and stability; equations of state; generalized correlations of properties of materials; properties of ideal and non-ideal mixtures; thermodynamics of real solutions; ideal and non-ideal phase equilibria; chemical equilibria for ideal and non-ideal solutions.

(Design units: 1)

Prerequisite: (EECS 10 or ENGRMAE 10) and MATH 2D and CBEMS 45B. CBEMS 45B with a grade of C- or better.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 50L. Principles of Materials Science and Engineering. 2 Units.
Introduction to the experimental techniques to characterize the properties of engineering materials. Emphasis on understanding the influence of microstructure on elastic, plastic, and fracture behavior. Topics include microstructure characterization, heat treatment, grain size effect, precipitation hardening, and impact loading. Materials fee.

(Design units: 0)

Corequisite: ENGR 54.

Restriction: Materials Science Engineering majors have first consideration for enrollment.

CBEMS 110. Reaction Kinetics and Reactor Design. 4 Units.
Introduction to quantitative analysis of chemical reactions and chemical reactor design. Reactor operations including batch, continuous stirred tank, and tubular reactor. Homogeneous and heterogeneous reactions.

(Design units: 2)

Prerequisite: CHEM 1C and MATH 3D and CBEMS 45B and CBEMS 45C. CBEMS 45B with a grade of C- or better. CBEMS 45C with a grade of C- or better.

Restriction: Chemical Engineering, Mechanical Engineering, and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 112. Introduction to Biochemical Engineering. 3 Units.
Application of engineering principles to biochemical processes. Topics include microbial pathways, energetics and control systems, enzyme and microbial kinetics and the design and analysis of biological reactors.

(Design units: 1)

Prerequisite: CBEMS 110 and CHEM 1C and MATH 3D.

Restriction: Chemical Engineering majors have first consideration for enrollment.

CBEMS 115. Kinetics of Biochemical Networks. 4 Units.
Principles from statistical mechanics, thermodynamics, and chemical kinetics applied to biochemical systems, from fundamental processes such as receptor-ligand binding and enzyme catalysis, to complex cellular functions including signal transduction and gene regulation.

(Design units: 0)

Restriction: Upper-division students only.

Concurrent with CBEMS 215.

CBEMS 119. Biomaterials: Structural Biology and Assembly. 4 Units.
Application of fundamental concepts in structural biology (proteins, DNA/RNA, carbohydrates, lipids), biomolecular thermodynamics, and molecular interactions to the design of novel biomaterials via self-assembly.

(Design units: 0)

Prerequisite: CBEMS 45C and CBEMS 110.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

Concurrent with CBEMS 219.

CBEMS 125A. Momentum Transfer. 4 Units.
Fluid statics, surface tension, Newton's Law of viscosity, non-Newtonian and complex flows, momentum equations, laminar and turbulent flow, velocity profiles, flow in pipes and around objects, piping systems design, pumps and mixing and other applications to chemical and related industries.

(Design units: 0)

Prerequisite: CBEMS 45A and CBEMS 45B and CBEMS 45C and MATH 3D. CBEMS 45A with a C- or better. CBEMS 45B with a C- or better. CBEMS 45C with a C- or better.

Overlaps with ENGRMAE 130A, ENGRCEE 170.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 125B. Heat Transfer. 3 Units.
Principles of conduction, radiation, and convection of heat; phenomenological rate laws, differential and macroscopic energy balances; heat transfer rates, steady state and unsteady state conduction, convection; applications to chemical and related industries.

(Design units: 1)

Prerequisite: CBEMS 125A with a grade of C- or better.

Overlaps with CBEMS 120B, ENGRMAE 120.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 125C. Mass Transfer. 3 Units.
Molecular and continuum approaches to diffusion and convection in multi-component mixtures; steady state, quasi-steady state and transient mass transfer; effect of reactions on mass transfer; convective mass transfer; simultaneous mass, heat and momentum transfer; applications to chemical and related industries.

(Design units: 1)

Prerequisite: CBEMS 125B.

Overlaps with BME 150.

Restriction: Chemical Engineering majors have first consideration for enrollment.

CBEMS 128. Introduction to Numerical Methods in Engineering. 3 Units.
An introduction to the fundamentals of numerical analysis and the computer algorithms in MATLAB for the solution of engineering problems, with emphasis on problems arising in chemical engineering thermodynamics, transport phenomena, and reaction engineering.

(Design units: 0)

Prerequisite: CBEMS 45C.

CBEMS 130. Separation Processes. 4 Units.
Application of equilibria and mass and energy balances for design of separation processes. Use of equilibrium laws for design of distillation, absorption, stripping, and extraction equipment. Design of multicomponent separators.

(Design units: 3)

Prerequisite: CBEMS 45B and CBEMS 45C. CBEMS 45B with a C- or better. CBEMS 45C with a C- or better.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 133. Nuclear and Radiochemistry. 4 Units.
Advanced treatment of nuclear structure, nuclear reactions, and radioactive-decay processes. Introduction to nuclear activation analysis, isotope effects, radiation chemistry, hot-atom chemistry, nuclear age-dating methods, nuclear reactors, and nuclear power.

(Design units: 0)

Prerequisite: CHEM 170.

Concurrent with CBEMS 233.

CBEMS 135. Chemical Process Control. 4 Units.
Dynamic responses and control of chemical process equipment, dynamic modeling of chemical processes, linear system analysis, analyses and design of feedback loops and advanced control systems.

(Design units: 1)

Prerequisite: CBEMS 110 and CBEMS 125B and CBEMS 125C.

Restriction: Chemical Engineering majors have first consideration for enrollment.

CBEMS 140A. Chemical Engineering Laboratory I. 4 Units.
Experimental study of thermodynamics, fluid mechanics, and heat and mass transfer. Operation and evaluation of process equipment, data analysis. Materials fee.

(Design units: 1)

Prerequisite: CBEMS 110 and CBEMS 125C.

Restriction: Chemical Engineering majors have first consideration for enrollment.

CBEMS 140B. Chemical Engineering Laboratory II. 4 Units.
Continuation of the CBEMS 140A covering mass transfer operations such as distillation, absorption, extraction, etc. Rate and equilibria studies in simple chemical systems with and without reaction. Study of chemical process. Materials fee.

(Design units: 3)

Prerequisite: CBEMS 130 and CBEMS 135 and CBEMS 140A.

Restriction: Chemical Engineering majors have first consideration for enrollment.

CBEMS 141. Nano-Scale Materials and Applications. 4 Units.
Overview of the chemistry, physics, and applications of nanometer-scale materials. Explore the effects of composition, bonding, and confinement on physical properties of nanomaterials, their chemical syntheses, and their device physics in electronic, optoelectronic, and energy technologies.

(Design units: 1)

Prerequisite: (ENGR 1A or CHEM 1A) and MATH 2B and PHYSICS 7D.

Concurrent with CBEMS 241.

CBEMS 143. Chemistry and Technology for the Nuclear Fuel Cycle. 4 Units.
Introduces basic concepts of nuclear chemistry and focuses on chemical engineering aspects of the nuclear power industry. A broad survey of the nuclear fuel cycle (uranium processing, reactor concepts, spent fuel treatment and repositories) will be given.

(Design units: 0)

Concurrent with CBEMS 243.

CBEMS 149A. Chemical Engineering Design I. 3 Units.
Introduction to process design; flow sheets for chemical processes; synthesis of multicomponent separation sequences and reaction paths; synthesis of heat exchange networks; computer-aided design and simulation of processes and components pacts.

(Design units: 2)

Prerequisite: CBEMS 110 and CBEMS 125C and CBEMS 130.

Restriction: Chemical Engineering majors only.

CBEMS 149B. Chemical Engineering Design II. 3 Units.
Application of chemical engineering basics to practical design problems; process economics; process safety; environmental impacts; a major team design project with progress reports, oral presentation, and technical report with engineering drawings and economics.

(Design units: 3)

Prerequisite: CBEMS 149A.

Restriction: Chemical Engineering majors only.

CBEMS 154. Polymer Science and Engineering. 4 Units.
An introduction to physical aspects of polymers, including configuration and conformation of polymer chains and characterization techniques; crystallinity visoelasticity, rheology and processing.

(Design units: 1)

Prerequisite: (ENGR 1A or CHEM 1A) and (CHEM 1B and CHEM 1C and ENGR 54).

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

Concurrent with ENGRMSE 254.

CBEMS 155. Mechanical Behavior and Design Principles. 4 Units.
Principles governing structure and mechanical behavior of materials, relationship relating microstructure and mechanical response with application to elasticity, plasticity, yielding, necking, creep, and fracture of materials. Introduction to experimental techniques to characterize the properties of materials. Design parameters.

(Design units: 2)

Prerequisite: ENGR 54.

Same as ENGRMAE 156.

Restriction: Chemical Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

CBEMS 155L. Mechanical Behavior Laboratory. 1 Unit.
Introduction to experimental techniques to characterize mechanical properties of materials. Emphasis on correlations between property and microstructure. Experiments include: plastic stability in tension, effect of grain size on flow stress at low and high temperatures, superplasticity, nanostructured materials. Materials fee.

Corequisite: CBEMS 155.
Prerequisite: ENGR 54.

Restriction: Materials Science Engineering majors have first consideration for enrollment.

CBEMS 158. Ceramic Materials. 3 Units.
A technical elective for students interested in the materials area. Topics covered include structure and properties of ceramics, and design with ceramics.

(Design units: 1)

Prerequisite: ENGR 54.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 160. Advanced Laboratory in Chemistry and Synthesis of Materials. 4 Units.
Synthesis and characterization of organic and inorganic materials including polymers and oxides. Techniques include electron and scanning probe microscopy, gel permeation chromatography, X-ray diffraction, porosimetry, and thermal analysis. Materials fee.

Prerequisite: CHEM 131B or ENGR 54 or PHRMSCI 171.

Same as CHEM 156.

Restriction: Chemistry majors and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 163. Computer Techniques in Experimental Materials Research. 4 Units.
Principles and practical guidelines of automated materials testing. Computer fundamentals, programming languages, data acquisition and control hardware, interfacint techniques, programming strategies, data analysis, data storage, safeguard procedures.

(Design units: 1)

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

Concurrent with ENGRMSE 263.

CBEMS 164. X-ray Diffraction, Electron Microscopy, and Microanalysis. 3 Units.
Material characterization using X-ray diffraction and scanning electron microscopy (SEM). Topics include X-ray diffraction and analysis; SEM imaging and microanalysis. Materials fee.

(Design units: 1)

Prerequisite: ENGR 54.

Restriction: Materials Science Engineering and Mechanical Engineering majors have first consideration for enrollment.

CBEMS 164L. X-ray Diffraction, Electron Microscopy, and Microanalysis Lab. 2 Units.
Material characterization using X-ray diffraction and scanning electron microscopy (SEM). Topics include X-ray diffraction and analysis; SEM imaging and microanalysis.

(Design units: 1)

Corequisite: CBEMS 164.
Prerequisite: ENGR 54.

Restriction: Materials Science Engineering majors have first consideration for enrollment.

CBEMS 165. Diffusion and Phase Transformations. 3 Units.
Thermodyanamics and kinetics of phase transformations, phase diagrams, diffusional and diffusionless transformations.

(Design units: 0)

Prerequisite: ENGR 54 and (ENGRMAE 91 or CBEMS 45C). ENGRMAE 91 with a grade of C- or better. CBEMS 45C with a grade of C- or better.

Restriction: Materials Science Engineering majors have first consideration for enrollment.

CBEMS 169. Electronic and Optical Properties in Materials. 4 Units.
Covers the electronic, optical, and dielectric properties of crystalline and amorphous materials to provide a foundation of the underlying physical principles governing the properties of existing and emerging electronic and photonic materials.

(Design units: 1)

Prerequisite: PHYSICS 7D and PHYSICS 7E and MATH 3A and MATH 3D.

Restriction: Materials Science Engineering majors have first consideration for enrollment.

CBEMS 174. Semiconductor Device Packaging. 3 Units.
Introduction to the semiconductor device packaging and assembly process. Electrical, thermal, optical, and mechanical aspects of package design and reliability. Special topics on optoelectronics packaging will be covered.

(Design units: 1)

Prerequisite: CBEMS 45B.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 175. Design Failure Investigation. 4 Units.
Survey of mechanisms by which devices fail, including overload, fatigue, corrosion, and wear. Use of fractography and other evidence to interpret failure modes and specify design/manufacturing changes. Students redesign failed parts or structures based on actual parts and/or case histories.

(Design units: 2)

Prerequisite: ENGR 54.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 189A. Senior Design Project I. 3 Units.
Group supervised senior design projects that deal with materials selection in engineering design and that involve case studies in ethics, safety, design, failure modes, new products, and patents. Activities conclude with a presentation of the projects. Materials fee.

(Design units: 2)

Grading Option: In progress only.

Restriction: Seniors only. Materials Science Engineering majors only. CBEMS 189A-CBEMS 189B-CBEMS 189C must be taken in the same academic year.

CBEMS 189B. Senior Design Project II. 3 Units.
Group supervised senior design projects that deal with materials selection in engineering design and that involve case studies in ethics, safety, design, failure modes, new products, and patents. Activities conclude with a presentation of the projects. Materials fee.

(Design units: 3)

Prerequisite: CBEMS 189A.

Grading Option: In progress only.

Restriction: Seniors only. Materials Science Engineering majors only. CBEMS 189A-CBEMS 189B-CBEMS 189C must be taken in the same academic year.

CBEMS 189C. Senior Design Project III. 3 Units.
Group supervised senior design projects that deal with materials selection in engineering design and that involve case studies in ethics, safety, design, failure modes, new products, and patents. Activities conclude with a presentation of the projects. Materials fee.

(Design units: 3)

Prerequisite: CBEMS 189B.

Restriction: Seniors only. Materials Science Engineering majors only. CBEMS 189A-CBEMS 189B-CBEMS 189C must be taken in the same academic year.

CBEMS 190. Materials Selection and Design. 4 Units.
Meaning and phases of design. Design considerations. Safety issues and engineering ethics. Codes and standards. Materials selection in design. Materials selection to meet specific requirements. Statistical considerations. Engineering economics. Seminars on materials selection and design by industry leaders and faculty.

(Design units: 3)

Restriction: Seniors only. Materials Science Engineering majors have first consideration for enrollment.

CBEMS 191. Materials Outreach. 3 Units.
Demonstrates major concepts in Materials Science and Engineering. Concepts of materials engineering covered include deformation in crystalline solids, effects of heat treatment on mechanical properties, thermal barrier materials, composites design, mechanical behavior of polymers, superconductivity in ceramics.

(Design units: 1)

Prerequisite: ENGR 54.

Repeatability: May be taken for credit 4 times.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 195. Special Topics in Chemical Engineering and Materials Science. 1-4 Units.
Studies in selected areas of Chemical Engineering and Materials Science. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

CBEMS 198. Group Study. 1-4 Units.
Group study of selected topics in engineering.

(Design units: 1-4)

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

CBEMS 199. Individual Study. 1-4 Units.
For undergraduate engineering majors in supervised but independent readings, research, or design. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Repeatability: May be taken for credit for 8 units.

Restriction: Chemical Engineering and Materials Science Engineering majors have first consideration for enrollment.

CBEMS 199P. Individual Study. 1-4 Units.
For undergraduate Engineering majors in supervised but independent reading, research, or design. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in The School of Engineering.

(Design units: 1-4)

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

CBEMS 210. Reaction Engineering. 4 Units.
Advanced topics in reaction engineering, reactor stability analysis, diffusional effect in heterogeneous catalysis, energy balance, optimization of reactor operation, dispersed in phase reactors.

Prerequisite: CBEMS 110.

Restriction: Graduate students only.

CBEMS 215. Kinetics of Biochemical Networks . 4 Units.
Principles from statistical mechanics, thermodynamics, and chemical kinetics applied to biochemical systems, from fundamental processes such as receptor-ligand binding and enzyme catalysis, to complex cellular functions including signal transduction and gene regulation.

(Design units: 0)

Restriction: Graduate students only.

Concurrent with CBEMS 115

CBEMS 218. Bioengineering with Recombinant Microorganisms. 4 Units.
Engineering and biological principles important in recombinant cell technology. Host/vector selection; plasmid propagation; optimization of cloned gene expression; metabolic engineering; protein secretion; experimental techniques; modeling of recombinant cell systems.

Prerequisite: CBEMS 110 and CBEMS 112.

Restriction: Graduate students only.

CBEMS 219. Biomaterials: Structural Biology and Assembly. 4 Units.
Application of fundamental concepts in structural biology (proteins, DNA/RNA, carbohydrates, lipids), biomolecular thermodynamics, and molecular interactions to the design of novel biomaterials via self-assembly.

Concurrent with CBEMS 119.

CBEMS 220. Transport Phenomena. 4 Units.
Heat, mass, and momentum transfer theory from the viewpoint of the basic transport equations. Steady and unsteady state; laminar and turbulent flow; boundary layer theory, mechanics of turbulent transport with specific application to complex chemical engineering situations.

Prerequisite: CBEMS 125A and CBEMS 125B and CBEMS 125C.

Restriction: Graduate students only.

CBEMS 221. Drug Delivery. 4 Units.
Introduction to design of drug delivery systems. Includes physicochemical and pharmacokinetic considerations in drug formulations, types of therapeutics, routes of administration, biomaterials, and novel drug delivery systems.

Prerequisite: CHEM 1C and CBEMS 112 and (BME 50B or BIO SCI 93).

CBEMS 224. Molecular and Cellular Biophotonics. 4 Units.
Principles underlying the application of photonic technologies to biomolecular and cellular systems. Sample technologies Optical Tweezers, Linear and Nonlinear Optical Microscopy and Fluorescence Lifetime and Correlation Methods and their use to investigate emergent problems in Molecular, Cellular, and Developmental Biology.

(Design units: 0)

Same as CHEM 224.

Restriction: Graduate students only.

CBEMS 225. Tissue and Organ Biophotonics. 4 Units.
Principles underlying the application of photonic technologies to tissues, organs, organisms. Sample technologies include Optical Coherence Tomography, Optical Speckle Imaging, Optoacoustic Imaging, Wide-Field Spectroscopic Imaging, Diffuse Optical Spectroscopy. Addressing the use of these technologies to detect/monitor disease and physiological processes.

(Design units: 0)

CBEMS 228. Colloid Science and Engineering. 4 Units.
An introduction to the basic foundations of colloid science, interfacial phenomena, suspensions and complex fluids, and engineering and assembly of colloidal materials.

Prerequisite: CBEMS 125A.

Restriction: Graduate students only.

CBEMS 230. Applied Engineering Mathematics I. 4 Units.
Analytical techniques applied to engineering problems in transport phenomena, process dynamics and control, and thermodynamics.

Prerequisite: CBEMS 110 and CBEMS 125A and CBEMS 125B and CBEMS 125C.

Restriction: Graduate students only.

CBEMS 232. Bioseparation Processes. 4 Units.
Recovery and purification of biologically produced proteins and chemicals. Basic principles and engineering design of various separation processes including chromatography, electrophoresis, extraction, crystallization, and membrane separation.

Prerequisite: CBEMS 112.

Restriction: Graduate students only.

CBEMS 233. Nuclear and Radiochemistry. 4 Units.
Advanced treatment of nuclear structure, nuclear reactions, and radioactive-decay processes. Introduction to nuclear activation analysis, isotope effects, radiation chemistry, hot-atom chemistry, nuclear age-dating methods, nuclear reactors, and nuclear power.

Same as CHEM 233.

Concurrent with CBEMS 133.

CBEMS 240. Advanced Engineering Thermodynamics. 4 Units.
Introduction to modern thermodynamics and applications, with a focus on aspects relevant to chemical and materials engineering. Mathematical tools; equilibrium and stability; microscope rigorous equations of state; molecular-level thermodynamics of real mixtures; and phase and chemical equilibrium.

Prerequisite: CBEMS 45B and CBEMS 45C.

Restriction: Graduate students only.

CBEMS 241. Nano-Scale Materials and Applications. 4 Units.
Overview of the chemistry, physics, and applications of nanometer-scale materials. Explore the effects of composition, bonding, and confinement on physical properties of nanomaterials, their chemical syntheses, and their device physics in electronic, optoelectronic, and energy technologies.

Restriction: Graduate students only.

Concurrent with CBEMS 141.

CBEMS 242A. Physical and Geometrical Optics. 4 Units.
Focuses on the practical aspects of optics and optical engineering, starting at the fundamentals. Topics include geometrical optics, ray tracing, polarization optics, interferometers, and diffractive optics.

Same as CHEM 242A.

Restriction: Graduate students only.

Concurrent with PHYSICS 134A.

CBEMS 242B. Applied Optics. 4 Units.
Focuses on the treatment of a wide variety of tools and techniques used in optics, particularly in research. Subjects include an introduction to lasers, optical detection, coherent optics, spectroscopic techniques, and selected topics corresponding to the interest of the students.

Prerequisite: CHEM 242A.

Same as CHEM 242B.

CBEMS 243. Chemistry and Technology for the Nuclear Fuel Cycle. 4 Units.
Introduces basic concepts of nuclear chemistry and focuses on chemical engineering aspects of the nuclear power industry. A broad survey of the nuclear fuel cycle (uranium processing, reactor concepts, spent fuel treatment and repositories) will be given.

Restriction: Graduate students only.

Concurrent with CBEMS 143.

CBEMS 249. Special Topics in Chemical Engineering and Materials Science. 1-4 Units.
Studies in selected areas of Chemical Engineering and Materials Science. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

CBEMS 280. Optoelectronics Packaging. 4 Units.
Basic and current issues in the packaging of integrated circuits (IC) and fiber-optic devices are discussed.

Restriction: Graduate students only.

CBEMS 295. Seminars in Engineering. 1-4 Units.
Seminars scheduled each year by individual faculty in major field of interest.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

CBEMS 296. Master of Science Thesis Research. 1-16 Units.
Individual research or investigation conducted in preparation for the thesis required for the M.S. degree.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CBEMS 297. Doctor of Philosophy Dissertation Research. 1-16 Units.
Individual research or investigation conducted in preparation for the dissertation required for the Ph.D. degree.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CBEMS 298. Seminars in Engineering. 2 Units.
Presentation of advanced topics and reports of current research efforts in chemical engineering and materials science.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CBEMS 299. Individual Research. 1-16 Units.
Individual research or investigation under the direction of an individual faculty member.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Materials Science Engineering Courses

ENGRMSE 200. Crystalline Solids: Structure, Imperfections and Properties. 4 Units.
Principles and concepts underlying the study of advanced materials including alloys, composites, ceramics, semiconductors, polymers, ferroelectrics, and magnetics. Crystal structure and defects, surface and interface properties, thermodynamics and kinetics of phase transformations, and material processing, related to fundamental material properties.

Prerequisite: CHEM 1A and CHEM 1B and CHEM 1C and PHYSICS 7A and PHYSICS 7LA.

Restriction: Graduate students only.

ENGRMSE 205. Materials Physics. 4 Units.
Covers the electronic, optical, and dielectric properties of crystalline materials to provide a foundation of the underlying physical principles of governing the properties of existing and emerging electronic and photonic materials.

Restriction: Graduate students only.

ENGRMSE 251. Dislocation Theory. 4 Units.
Theory of elasticity and symmetry of crystals, plasticity and slip systems, stress field of dislocation, dislocation reaction, theories of yielding and strengthening, application of reaction-rate kinetics to thermally activated dislocation motion.

Prerequisite: ENGR 54.

Restriction: Graduate students only.

ENGRMSE 252. Theory of Diffusion. 4 Units.
Solid-state diffusion, analysis of diffusion in solids, thermodynamics of diffusion, application of diffusion theory to phase transformation and deformation problems.

Prerequisite: ENGR 54.

Restriction: Graduate students only.

ENGRMSE 254. Polymer Science and Engineering. 4 Units.
An introduction to physical aspects of polymers, including configuration and conformation of polymer chains and characterization techniques; crystallinity visoelasticity, rheology and processing.

Restriction: Graduate students only.

Concurrent with CBEMS 154.

ENGRMSE 255A. Design with Ceramic Materials. 4 Units.
Dependence of ceramic properties on bonding, crystal structure, defects, and microstructure. Ceramic manufacturing technology. Survey of physical properties. Strength, deformation, and fracture of ceramics. Mechanical design with brittle, environment-sensitive materials exhibiting time-dependent strengths.

Prerequisite: ENGR 54.

Restriction: Graduate students only.

ENGRMSE 256A. Mechanical Behavior of Engineering Materials. 4 Units.
Principles governing structure and mechanical behavior of materials, relationship relating microstructure and mechanical response with application to elasticity, plasticity, creep, and fatigue, study of rate-controlling mechanisms and failure modes, fracture of materials.

Prerequisite: ENGR 54.

Restriction: Graduate students only.

ENGRMSE 256B. Fracture of Engineering Materials. 4 Units.
Fracture mechanics and its application to engineering materials. Elastic properties of cracks, the stress intensity factor, the crack tip plastic zone, the J integral approach, fracture toughness testing, the crack tip opening displacement, fracture at high temperatures, fatigue crack growth.

Prerequisite: CBEMS 155 or ENGRMAE 156.

Restriction: Graduate students only.

ENGRMSE 259. Transmission Electron Microscopy. 4 Units.
The theory and operation of the transmission electron microscope (TEM), including the basic construction, electron optics, electron diffraction and reciprocal space, formation of image and electron diffraction information, microanalysis, and specimen preparation. Includes laboratory component.

Prerequisite: ENGRMSE 200.

Restriction: Graduate students only.

ENGRMSE 261. High Temperature Deformation of Engineering Materials. 4 Units.
Theoretical and practical aspects of creep and superplasticity in metallic and non-metallic systems are presented. Topics include: creep testing methods, diffusional creep, deformation mechanism maps, and superplasticity in non-metallics.

Prerequisite: ENGR 54 and (CBEMS 155 or ENGRMAE 156).

Restriction: Graduate students only.

ENGRMSE 262. Grain Boundaries & Interfaces in Nanocrystalline Materials. 4 Units.
Structure and character of grain boundaries and interfaces in solids including nanocrystalline materials. Role of grain boundaries in chemical segregation, fracture, deformation, creep, conductivity, diffusion, and grain growth. Experimental techniques and computational methods used to characterize and model grain boundaries.

Prerequisite: ENGRMSE 200.

ENGRMSE 263. Computer Techniques in Experimental Materials Research. 4 Units.
Principles and practical guidelines of automated materials testing. Computer fundamentals, programming languages, data acquisition and control hardware, interfacint techniques, programming strategies, data analysis, data storage, safeguard procedures.

Restriction: Graduate students only.

Concurrent with CBEMS 163.

ENGRMSE 264. Scanning Electron Microscopy. 4 Units.
The theory and operation of the scanning electron microscope (SEM) and X-ray microanalysis. Topics covered include the basic design and electron optics, electron beam - specimen interactions, image formation and interpretation, X-ray spectrometry, and other related topics and techniques.

Prerequisite: ENGRMSE 200.

Restriction: Graduate students only.

ENGRMSE 265. Phase Transformations. 4 Units.
Advanced thermodynamics and kinetics of phase transformations and phase transitions.

Prerequisite: CBEMS 165 or CBEMS 240.

ENGRMSE 268. Principles of Coatings, Thin Films and Multi-layers. 4 Units.
Principles and concepts underlying the engineering of coating systems, thin films and multilayers. Microstructure control, processing approaches, mechanical behavior and thermomechanical characteristics and characterization. Interfacial stability, cracking, delamination and thermal stress issues. Control of functional properties.

Prerequisite: ENGR 54.

ENGRMSE 273. Electroceramics & Solid State Electrochemical Systems. 4 Units.
Theory, underlying principles, experimental techniques, and applications of electroceramics and solid-state electrochemical systems. Links solid state physics, atomic structure, thermodynamics, defect chemistry, and transport processes to electrical properties of ceramics - spanning from insulators to fast-ion conductors and HT superconductors.

Prerequisite: ENGRMSE 200.

Department of Civil and Environmental Engineering

E4130 Engineering Gateway; (949) 824-5333
http://www.eng.uci.edu/dept/cee
Brett Sanders, **Department Chair**

Civil Engineering is described as the art of sustainably harnessing the natural environment to meet human needs. The success of this endeavor is evident all around us. The arid plain which greeted the early settlers in Southern California has been transformed into a thriving regional community largely by the application of civil engineering.

The goal of the Civil Engineering curriculum is to prepare graduates for a career in practice, research, or teaching. At the undergraduate level a common core of fundamental subjects is provided, and students are required to specialize in their senior year. Specializations are offered in General Civil Engineering, Environmental Hydrology and Water Resource Engineering, Structural Engineering, and Transportation Systems Engineering. Graduate opportunities are in three major thrust areas: structural analysis, design, and reliability; transportation systems engineering; and water resources and environmental engineering.

The career opportunities in civil engineering are varied. Graduates may look forward to long-term careers in major corporations, public bodies, the military, private consulting firms, or to being self-employed in private practice. History has shown a civil engineering education to be a good ground for many administrative and managerial positions.

Environmental Engineering involves designing environmental protection or remediation strategies for multiple resources—water, air, and soil, often with combinations of physical, chemical, and biological treatment methods in the context of a complex regulatory framework.

The goal of the Environmental Engineering curriculum is to prepare graduates with a strong basic science background, particularly in chemistry and biology, and to provide students with a broad exposure to several environmental engineering science disciplines. Courses relating to transport processes, water quality control, air quality control, and process design are included in the core.

Career opportunities in environmental engineering are diverse. Graduates generally find careers related to pollution control and the remediation of air, water, and soil environments.

- Civil Engineering (p. 534)
- Environmental Engineering (p. 538)

Undergraduate Major in Civil Engineering

Program Educational Objectives: Graduates of the Civil Engineering program will (1) establish a Civil Engineering career in industry, government, or academia and achieve professional licensure as appropriate; (2) demonstrate excellence and innovation in engineering problem solving and design in a global and societal context; (3) commit to lifelong learning and professional development to stay current in technology and contemporary issues; and (4) take on increasing levels of responsibility and leadership in technical and/or managerial roles. (Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

The curriculum provides the opportunity to obtain a firm foundation in engineering science and to develop the techniques of analysis and design, which are basic for the successful practitioner. Emphasis is placed on developing problem-solving skills.

Admissions

High School Students: See School Admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one year of chemistry (with laboratory), and one additional approved course for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Civil Engineering

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 468)**.**

Major Requirements

Mathematics and Basic Science Courses:	
CHEM 1A- 1B	General Chemistry and General Chemistry
CHEM 1LE	Accelerated General Chemistry Lab
or	
CHEM 1C- 1LC	General Chemistry and General Chemistry Laboratory
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
MATH 2E	Multivariable Calculus
PHYSICS 7C	Classical Physics
PHYSICS 7LC	Classical Physics Laboratory
PHYSICS 7D	Classical Physics
PHYSICS 7LD	Classical Physics Laboratory
One Basic Science Elective from the following:	
BIO SCI 55	Introduction to Ecology
BIO SCI 65	Biodiversity & Conservation
BIO SCI 93	From DNA to Organisms
EARTHSS 1	Introduction to Earth System Science
EARTHSS 3	Oceanography
EARTHSS 5	The Atmosphere
EARTHSS 7	Physical Geology
EARTHSS 15	Introduction to Global Climate Change
EARTHSS 17	Hurricanes, Tsunamis, and other Catastrophes
EARTHSS 19	Introduction to Modeling the Earth System
Lower-Division Engineering Elective:	
Select one of the following:	
EECS 70A	Network Analysis I
ENGR 54	Principles of Materials Science and Engineering
ENGR 7A- 7B	Introduction to Engineering I and Introduction to Engineering II *
ENGRMAE 80	Dynamics
ENGRMAE 91	Introduction to Thermodynamics
Engineering Topics Courses:	
ENGRCEE 11	Methods II: Probability and Statistics
ENGRCEE 20	Introduction to Computational Engineering Problem Solving
ENGRCEE 21	Computational Problem Solving
ENGRCEE 30	Statics
ENGRCEE 81A	Civil Engineering Practicum I
ENGRCEE 81B	Civil Engineering Practicum II
ENGRCEE 110	Methods III: Modeling, Economics, and Management
ENGRCEE 111	Methods IV: Systems Analysis and Decision-Making

ENGRCEE 121	Transportation Systems I: Analysis and Design
ENGRCEE 130	Soil Mechanics
ENGRCEE 130L	Soil Mechanics Laboratory
ENGRCEE 150	Mechanics of Materials
ENGRCEE 150L	Mechanics of Materials Laboratory
ENGRCEE 151A	Structural Analysis
ENGRCEE 151C	Reinforced Concrete Design
ENGRCEE 160	Environmental Processes
ENGRCEE 170	Introduction to Fluid Mechanics
ENGRCEE 171	Water Resources Engineering
ENGRCEE 181A- 181B- 181C	Senior Design Practicum and Senior Design Practicum and Senior Design Practicum
Engineering Design Elective:	
Select one of the following:	
ENGRCEE 122	Transportation Systems II: Operations & Control
ENGRCEE 123	Transportation Systems III: Planning & Forecasting
ENGRCEE 155	Structural Steel Design (Students completing the specialization in Structural Engineering must take ENGRCEE 155.)
ENGRCEE 172	Groundwater Hydrology
Engineering Design elective cannot be counted toward the course requirement for a specialization.	
Engineering Professional Topics Courses:	
ECON 20A- 20B	Basic Economics I and Basic Economics II
ENGR 190W	Communications in the Professional World
ENGRCEE 60	Contemporary and Emerging Environmental Challenges
or SOCECOL E8	Introduction to Environmental Analysis and Design
Specialization Electives:	
Students must select one of the areas of specialization and complete the associated requirements, as shown below. Students select, with the approval of a faculty advisor, any additional engineering topics courses needed to satisfy school and departmental requirements.	
Specialization in General Civil Engineering:	
Requires four courses, at least one course each from three of the following four options:	
(1) Select one:	
ENGRCEE 122	Transportation Systems II: Operations & Control
ENGRCEE 123	Transportation Systems III: Planning & Forecasting
(2) Select one:	
ENGRCEE 152	Computer Methods in Structural Analysis and Design
ENGRCEE 153	Statically Indeterminate Structures
ENGRCEE 155	Structural Steel Design
ENGRCEE 156	Foundation Design
(3) Select one:	
ENGRCEE 162	Introduction to Environmental Chemistry
ENGRCEE 163	Biological Treatment Process Design
ENGRCEE 165	Physical-Chemical Treatment Processes
ENGRCEE 167	Ecology of Coastal Waters
(4) Select one:	
ENGRCEE 172	Groundwater Hydrology
ENGRCEE 173	Watershed Modeling
ENGRCEE 176	Hydrology
ENGRCEE 178	Fluid Mechanics of Open Channels
Specialization in Environmental Hydrology and Water Resources:	
Select four of the following:	
ENGRCEE 162	Introduction to Environmental Chemistry

ENGRCEE 163	Biological Treatment Process Design
ENGRCEE 165	Physical-Chemical Treatment Processes
ENGRCEE 172	Groundwater Hydrology
ENGRCEE 173	Watershed Modeling
ENGRCEE 176	Hydrology
ENGRCEE 178	Fluid Mechanics of Open Channels
or courses from an approved list	
Specialization in Structural Engineering:	
ENGRCEE 155	Structural Steel Design (required for Engineering Design Elective)
ENGRCEE 153	Statically Indeterminate Structures
Select three of the following:	
ENGRCEE 151B	Structural Timber Design
ENGRCEE 152	Computer Methods in Structural Analysis and Design
ENGRCEE 156	Foundation Design
ENGRMAE 155	Composite Materials and Structures
ENGRMAE 157	Lightweight Structures
or courses from an approved list	
Specialization in Transportation Systems Engineering:	
ENGRCEE 122	Transportation Systems II: Operations & Control
ENGRCEE 123	Transportation Systems III: Planning & Forecasting
Select two of the following:	
EECS 70A	Network Analysis I
(EECS 70A may not be used in this Specialization if used for an Engineering Science Elective.)	
ENGRCEE 124	Transportation Systems IV: Freeway Operations and Control
ENGRCEE 125	Transportation and the Environment
ENGRMAE 140	Introduction to Engineering Analysis
ENGRMAE 170	Introduction to Control Systems
ENGRMAE 171	Digital Control Systems
or courses from an approved list	

* ENGR 7A-7B is available only to first year students in Fall and Winter quarters. Both ENGR 7A-7B must be taken to be counted as either a Lower-Division Engineering Elective or as one of the Specialization Electives.

In addition, students must aggregate a minimum of 22 design units. Design unit values are indicated at the end of each course description. The faculty advisors and the Student Affairs Office can provide necessary guidance for satisfying the design requirements.

(The nominal Civil Engineering program will require 188 units of courses depending on specialization to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary.)

At most an aggregate total of 6 units of 199 or H199 courses may be used to satisfy degree requirements.

Program of Study

Sample Program of Study — Civil Engineering

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
ENGRCEE 20	PHYSICS 7C	PHYSICS 7D
CHEM 1A	PHYSICS 7LC	PHYSICS 7LD
General Education	CHEM 1B	Basic Science Elective
	CHEM 1LE	General Education
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
ENGRCEE 81A	ENGRCEE 81B	ENGRCEE 11
ENGRCEE 30	Lower-Div Engineering Elective	ENGRCEE 21
General Education	General Education	General Education

Junior		
Fall	**Winter**	**Spring**
ENGRCEE 121	ENGRCEE 130	ENGRCEE 110
ENGRCEE 150	ENGRCEE 130L	ENGRCEE 151C
ENGRCEE 150L	ENGRCEE 151A	ENGRCEE 160
ENGRCEE 170	ENGRCEE 171	General Education
ENGR 190W	General Education	

* Note: ENGR 7A-7B is available only to first year students in Fall and Winter quarters. Both ENGR 7A-7B must be taken to be counted as either a Lower-Division Engineering Elective or as one of the Specialization Electives.

The following sample plans of study are provided for the senior year only; the first three years are common to all specializations.

Senior-Year Sample Programs of Study — Civil Engineering

Senior: General Civil Engineering Specialization

Senior		
Fall	**Winter**	**Spring**
ENGRCEE 181A	ENGRCEE 181B	ENGRCEE 181C
Engr. Design Elective	ENGRCEE 111	Spec. Elective
Spec. Elective	Spec. Elective	Spec. Elective
General Education	General Education	General Education

Senior: Environmental Hydrology and Water Resources Specialization

Senior		
Fall	**Winter**	**Spring**
ENGRCEE 181A	ENGRCEE 181B	ENGRCEE 181C
Engr. Design Elective	ENGRCEE 111	Spec. Elective
Spec. Elective	Spec. Elective	Spec. Elective
General Education	General Education	General Education

Senior: Structural Engineering Specialization

Senior		
Fall	**Winter**	**Spring**
ENGRCEE 181A	ENGRCEE 181B	ENGRCEE 181C
ENGRCEE 153	ENGRCEE 111	Spec. Elective
ENGRCEE 155	Spec. Elective	Spec. Elective
General Education	General Education	General Education

Senior: Transportation Systems Engineering

Senior		
Fall	**Winter**	**Spring**
ENGRCEE 181A	ENGRCEE 181B	ENGRCEE 181C
Engr. Design Elective	ENGRCEE 111	ENGRCEE 123
Spec. Elective	ENGRCEE 122	Spec. Elective
General Education	General Education	General Education

Students must obtain approval for their program of study and must see their faculty advisor at least once each year.

The sample program of study chart shown is typical for the accredited major in Civil Engineering. Students should keep in mind that this program is based upon a rigid set of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Therefore, the course sequence should not be changed except for the most compelling reasons. (Students who select the Environmental Engineering specialization within the Civil Engineering major should follow the Civil Engineering sample program.) Students must have their programs approved by their faculty advisor. Civil Engineering majors must consult at least once every year with the academic counselors in the Student Affairs Office and with their faculty advisors.

Undergraduate Major in Environmental Engineering

Program Educational Objectives: Graduates of the Environmental Engineering program will (1) establish an Environmental Engineering career in industry, government, or academia and achieve professional licensure as appropriate; (2) demonstrate excellence and innovation in engineering problem solving and design in a global and societal context; (3) commit to lifelong learning and professional development to stay current in technology and contemporary issues; and (4) take on increasing levels of responsibility and leadership in technical and/or managerial roles. (Program educational

objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

The curriculum includes a core of mathematics, physics, chemistry, and biology, as well as engineering mechanics and methods courses. Students may select from a variety of environmental engineering courses to fulfill the remaining portion of the program and to focus their environmental engineering training in one or more of the following areas: water supply and resources, waste water management, or atmospheric systems and air pollution control. Design experiences are integrated into environmental engineering courses, and seniors enroll in a capstone design course.

Admissions

High School Students: See School Admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one year of general chemistry (with laboratory), and one additional approved course for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Environmental Engineering

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 468)**.**

Major Requirements

Mathematics and Basic Science Courses:	
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM 1LC- 1LD	General Chemistry Laboratory and General Chemistry Laboratory
CHEM 51A	Organic Chemistry
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 2E	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C	Classical Physics
PHYSICS 7LC	Classical Physics Laboratory
PHYSICS 7D	Classical Physics
PHYSICS 7LD	Classical Physics Laboratory
Two additional Basic Science Electives, one Earth System Science course and one Biological Sciences course from the following list:	
BIO SCI 42	Origin of Life
BIO SCI 93	From DNA to Organisms
EARTHSS 15	Introduction to Global Climate Change
EARTHSS 19	Introduction to Modeling the Earth System
Lower-Division Engineering Elective:	
Students must take one course from the following:	
CBEMS 45A	Chemical Processing and Materials Balances
EECS 70A	Network Analysis I
ENGR 7A- 7B	Introduction to Engineering I and Introduction to Engineering II *
ENGR 54	Principles of Materials Science and Engineering
ENGRCEE 80	Dynamics
or ENGRMAE 80	Dynamics
Engineering Topics Courses:	

Students must complete a minimum of 19 units of engineering design.

Core Courses:	
ENGRCEE 11	Methods II: Probability and Statistics
ENGRCEE 20	Introduction to Computational Engineering Problem Solving
ENGRCEE 21	Computational Problem Solving
ENGRCEE 30	Statics
ENGRCEE 81A	Civil Engineering Practicum I
ENGRCEE 81B	Civil Engineering Practicum II
ENGRMAE 91	Introduction to Thermodynamics
ENGRCEE 110	Methods III: Modeling, Economics, and Management
ENGRCEE 130- 130L	Soil Mechanics and Soil Mechanics Laboratory
ENGRCEE 150- 150L	Mechanics of Materials and Mechanics of Materials Laboratory
ENGRCEE 160	Environmental Processes
ENGRCEE 162	Introduction to Environmental Chemistry
ENGRCEE 170	Introduction to Fluid Mechanics
ENGRCEE 181A- 181B- 181C	Senior Design Practicum and Senior Design Practicum and Senior Design Practicum
Engineering Elective Courses:	
Students must take two courses each from two of the following three groups and one course from the remaining group.	
Water Supply and Resources:	
EARTHSS 132	Terrestrial Hydrology
ENGRCEE 171	Water Resources Engineering
ENGRCEE 172	Groundwater Hydrology
ENGRCEE 173	Watershed Modeling
ENGRCEE 176	Hydrology
ENGRCEE 178	Fluid Mechanics of Open Channels
Environmental Processes:	
ENGRCEE 163	Biological Treatment Process Design
ENGRCEE 165	Physical-Chemical Treatment Processes
ENGRCEE 167	Ecology of Coastal Waters
Atmospheric Systems and Air Pollution Control:	
EARTHSS 112	Global Climate Change and Impacts
ENGRMAE 110	Combustion and Fuel Cell Systems
ENGRMAE 115	Applied Engineering Thermodynamics
ENGRMAE 164	Air Pollution and Control

All additional engineering topics courses needed to satisfy school and major requirements must be approved by the faculty advisor. Environmental Engineering is an inherently interdisciplinary program. Students interested in pursuing a second degree along with Environmental Engineering may be able to substitute appropriate course work for required courses stated above. Please consult with an Engineering academic or faculty advisor.

Engineering Professional Topics Courses:	
ECON 20A- 20B	Basic Economics I and Basic Economics II
ENGR 190W	Communications in the Professional World
ENGRCEE 60	Contemporary and Emerging Environmental Challenges
or SOCECOL E8	Introduction to Environmental Analysis and Design

(The nominal Environmental Engineering program requires 189 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary.)

At most an aggregate total of 6 units of 199 or H199 courses may be used to satisfy degree requirements.

* ENGR 7A-7B is available only to first year students in Fall and Winter quarters. Both ENGR 7A-7B must be taken to be counted as one Lower-Division Engineering Elective course.

Program of Study

The sample program of study chart shown is typical for the major in Environmental Engineering. Students should keep in mind that this program is based upon a sequence of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Students who are not adequately prepared, or who wish to make changes in the sequence for other reasons, must have their programs approved by their faculty advisor. Environmental Engineering majors must consult at least once every year with the academic counselors in the Student Affairs Office and with their faculty advisors.

Sample Program of Study — Environmental Engineering

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
CHEM 1A	CHEM 1B	CHEM 1C
ENGRCEE 20	PHYSICS 7C	CHEM 1LC
General Education	PHYSICS 7LC	PHYSICS 7D
	General Education	PHYSICS 7LD
		General Education
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
ENGRCEE 81A	ENGRCEE 81B	ENGRCEE 11
ENGRCEE 30	Lower-Division Engineering Elective	ENGRCEE 21
CHEM 51A	General Education	ENGRMAE 91
CHEM 1LD		
Junior		
Fall	**Winter**	**Spring**
ENGRCEE 150	ENGRCEE 130	ENGRCEE 110
ENGRCEE 150L	ENGRCEE 130L	ENGRCEE 160
ENGRCEE 170	ENGRCEE 162	Basic Science Elective
ENGR 190W	Engineering Elective	General Education
Basic Science Elective	General Education	
Senior		
Fall	**Winter**	**Spring**
ENGRCEE 181A	ENGRCEE 181B	ENGRCEE 181C
Engineering Elective	Engineering Elective	Engineering Elective
General Education	Engineering Elective	General Education
General Education	General Education	

Students must obtain approval for their program of study and must see their faculty advisor at least once each year.

- Civil Engineering (p. 541)
- Concentration in Environmental Engineering (p. 543)

Graduate Study in Civil Engineering

Civil Engineering addresses the technology of constructed environments and, as such, embraces a wide range of intellectual endeavors. The Department of Civil and Environmental Engineering focuses its graduate study and research program on three areas: Structural Engineering, including engineering mechanics, advanced composites, structural dynamics, earthquake engineering, and reliability and risk assessment; Transportation Systems Engineering, including traffic operations and management, advanced information technology applications, travel behavior, and transportation systems analysis; Hydrology and Water Resources Engineering, including hydrology, water resources, and remote sensing.

The Department offers the M.S. and Ph.D. degrees in Civil Engineering.

At the point of application a student is required to identify a thrust area. Specifically, the three thrust areas that have been identified for the Civil Engineering Graduate program are: Structural Engineering, Transportation Systems Engineering, and Hydrology and Water Resources Engineering. Once admitted, an advisor will be assigned according to the thrust area a student has chosen. Financial support through research or teaching assistantships and a variety of fellowships and scholarships is available to qualified students.

Structural Engineering: The Structural Engineering area emphasizes the application of analytical, numerical, and experimental approaches to the investigation of constructed facilities and systems that support or resist various loads. The objective of the program is to prepare graduates for leadership positions in industry and academic institutions by providing an opportunity to learn state-of-the-art methodologies applied to significant structural engineering problems. Specific interests include sensors and structural health monitoring, composites for infrastructure applications, reliability and risk assessment of civil engineering systems, structural control, system identification and damage detection, performance-based

earthquake engineering, soil-structure interaction, smart materials and structures, multi-scale mechanistic analysis, and sustainable green materials and infrastructural systems.

Transportation Systems Engineering: Among leading centers for transportation research, the Department of Civil and Environmental Engineering offers a graduate research area that is distinguished by its interdisciplinary approach to the study of current and emerging urban transportation issues and by its unique relationship with the UC Irvine Institute of Transportation Studies. The research area focuses on the planning, design, operation, and management of complex transportation systems. Emphasis is on the development of fundamental knowledge in engineering, systems analysis, modeling, and planning, combined with advanced computational techniques and information technologies, to address transportation problems affecting urban travel and goods movement.

Hydrology and Water Resources Engineering: This area focuses on the distribution and transport of water among and between land, atmosphere, and oceans, the supply of water for municipal, agricultural, and environmental uses, and water-related hazards such as flooding and drought. Mathematical and computational modeling is germane to research activity in this area as well as professional practice, so course work is designed to develop theory-based mathematical modeling skill, on the one hand, as well as computational modeling skill on the other. Course work emphasizes important fundamentals such as mass, energy and momentum conservation principles, applied to hydrologic systems, and also increasingly important remote sensing and information technologies. Interdisciplinary study is an important dimension to hydrology and water resources, particularly in the areas of water quality, ecology, infrastructure systems, technology, and policy. Consequently, students are encouraged to take courses in these areas.

Master of Science Degree

The M.S. degree reflects achievement of an advanced level of competence for the professional practice of civil engineering. Two plans are available to those working toward the M.S. degree: a thesis option and a course work option. Opportunities are available for part-time study toward the M.S. degree. The Plan of Study for both options must be developed in consultation with a Faculty Advisor and approved by the Program Graduate Advisor.

Plan I: Thesis Option

The thesis option requires completion of 48 units of study (a maximum of ten of which can be taken for study in conjunction with the thesis research topic); the completion of an original research project; the writing of the thesis describing it; and review by a thesis committee. Of the 48 units, a minimum of 28 units must be in nonresearch, graduate-level approved engineering or related courses (numbered 200–289) with at least 16 of 28 units from the CEE Department. The remaining units may be earned as graduate-level course work, individual research, or upper-division undergraduate units (maximum ten units).

Plan II: Course Work Option

The course work option requires the completion of 48 units of study, at least 40 of which must be in nonresearch graduate-level approved engineering or related courses (numbered 200–289) with at least 28 of 40 units from the CEE Department. The remaining eight units may be earned as graduate-level course work, individual research, or upper-division undergraduate units.

NOTE: Students who entered prior to fall of 2012 should follow the course requirements outlined within the *Catalogue* of the year they entered. The change in number of units per course is not intended to change the course requirements for the degree nor to have any impact in the number of courses students are taking. As such, students will need to continue to meet the same high standards and plan of study requirements as previously required. Students will work with their advisor to create a plan of study encompassing the equivalent topical requirements, as well as the equivalent number of courses to the previous 36-unit requirement.

Concurrent Master’s Degree Program with Planning, Policy, and Design

The Department of Civil and Environmental Engineering (CEE) and the Department of Planning, Policy, and Design (PPD) in the School of Social Ecology offer a concurrent degree program that allows students to earn both a master’s in Civil Engineering (M.S.) and a master’s in Urban and Regional Planning (M.U.R.P.) in two years (instead of more than three years if these degrees were pursued sequentially). The concurrent degree program requires 84 units of study and is organized around two tracks: (1) transportation systems, and (2) environmental hydrology and water resources. The program core comprises 15 graduate courses for the transportation systems track, and 13 graduate and two undergraduate courses for the environmental hydrology and water resources track.

Students choose between a thesis option and a comprehensive examination option. The thesis option requires completion of 84 units of study (a maximum of ten of which may be taken in conjunction with the thesis research); completion of an original research project and the writing of a thesis to describe it; completion of required core courses; and completion of enough units of approved electives to meet the total requirement of 84 units. The comprehensive examination option also requires completion of 84 units of study as well as a professional report, which represents a substantial piece of planning practice, as the capstone event. These units of study include core courses and enough units of approved electives to meet the total requirement of 84 units, with no redundancy of core courses in either CEE or PPD. Electives may include as many as ten units of independent study or approved undergraduate courses.

Undergraduates seeking admission to the concurrent master’s degree program should have a strong record of course work in disciplines related to civil engineering and urban planning, and they must meet the requirements for admission in both departments. Visit the Civil and Environmental Engineering Admissions Requirements (http://www.eng.uci.edu/grad/programs/cee/admissions) and Planning, Policy and Design Admissions (http://ppd.soceco.uci.edu/pages/admissions) websites for more information about these requirements.

Doctor of Philosophy Degree

The Ph.D. degree indicates attainment of an original and significant research contribution to the state-of-the-art in the candidate's field, and an ability to communicate advanced engineering concepts. The doctoral program is tailored to the individual needs and background of the student. The detailed program of study for each Ph.D. student is formulated in consultation with a faculty advisor who takes into consideration the objectives and preparation of the candidate. The program of study must be approved by the faculty advisor and the Graduate Advisor of the Department.

There are no specific course requirements. Within this flexible framework, the School maintains specific guidelines that outline the milestones of a typical doctoral program. All doctoral students should consult the Civil Engineering program's guidelines for details, but there are several milestones to be passed: admission to the Ph.D. program by the faculty; early assessment of the student's research potential (this includes a preliminary examination), research preparation, formal advancement to candidacy by passing the qualifying examination in the third year (second year for students who entered with a master's degree), completion of a significant research investigation, and the submission and oral defense of an acceptable dissertation. There is no foreign language requirement. Ph.D. students have to meet departmental research requirements as a research assistant or equivalent, with or without salary. The degree is granted upon the recommendation of the Doctoral Committee and the Dean of Graduate Studies. The normative time for completion of the Ph.D. is five years (four years for students who entered with a master's degree). The maximum time permitted is seven years.

The Institute of Transportation Studies

The Institute of Transportation Studies at Irvine (ITS) is part of a multicampus research unit of the University of California. ITS Irvine consists of faculty, staff, and graduate and undergraduate students engaged at the forefront of knowledge in interdisciplinary transportation research and education. Currently, the Institute involves faculty and students from The Henry Samueli School of Engineering, the School of Social Sciences, the School of Social Ecology, The Paul Merage School of Business, and the Donald Bren School of Information and Computer Sciences. Collaborations with colleagues from outside the University are common. The mission of the Institute is to create and disseminate significant new knowledge to help solve society's pressing transportation problems, both in California and globally. It achieves this through cutting-edge activities in research, education, and professional outreach. A characteristic of ITS Irvine transportation research is a systems approach, focusing on the areas of planning, policy, economics (including pricing and finance), operations (including traffic, transit, logistics and freight, and safety), energy and the environment, and information technologies. The Institute has close ties to the University's Transportation Science interdisciplinary graduate degree program. Students choosing to focus their studies in transportation will find strong interdisciplinary opportunities between the Department and ITS. See the Office of Research section of the *Catalogue* for additional information.

The Urban Water Research Center

The Urban Water Research Center focuses on five integrating water issues in urban areas: (1) supply, demand, and distribution; (2) water quality; (3) urban ecology; (4) water reuse; and (5) institutions and public policy. In each of these areas the Center enables the issues to be addressed in an integrated way from the points of view of biology, earth systems, economics, engineering public policy, and public health. The Center is the collaborative effort of the Department of Civil and Environmental Engineering, the Department of Earth System Science, and the School of Social Ecology.

Graduate Concentration in Environmental Engineering

E4130 Engineering Gateway; (949) 824-5333
C. Sunny Jiang, **Director and Graduate Advisor**

Faculty

Amir AghaKouchak: Hydrology, hydroclimatology, data assimilation, remote sensing of critical global water resource issues

Jacob Brouwer: High-temperature electrochemical dynamics, fuel cells, renewable and sustainable energy

William J. Cooper: Environmental chemistry, advanced oxidation processes for water treatment, aquatic photochemistry of carbon cycling

Donald Dabdub: Mathematical modeling of urban and global air pollution, dynamics of atmospheric aerosols, secondary organic aerosols, impact of energy generation on air quality, chemical reactions at gas-liquid interfaces

Kristen Davis: Coastal oceanography, fluid mechanics, and turbulent flows

Russell L. Detwiler: Groundwater hydrology, contaminant fate and transport, subsurface process modeling, groundwater/surface-water interaction

Derek Dunn-Rankin: Combustion, optical particle sizing, particle aero-dynamics, laser diagnostics and spectroscopy

James S. Famiglietti: Modeling and remote sensing of global hydrology; global change and water availability; sea level rise

Stanley B. Grant: Environmental engineering, inland and coastal water quality, coagulation and filtration of colloidal contaminants, environmental microbiology

Kuolin Hsu: Remote sensing of precipitation, hydrologic systems modeling, stochastic hydrology, water resources systems planning

C. Sunny Jiang: Water pollution microbiology, environmental biotechnology, aquatic microbial ecology

Betty H. Olson: Molecular applications for optimizing biological processes in wastewater treatment, environmental health, drinking water microbiology

Diego Rosso: Environmental process engineering, mass transfer, wastewater treatment, carbon- and energy-footprint analysis

G. Scott Samuelsen: Energy, fuel cells, hydrogen economy, propulsion, combustion and environmental conflict; turbulent transport in complex flows, spray physics, NOx and soot formation, laser diagnostics and experimental methods; application of engineering science to practical propulsion and stationary systems; environmental ethics

Brett F. Sanders: Environmental and computational fluid dynamics, water resources engineering

Jean-Daniel M. Saphores: Transportation economics, planning and policy, environmental and natural resource economics and policy, quantitative methods

Soroosh Sorooshian: Hydrology, hydrometeorology and hydroclimate modeling, remote sensing, water sources management

Jasper A. Vrugt: Surface hydrology and soil physics

Affiliated Faculty

Nancy A. Da Silva: Bioremediation, genetic engineering

Michael Kleinman (*Adjunct*): Uptake and distribution of inhaled toxic materials in the respiratory tract; effects of air pollutants on cardio-pulmonary function

Mikael Nilsson: Advanced nuclear fuel cycles, actinide chemistry, liquid-liquid extraction, process development, radiolysis, detection and detectors for online process control

Students may pursue either the M.S. or Ph.D. degree in Engineering with a concentration in Environmental Engineering.

Environmental Engineering is an interdisciplinary program engaging faculty from departments in both engineering and the sciences, and managed by the Department of Civil and Environmental Engineering. Environmental Engineering addresses the development of strategies to control anthropogenic emissions of pollutants to the atmosphere, waterways, and terrestrial environment; the remediation of polluted natural systems; the design of technologies to treat waste, energy efficiency and environmentally responsible power generation; and the evaluation of contaminant fate in the environment.

Environmental Engineering requires a curriculum that provides students with an understanding of fundamentals in air- and water-quality sciences, contaminant fate and transport, global climate change, water resources, energy, and design concepts for pollutant emission control and treatment.

Required Background

The program core curriculum builds on environmental engineering fundamentals such as fluid mechanics, environmental chemistry, air quality, microbial processes, thermodynamics, and reactor theory and design. The interdisciplinary nature of the program allows students with a variety of science and engineering backgrounds to undertake studies in this field. Students admitted to the program lacking one or more fundamental courses can earn credit toward the M.S. degree by completing these courses at UC Irvine. Students entering the program are expected to have had exposure to engineering-level math that includes linear algebra, differential equations and statistics.

The degree to which each student meets the program's background requirement is determined by a faculty committee at the time of admission. Students with an insufficient background who are offered admission will be required to take a set of appropriate prerequisite undergraduate courses before entering the program or at the beginning of the program.

The table below is a general checklist for the required background and a list of undergraduate courses that may be used to fulfill the background requirements.

Required Background and Sample UCI Undergraduate Courses

Engineering Level Math:	
Calculus, linear algebra, differential equations, probability and statistics	
MATH 2D	Multivariable Calculus
MATH 3D	Elementary Differential Equations
Environmental Chemistry/Microbiology (two of the following):	
Aquatic chemistry, atmosphere chemistry, organic chemistry, microbiology	
BIO SCI M122	General Microbiology
CBEMS 112	Introduction to Biochemical Engineering
CHEM 51A	Organic Chemistry
EARTHSS 142	Atmospheric Chemistry

ENGRCEE 162	Introduction to Environmental Chemistry
Fluid Mechanics/Momentum Transport:	
Fluid statics and dynamics, thermodynamics	
CBEMS 45C	Chemical Engineering Thermodynamics
ENGRCEE 170	Introduction to Fluid Mechanics
ENGRMAE 115	Applied Engineering Thermodynamics
ENGRMAE 130A	Introduction to Fluid Mechanics
Reactor Theory/Intro. Environmental Engineering:	
Reaction kinetics, mass balance	
CBEMS 45A	Chemical Processing and Materials Balances
CBEMS 110	Reaction Kinetics and Reactor Design
CBEMS 125C	Mass Transfer
ENGRCEE 160	Environmental Processes

Areas of Emphasis

There are four primary areas of emphasis within Environmental Engineering: Water Quality and Treatment, Hydrology and Water Resources, Air Quality, and Energy. To achieve the interdisciplinary objectives of the program, students entering the program without an M.S. degree are required to take at least one course from each of the four primary areas of Environmental Engineering, in addition to an Advanced Mathematics course, to fulfill the core requirements. Students can take additional elective courses in one of the four areas or from more than one area. Courses outside of the School of Engineering (i.e., Earth System Science, Public Health, Biological Sciences) can be used toward elective credits with the approval of the faculty advisor and the graduate director.

Core Requirement

Students entering the program without an M.S. degree must complete the following core requirements (22 units) before petitioning for an M.S. degree.

Advanced Mathematics area requirements: Select one of the three courses listed below	
CBEMS 230	Applied Engineering Mathematics I
ENGRCEE 283	Mathematical Methods in Engineering Analysis
ENGRMAE 200A	Engineering Analysis I
Water Quality and Treatment area requirements: Select one of the two courses listed below	
ENGRCEE 263	Advanced Biological Treatment Processes
ENGRCEE 265	Physical-Chemical Treatment Processes
Hydrology and Water Resources area requirements: Select one of the three courses listed below	
ENGRCEE 272	Groundwater Hydrology
ENGRCEE 276	Hydrology
ENGRCEE 277	Hydrologic Transport Fundamentals
Air Quality area requirements: Select one of the two courses listed below	
ENGRMAE 215	Advanced Combustion Technology
ENGRMAE 261	Air Quality Modeling
Energy area requirements: Select one of the two courses listed below	
ENGRCEE 264	Carbon Footprint Analysis for Water and Wastewater Systems
ENGRMAE 218	Sustainable Energy Systems
Environmental Seminar area requirements: Two quarters of	
ENGRCEE 295	Seminars in Engineering

Elective Courses

Additional course requirements can be fulfilled using elective courses in any of the areas. Courses within each area are listed below.

Water Quality and Treatment:	
CBEMS 218	Bioengineering with Recombinant Microorganisms
CBEMS 220	Transport Phenomena
ENGRCEE 260	Desalination
ENGRCEE 261	Applied Environmental Microbiology
ENGRCEE 263	Advanced Biological Treatment Processes

ENGRCEE 265	Physical-Chemical Treatment Processes
ENGRCEE 266	Drinking Water and Wastewater Biotechnology
ENGRCEE 267	Ecology of Coastal Waters
Hydrology and Water Resources:	
ENGRCEE 271	Flow in Unsaturated Porous Media
ENGRCEE 272	Groundwater Hydrology
ENGRCEE 273	Watershed Modeling
ENGRCEE 274	Climate Data Analysis
ENGRCEE 276	Hydrology
ENGRCEE 277	Hydrologic Transport Fundamentals
ENGRCEE 278	Fluid Mechanics of Open Channels
ENGRCEE 279	Hydrologic Computational Modeling
ENGRCEE 290	Merging Models and Data
Air Quality:	
ENGRMAE 215	Advanced Combustion Technology
ENGRMAE 231	Fundamentals of Turbulence
ENGRMAE 233	Turbulent Free Shear Flows
ENGRMAE 261	Air Quality Modeling
EARTHSS 240	Atmospheric Chemistry and Physics
Energy:	
ENGRMAE 214A	Fuel Cell Fundamentals and Technology
ENGRMAE 218	Sustainable Energy Systems
ENGRMAE 260	Current Issues Related to Tropospheric and Stratosheric Processes
ENGRCEE 264	Carbon Footprint Analysis for Water and Wastewater Systems

Master of Science Degree

Two options are available for M.S. degree students: a thesis option and a comprehensive examination option. Both options require the completion of at least 48 units of study including two units of Seminar in Engineering.

Plan I. Thesis Option

A thesis option is available to students who prefer to conduct a focused research project. Students selecting this option must complete an original research investigation and a thesis, and obtain approval of the thesis by a thesis committee. Of the 48 required units, at least 28 units must be nonresearch, graduate-level courses including five core courses. A maximum of 16 M.S. research units and up to ten units of upper-division undergraduate elective courses may be applied to the degree with the prior approval of the Graduate Advisor.

Plan II. Comprehensive Examination Option

Alternatively, students may select a course work option in which they must successfully complete 48 units of study and pass a comprehensive examination. At least 36 units must be nonresearch, graduate-level courses including five core courses. A maximum of eight M.S. research units and up to ten units of upper-division undergraduate elective courses may be applied to the degree with the prior approval of the Graduate Advisor.

NOTE: Students who entered prior to fall of 2012 should follow the course requirements outlined within the *Catalogue* of the year they entered. The change in number of units per course is not intended to change the course requirements for the degree nor to have any impact in the number of courses students are taking. As such, students will need to continue to meet the same high standards and plan of study requirements as previously required. Students will work with their advisor to create a plan of study encompassing the equivalent topical requirements, as well as the equivalent number of courses to the previous 36-unit requirement.

Doctor of Philosophy Degree

The Ph.D. concentration in Environmental Engineering requires the achievement of original and significant research that advances the discipline. Doctoral students are selected on the basis of an outstanding record of scholarship and potential for research excellence.

Each student will match with a faculty advisor, and an individual program of study is designed by the student and their faculty advisor. Students entering with a master's degree are not required to fulfill the core requirements. However, in preparation for a successful preliminary examination, additional courses may be required in consultation with the graduate advisor and the program director. Students without a master's degree may be admitted into the Ph.D. program. However, these students will be required to complete the course work option requirements for the master's degree before registering for the preliminary exam. Within this flexible framework, the School maintains specific guidelines that outline the milestones of a typical doctoral program. There are several milestones to be passed: admission to the Ph.D. program by the faculty, passage within the first two years of a preliminary examination, formal advancement to candidacy by passing a qualifying examination in the third year (or second year for students who

entered with a master's degree), completion of a significant research investigation, and the submission and oral defense of an acceptable dissertation. During their research project, students are expected to enroll in at least 12 units of independent research per quarter.

The preliminary examination committee is comprised of three core examiners from different areas of Environmental Engineering. Students who fail the preliminary examination in the first year may retake the examination the following year. Students who fail the second attempt will not be allowed to continue in the program. Committees for Ph.D. qualifying examinations must have five members. Three members of this committee must be core faculty in the Environmental Engineering program. One member must be a UC faculty member from outside the Environmental Engineering program. The student's faculty advisor serves as the technical chair of the committee. The qualifying examination follows campus and The Henry Samueli School of Engineering guidelines and consists of an oral and written presentation of original work completed thus far, and a coherent plan for completing a body of original research. The student's dissertation topic must be approved by the student's doctoral committee. The degree is granted upon the recommendation of the doctoral committee and the Dean of Graduate Division. The normative time for completion of the Ph.D. is five years (four years for students who entered with a master's degree). The maximum time permitted is seven years.

Faculty

Amir Aghakouchak, Ph.D. University of Stuttgart, *Assistant Professor of Civil and Environmental Engineering* (hydrology, hydroclimatology, data assimilation, remote sensing of critical global water resource issues)

Alfredo H.-S. Ang, Ph.D. University of Illinois at Urbana-Champaign, *Professor Emeritus of Civil and Environmental Engineering* (structural and earthquake engineering, risk and reliability engineering)

Jacob Brouwer, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Mechanical and Aerospace Engineering; Civil and Environmental Engineering* (high-temperature electrochemical dynamics, fuel cells, renewable and sustainable energy)

William J. Cooper, Ph.D. University of Miami, *Professor of Civil and Environmental Engineering; Chemical Engineering and Materials Science; Planning, Policy, and Design* (environmental chemistry, advanced oxidation processes for water treatment, aquatic photochemistry of carbon cycling)

Donald Dabdub, Ph.D. California Institute of Technology, *Professor of Mechanical and Aerospace Engineering; Civil and Environmental Engineering* (mathematical modeling of urban and global air pollution, dynamics of atmospheric aerosols, secondary organic aerosols, impact of energy generation on air quality, chemical reactions at gas-liquid interfaces)

Kristen A. Davis, Ph.D. Stanford University, *Assistant Professor of Civil and Environmental Engineering; Earth System Science* (coastal oceanography, fluid mechanics, turbulent flows)

Russell L. Detwiler, Ph.D. University of Colorado Boulder, *Associate Professor of Civil and Environmental Engineering* (groundwater hydrology, contaminant fate and transport, subsurface process modeling, groundwater/surface-water interaction)

Derek Dunn-Rankin, Ph.D. University of California, Berkeley, *Professor of Mechanical and Aerospace Engineering; Civil and Environmental Engineering; Environmental Health Sciences* (combustion, optical particle sizing, particle aero-dynamics, laser diagnostics and spectroscopy)

Xiaogang Gao, Ph.D. University of Arizona, *Adjunct Professor of Civil and Environmental Engineering* (hydroclimatology, hydrology, fluid dynamics, engineering mathematics)

Stanley B. Grant, Ph.D. California Institute of Technology, *Professor of Civil and Environmental Engineering; Chemical Engineering and Materials Science* (environmental engineering, inland and coastal water quality, coagulation and filtration of colloidal contaminants, environmental microbiology)

Gary L. Guymon, Ph.D. University of California, Davis, *Professor Emeritus of Civil and Environmental Engineering* (water resources, groundwater, modeling uncertainty)

Kuo-Lin Hsu, Ph.D. University of Arizona, *Associate Professor in Residence of Civil and Environmental Engineering* (remote sensing of precipitation, hydrologic systems modeling, stochastic hydrology, water resources systems planning)

R. (Jay) Jayakrishnan, Ph.D. University of Texas at Austin, *Professor of Civil and Environmental Engineering* (transportation systems analysis)

C. Sunny Jiang, Ph.D. University of South Florida, *Professor of Civil and Environmental Engineering; Environmental Health Sciences* (water pollution microbiology, environmental biotechnology, aquatic microbial ecology)

Wenlong Jin, Ph.D. University of California, Davis, *Assistant Professor of Civil and Environmental Engineering* (intelligent transportation systems, traffic flow theory, transportation network analysis)

Anne Lemnitzer, Ph.D. University of California, Los Angeles, *Assistant Professor of Civil and Environmental Engineering* (geotechnical and earthquake engineering, soil structure interaction, RC design, seismic monitoring)

Michael G. McNally, Ph.D. University of California, Irvine, *Professor of Civil and Environmental Engineering; Planning, Policy, and Design* (travel behavior, transportation systems analysis)

Ayman S. Mosallam, Ph.D. Catholic University of America, *Professor of Civil and Environmental Engineering* (advanced composites and hybrid systems, seismic repair and rehabilitation of structures, blast mitigation and diagnostic/prognostic techniques for infrastructure security)

Betty H. Olson, Ph.D. University of California, Berkeley, *Professor of Civil and Environmental Engineering* (molecular applications for optimizing biological processes in wastewater treatment, environmental health, drinking water microbiology)

Gerard C. Pardoen, Ph.D. Stanford University, *Professor Emeritus of Civil and Environmental Engineering* (structural analysis, experimental structural dynamics)

Wilfred W. Recker, Ph.D. Carnegie Mellon University, *Professor of Civil and Environmental Engineering* (transportation systems modeling, traffic control, and urban systems analysis)

Stephen G. Ritchie, Ph.D. Cornell University, *Director of the Institute of Transportation Studies and Professor of Civil and Environmental Engineering* (transportation engineering, advanced traffic management and control systems, development and application of emerging technologies in transportation)

Diego Rosso, Ph.D. University of California, Los Angeles, *Director of the Urban Water Research Center and Associate Professor of Civil and Environmental Engineering; Chemical Engineering and Materials Science* (environmental process engineering, mass transfer, wastewater treatment, carbon- and energy-footprint analysis)

G. Scott Samuelsen, Ph.D. University of California, Berkeley, *Director of Advanced Power and Energy Program, Research Professor and Professor Emeritus of Mechanical and Aerospace Engineering; Civil and Environmental Engineering* (energy, fuel cells, hydrogen economy, propulsion, combustion and environmental conflict, turbulent transport in complex flows, spray physics, NOx and soot formation, laser diagnostics and experimental methods, application of engineering science to practical propulsion and stationary systems, environmental ethics)

Brett F. Sanders, Ph.D. University of Michigan, *Department Chair and Professor of Civil and Environmental Engineering* (environmental hydrodynamics, computational fluid dynamics, coastal water quality)

Jean-Daniel M. Saphores, Ph.D. Cornell University, *Professor of Civil and Environmental Engineering; Economics; Planning, Policy, and Design* (transportation economics, planning and policy, environmental and natural resource economics and policy, quantitative methods)

Jan W. Scherfig, Ph.D. University of California, Berkeley, *Professor Emeritus of Civil and Environmental Engineering* (water reclamation, waste treatment processes, environmental engineering)

Robin Shepherd, Ph.D. University of Canterbury, *Professor Emeritus of Civil and Environmental Engineering* (structural dynamics, earthquake-resistant design)

Masanobu Shinozuka, Ph.D. Columbia University, *Professor Emeritus of Civil and Environmental Engineering* (continuum mechanics, structural dynamics, system reliability, risk assessment, remote sensing and GIS for disaster assessment)

Soroosh Sorooshian, Ph.D. University of California, Los Angeles, *Director of the Center for Hydrometeorology and Remote Sensing and UCI Distinguished Professor of Civil and Environmental Engineering; Earth System Science* (hydrology, hydrometeorology and hydroclimate modeling, remote sensing, water sources management)

Lizhi Sun, Ph.D. University of California, Los Angeles, *Professor of Civil and Environmental Engineering; Chemical Engineering and Materials Science* (micro- and nano-mechanics, composites and nanocomposites, smart materials and structures, multiscale modeling, elastography)

Roberto Villaverde, Ph.D. University of Illinois at Urbana-Champaign, *Professor Emeritus of Civil and Environmental Engineering* (structural dynamics and earthquake engineering)

Jasper A. Vrugt, Ph.D. University of Amsterdam, *Assistant Professor of Civil and Environmental Engineering; Earth System Science* (surface hydrology and soil physics)

Jann N. Yang, DSc Columbia University, *Professor Emeritus of Civil and Environmental Engineering* (system identification and damage detection, structural health monitoring, structural control, earthquake engineering, structural dynamics)

Farzin Zareian, Ph.D. Stanford University, *Associate Professor of Civil and Environmental Engineering* (structural engineering, performance-based earthquake engineering, structural reliability, structural control)

Courses

ENGRCEE 11. Methods II: Probability and Statistics. 4 Units.
Modeling and analysis of engineering problems under uncertainty. Engineering applications of probability and statistical concepts and methods.

(Design units: 0)

Prerequisite: (ENGRCEE 20 or EECS 10 or EECS 12 or ENGRMAE 10 or CSE 41 or I&C SCI 31) and MATH 3A.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 20. Introduction to Computational Engineering Problem Solving. 4 Units.
Introduction to computer programming within a numerical computing environment (MATLAB or similar) including types of data representation, graphical display of data, and development of modular programs with application to engineering analysis and problem solving.

(Design units: 1)

Overlaps with ENGR 15.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 21. Computational Problem Solving. 4 Units.
Engineering analysis and problem solving using MATLAB (or similar), including matrix algebra, solving systems of linear and nonlinear equations, numerical integration of ordinary differential equations (ODEs) and coupled ODEs, and analysis of numerical errors.

(Design units: 1)

Corequisite: MATH 3D.
Prerequisite: ENGRCEE 20 and MATH 3A.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 30. Statics. 4 Units.
Addition and resolution of forces distributed forces, equivalent system of forces centroids, first moments, moments and products on inertia, equilibrium of rigid bodies, trusses, beams, cables.

(Design units: 0)

Corequisite: MATH 2D.
Prerequisite: MATH 2D and PHYSICS 7C.

Same as ENGR 30, ENGRMAE 30.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGRCEE 55. Land Measurements and Analysis. 4 Units.
Introduction to surveying and land measurements. Use of the level and transit equipment, legal descriptions, subdivisions, topographic surveys, mapping vertical and horizontal curves. Analysis of surveying field data using manual methods, computer programs, and the COGO software system. Laboratory sessions.

(Design units: 0)

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 60. Contemporary and Emerging Environmental Challenges. 4 Units.
Introduces contemporary and emerging environmental challenges, illustrates links between human behavior, environmental policy and engineering practices, examines policy options in the context of current institutions, and introduces tools and frameworks to reach sound economic, social, and environmental solutions.

(Design units: 0)

(III)

ENGRCEE 80. Dynamics. 4 Units.
Introduction to the kinetics and dynamics of particles and rigid bodies. The Newton-Euler, Work/Energy, and Impulse/Momentum methods are explored for ascertaining the dynamics of particles and rigid bodies. An engineering design problem using these fundamental principles is also undertaken. Course may be offered online.

(Design units: 0.5)

Prerequisite: MATH 2D and PHYSICS 7C.

Same as ENGR 80, ENGRMAE 80.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGRCEE 81A. Civil Engineering Practicum I. 3 Units.
Introduction to civil engineering through presentations on structural, environmental, water, and transportation systems. Introduction to graphics. Graphical visualization and communication using hand and computer sketching. Fundamentals of Computer Aided Design (CAD) using AutoCad. Laboratory sessions. Materials fee.

(Design units: 2)

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 81B. Civil Engineering Practicum II. 3 Units.
Principles of surveying; fundamentals of Geographic Information Systems (GIS); introduction to the state-of-the-art and future areas of the profession, including applications of advanced technology and computers; Introduction to visualization and communication of design concepts; laboratory sessions. Materials fee.

(Design units: 1)

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 110. Methods III: Modeling, Economics, and Management. 4 Units.
Analysis, modeling and management of civil engineering systems. Statistics and system performance studies, probabilistic models and simulation, basic economics and capital investments, project elements and organization, managerial concepts and network technique, project scheduling. Emphasis on real-world examples. Laboratory sessions.

(Design units: 1)

Prerequisite: ENGRCEE 11.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 111. Methods IV: Systems Analysis and Decision-Making. 4 Units.
Analysis and optimization for decision-making in civil and infrastructural systems. Topics include linear programming formulations and solution algorithms, network models, and logistical models. Emphasis is on project-level and managerial decision-making and selection from alternative designs.

(Design units: 1)

Prerequisite: MATH 3A and MATH 3D.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 121. Transportation Systems I: Analysis and Design. 4 Units.
Introduction to analysis and design of fundamental transportation system components, basic elements of geometric and pavement design, vehicle flow and elementary traffic, basic foundations of transportation planning and forecasting. Laboratory sessions.

(Design units: 2)

Prerequisite: ENGRCEE 11 and ENGRCEE 81A.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 122. Transportation Systems II: Operations & Control. 4 Units.
Introduction to fundamentals of urban traffic engineering, including data collection, analysis, and design. Traffic engineering studies, traffic flow theory, traffic control devices, traffic signals, capacity and level of service analysis of freeways and urban streets. Laboratory sessions.

(Design units: 2)

Prerequisite: ENGRCEE 11 and ENGRCEE 121.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 123. Transportation Systems III: Planning & Forecasting. 4 Units.
Theoretical foundations of transportation planning, design and analysis methods. Theory and application of aggregate and disaggregate models for land use development, trip generation, and destination, mode, and route choice. Transportation network analysis. Planning, design, and evaluation of system alternatives.

(Design units: 2)

Corequisite: ENGRCEE 110.
Prerequisite: ENGRCEE 121.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 124. Transportation Systems IV: Freeway Operations and Control. 4 Units.
Fundamentals of traffic on urban freeways, including data collection analysis, and design. Traffic engineering studies, traffic flow theory, freeway traffic control devices, capacity, and level of service analysis of freeways and highways. Laboratory sessions.

(Design units: 2)

Prerequisite: ENGRCEE 121.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 125. Transportation and the Environment. 4 Units.
Analysis of the impacts of motor vehicle transportation on the environment. Introduction to life cycle analysis applied to transportation. Basic economic tools for transportation externalities. Transportation planning, urban form, health, and the environment. Transportation sustainability.

(Design units: 0)

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 130. Soil Mechanics. 4 Units.
Mechanics of soils, composition and classification of soils, compaction, compressibility and consolidation, shear strength, seepage, bearing capacity, lateral earth pressure, retaining walls, piles.

(Design units: 0)

Prerequisite: ENGRCEE 150 and ENGRCEE 170.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 130L. Soil Mechanics Laboratory. 1 Unit.
Laboratory procedures of soil testing for engineering problems. Materials fee.

(Design units: 0)

Corequisite: ENGRCEE 130.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 149. Introduction to Earthquake Engineering. 4 Units.
Plate tectonics. Structural dynamics. Earthquake magnitude, intensity, and frequency. Seismic damage to structures. Earthquake load prediction including response spectra, normal mode, and direct integration techniques. The basis of building code earthquake load requirements for buildings.

(Design units: 2)

Prerequisite: ENGRCEE 11 and ENGRCEE 20 and ENGRCEE 80 and ENGRCEE 151A.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 150. Mechanics of Materials. 4 Units.
Stresses and strains, strain-stress diagrams, axial deformations, torsion, bending and shear stresses in beams, shear force and bending moment diagrams, combined stresses, principal stresses, Mohr's circle, deflection of beams, columns.

(Design units: 1)

Prerequisite: ENGRCEE 30.

Overlaps with ENGR 150, ENGRMAE 150.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 150L. Mechanics of Materials Laboratory. 1 Unit.
Experimental methods and fundamentals for mechanics of materials analysis. Materials fee.

(Design units: 0)

Corequisite: ENGRCEE 150.
Prerequisite: ENGRCEE 30.

Overlaps with ENGRMAE 150L.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 151A. Structural Analysis. 4 Units.
Fundamentals of structural analysis. Deformation of statically determinate structures. Influence lines. Structural systems. Load: dead, live, wind, and seismic.

(Design units: 0)

Prerequisite: ENGRCEE 150.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 151B. Structural Timber Design. 4 Units.
Design of timber structures. Beams, columns, beam-columns, roof, and connections.

(Design units: 3)

Prerequisite: ENGRCEE 151A.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 151C. Reinforced Concrete Design. 4 Units.
Ultimate strength design. Design of reinforced concrete beam sections. Design for shear and deflection. Design of columns. Design of isolated and combined footings. Laboratory sessions. Materials fee.

(Design units: 3)

Prerequisite: ENGRCEE 151A.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 152. Computer Methods in Structural Analysis and Design. 4 Units.
Matrix techniques for indeterminate framed structures. Computer implementation using the stiffness method. Software packages for design of reinforced concrete, steel, and/or timber structures.

(Design units: 2)

Prerequisite: ENGRCEE 151C.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 153. Statically Indeterminate Structures. 4 Units.
Fundamentals of statically indeterminate structures; strain energy and virtual work; energy theorems; method of virtual work, Castigliano theorem; method of consistent deformations; slope-deflection method; approximate methods; stiffness method for trusses.

(Design units: 0)

Prerequisite: ENGRCEE 151A.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 155. Structural Steel Design. 4 Units.
Design in steel of tension members, beams, columns, welded and bolted connections; eccentrically loaded and moment resistant joints; plate girders. Plastic design; load and resistance factor design. Composite construction; introduction to computer-aided design.

(Design units: 4)

Prerequisite: ENGRCEE 151A.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 156. Foundation Design. 4 Units.
Applications of soil mechanics principles to the analysis and design of shallow foundations, retaining walls, pile foundations, and braced cuts. Design criteria: bearing capacity, working loads and tolerable settlements, structural integrity of the foundation element. Damage from construction operations.

(Design units: 3)

Prerequisite: ENGRCEE 130 and ENGRCEE 151C.

Restriction: Civil Engineering majors have first consideration for enrollment.

ENGRCEE 160. Environmental Processes. 4 Units.
Introduction to environmental processes in air and water, mass balances, and transport phenomena. Fundamentals of water-quality engineering including water and wastewater treatment.

(Design units: 1)

Prerequisite: CHEM 1B and ENGRCEE 170.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 162. Introduction to Environmental Chemistry. 4 Units.
Basic concepts from general, physical, and analytical chemistry as they relate to environmental engineering. Particular emphasis on the fundamentals of equilibrium and kinetics as they apply to acid-base chemistry, gas solubility, and redox reactions. Laboratory sessions. Materials fee.

(Design units: 0)

Prerequisite: (ENGR 1A or CHEM 1A) and CHEM 1B and (CHEM 1LC or CHEM 1LE).

Restriction: Chemical Engineering, Civil Engineering, Environmental Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRCEE 163. Biological Treatment Process Design. 4 Units.
Design of biological treatment processes. Topics include attached and suspended growth, aeration, anaerobic systems, process control and economics. Design projects included. Materials fee.

(Design units: 4)

Prerequisite: ENGRCEE 160 or CBEMS 45C.

Restriction: Chemical Engineering, Civil Engineering, and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 165. Physical-Chemical Treatment Processes. 4 Units.
Theory and dynamics of physical and chemical separation processes in water and wastewater treatment. Topics include coagulation, sedimentation, filtration, gas-transfer, membrane separations and adsorption.

(Design units: 2)

Prerequisite: ENGRCEE 160 or CBEMS 45C.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

Concurrent with ENGRCEE 265.

ENGRCEE 167. Ecology of Coastal Waters. 4 Units.
Examines the ecological processes of the coastal environment. Investigates the causes of coastal ecosystem degradation and strategies to restore the ecosystem balance or prevent further coastal ecosystem health degradation.

(Design units: 0)

Prerequisite: CHEM 1A and CHEM 1B and (SOCECOL E8 or ENGRCEE 60).

Restriction: Environmental Engineering majors have first consideration for enrollment.

Concurrent with ENGRCEE 267.

ENGRCEE 169. Environmental Microbiology for Engineers. 4 Units.
Fundamental and applied principles of microbiology. Structures and functions of microorganisms, the microbiology of water, wastewater and soil used in environmental engineering, and the impact of microorganisms on human and environmental health.

(Design units: 0)

Prerequisite: ENGRCEE 160.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 170. Introduction to Fluid Mechanics. 4 Units.
Thermodynamic and mechanical fluid properties; fluid statics; control volume and differential approaches for mass, momentum, and energy; dimensional analysis and similarity.

(Design units: 1)

Corequisite: MATH 2E.
Prerequisite: PHYSICS 7C and ENGRCEE 20.

Overlaps with ENGRMAE 130A, CBEMS 125A.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 171. Water Resources Engineering. 4 Units.
Principles governing the analysis and design of water resource systems including pressurized pipelines, pipe networks, channels and ground water. Coverage of fluid mass, momentum and energy conservation, flow resistance and related laboratory measurements in different systems. Materials fee.

(Design units: 2)

Prerequisite: ENGRCEE 170.

Restriction: Chemical Engineering, Civil Engineering, and Environmental Engineering majors have first consideration for enrollment.

ENGRCEE 172. Groundwater Hydrology. 4 Units.
Topics include conservation of fluid mass, storage properties of porous media, matrix compressibility, boundary conditions, flow nets, well hydraulics, groundwater chemistry, and solute transport. Design projects and computer applications included.

(Design units: 2)

Prerequisite: ENGRCEE 170.

Restriction: Chemical Engineering, Civil Engineering, and Environmental Engineering majors have first consideration for enrollment.

Concurrent with ENGRCEE 272.

ENGRCEE 173. Watershed Modeling. 4 Units.
Basic principles of hydrologic modeling are practiced. Concepts of watershed delineation, land use change impact, design studies, and GIS tools are discussed. Focus on the USACE (HEC) software tools (HEC-HMS, and HEC-RAS) along with their associated GIS interfaces.

(Design units: 1)

Prerequisite: ENGRCEE 170 and ENGRCEE 176.

Restriction: Civil Engineering, Environmental Engineering, and Mechanical Engineering majors have first consideration for enrollment.

Concurrent with ENGRCEE 273.

ENGRCEE 176. Hydrology. 4 Units.
Elements of the hydrologic cycle including precipitation, infiltration, evapotranspiration, ground water, and runoff. Unit Hydrograph theory and routing methods. Introduction to precipitation/runoff relationship and watershed modeling. Statistical methods and flood frequency analysis.

(Design units: 2)

Prerequisite: ENGRCEE 170 or ENGRMAE 130A.

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

Concurrent with ENGRCEE 276.

ENGRCEE 178. Fluid Mechanics of Open Channels. 4 Units.
Fundamentals of fluid motion in open channels. Navier-Stokes equations and one-dimensional momentum and energy principles. Topics include rapidly varied flow, flow resistance and turbulence, gradually varied flow, unsteady flow, and computational methods for channel flow modeling.

(Design units: 1)

Prerequisite: (ENGRCEE 20 or ENGRMAE 10) and (ENGRCEE 170 or ENGRMAE 130A).

Restriction: Civil Engineering and Environmental Engineering majors have first consideration for enrollment.

Concurrent with ENGRCEE 278.

ENGRCEE 181A. Senior Design Practicum. 2 Units.
Team designs land development project including infrastructural, environmental, circulation aspects. Focus on traffic impact studies, design of roads, geometry, signals, geotechnical and hydrological analysis, design of structural elements, economic analysis. Oral/Written interim and final design reports. Laboratory sessions.

(Design units: 1)

Corequisite: ENGRCEE 121 or ENGRCEE 151C or ENGRCEE 162 or ENGRCEE 171.
Prerequisite: ENGRCEE 81A and ENGRCEE 81B and ENGRCEE 110 and ENGRCEE 130 and ENGRCEE 160. ENGRCEE 181A and ENGRCEE 181B and ENGRCEE 181C must be taken in the same academic year.

Grading Option: In progress only.

Restriction: Civil Engineering and Environmental Engineering majors only.

ENGRCEE 181B. Senior Design Practicum. 2 Units.
Team designs land development project including infrastructural, environmental, circulation aspects. Focus on traffic impact studies, design of roads, geometry, signals, geotechnical and hydrological analysis, design of structural elements, economic analysis. Oral/Written interim and final design reports. Laboratory sessions.

(Design units: 2)

Prerequisite: ENGRCEE 181A. ENGRCEE 181A and ENGRCEE 181B and ENGRCEE 181C must be taken in the same academic year.

Grading Option: In progress only.

Restriction: Civil Engineering and Environmental Engineering majors only.

ENGRCEE 181C. Senior Design Practicum. 2 Units.
Team designs land development project including infrastructural, environmental, circulation aspects. Focus on traffic impact studies, design of roads, geometry, signals, geotechnical and hydrological analysis, design of structural elements, economic analysis. Oral/Written interim and final design reports. Laboratory sessions.

(Design units: 2)

Prerequisite: ENGRCEE 181B. ENGRCEE 181A and ENGRCEE 181B and ENGRCEE 181C must be taken in the same academic year.

Restriction: Civil Engineering and Environmental Engineering majors only.

ENGRCEE 195. Special Topics in Civil and Environmental Engineering. 1-4 Units.
Studies in selected areas of Civil and Environmental Engineering. Topics addressed vary each quarter.

(Design units: 1-4)

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ENGRCEE 198. Group Study. 1-4 Units.
Group study of selected topics in Civil and Environmental Engineering.

(Design units: 1-4)

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

ENGRCEE 199. Individual Study. 1-4 Units.
For undergraduate Engineering majors in supervised but independent reading, research, or design. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Repeatability: May be taken for credit for 8 units.

ENGRCEE 199P. Individual Study. 1-4 Units.
Supervised independent reading, research, or design for undergraduate Engineering majors. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

ENGRCEE 220A. Travel Demand Analysis I. 4 Units.
Fundamentals of transportation systems analysis. Theoretical aspects of travel demand. Travel behavior. Modeling of performance characteristics and costs of transportation modes. In-depth presentation of travel demand modeling techniques. Development of travel choice models including mode, route, and destination choice. Equilibrium.

Restriction: Graduate students only.

ENGRCEE 220B. Travel Demand Analysis II. 4 Units.
Methods of discrete choice analysis and their applications in the modeling of transportation systems. Emphasis on the development of a sound understanding of theoretical aspects of discrete choice modeling that are useful in many applications in travel demand analysis.

Prerequisite: ENGRCEE 220A.

Restriction: Graduate students only.

ENGRCEE 220C. Travel Demand Analysis III: Activity-based Approaches. 4 Units.
The methodological underpinnings of activity-based travel demand modeling. Presents methodologies within the context of a generalization of discrete choice modeling approaches, emphasizing the distinctions that separtate these two approaches and presenting appropriate mathematical and statistical tools to address these distinctions.

Prerequisite: ENGRCEE 220A.

Restriction: Graduate students only.

ENGRCEE 221A. Transportation Systems Analysis I. 4 Units.
Introduction to mathematical methods and models to address logistics and urban transportation problems. Techniques include stochastic models, queueing theory, linear programming, and introductory non-linear optimization.

Restriction: Graduate students only.

ENGRCEE 221B. Transportation Systems Analysis II. 4 Units.
Advanced mathematical methods and models to address logistics and urban transportation problems. Topics include network flows, advanced optimization techniques, network models, and heuristic algorithms.

Prerequisite: ENGRCEE 221A.

Restriction: Graduate students only.

ENGRCEE 222. Transit Systems Planning. 4 Units.
Planning methods for public transportation in urban areas. Technological and operating characteristics of vehicles, facilities, and systems. Short-range planning techniques: data collection and analysis, demand analysis, mode choice, operational strategies, financial analysis. Design of systems to improve performance.

Restriction: Graduate students only.

ENGRCEE 224A. Transportation Data Analysis I. 4 Units.
Statistical analysis of transportation data sources. Analysis of categorical and ordinal data. Regression and advanced multivariate analysis methods such as discriminant analysis, canonical correlation, and factor analysis. Sampling techniques, sample error and bias, survey instrument design.

Restriction: Graduate students only.

ENGRCEE 225A. Transportation Planning Models I. 4 Units.
Analytical techniques for the study of interactions between transportation systems design and the spatial distribution of urban activities. Development of models of demographic and economic activity, land use, and facility location. Forecasting exogenous inputs to existing transportation models.

ENGRCEE 225B. Transportation Planning Models II. 4 Units.
Design and application of comprehensive transportation models. Network development, demand modeling, and equilibrium assignment. Model calibration, validation, prediction, and evaluation. Regional modeling, site impact analysis, and circulation studies. Design of transportation alternatives.

Restriction: Graduate students only.

ENGRCEE 226A. Traffic Flow Theory I. 4 Units.
Traffic measurement and fundamental speed-density-flow relationships. Kinematic models. Shock waves. Statistical-kinetic theory of traffic. Introductory car-following principles and stability. Gap acceptance. Platoon dispersion. Two-fluid model. Queueing process. Multi-regime and catastrophe models. Higher-order continuum models. Microscopic and macroscopic simulation.

Restriction: Graduate students only.

ENGRCEE 226B. Traffic Flow Theory II. 4 Units.
Advanced mathematical analysis of vehicular flow. Detailed treatise on car-following models. Fourier and Laplace analysis of stability problems. Perturbation analysis. Derivation of macroscopic traffic flow relationships from microscopic considerations. Advanced hydrodynamic theory.

Prerequisite: ENGRCEE 226A.

Restriction: Graduate students only.

ENGRCEE 228A. Urban Transportation Networks I. 4 Units.
Analytical approaches and algorithms to the formulation and solution of the equilibrium assignment problem for transportation networks. Emphasis on user equilibrium (UE) comparison with system optimal, mathematical programming formulation, supply functions, estimation. Estimating origin-destination matrices, network design problems.

Prerequisite: ENGRCEE 220A.

Restriction: Graduate students only.

ENGRCEE 229A. Traffic Systems Operations and Control I. 4 Units.
Introduction to operation, control and analysis of arterial and freeway traffic systems. Control concepts, traffic stream principles, detectors, local controllers, system masters, traffic signal and ramp metering timing principles, traffic measurement technologies, traffic delay principles.

Restriction: Graduate students only.

ENGRCEE 229B. Traffic Systems Operations and Control II. 4 Units.
Advanced topics related to operation, control, and analysis of arterial and freeway traffic systems. Control concepts, traffic stream principles, detectors, local controllers, system masters, traffic signal and ramp metering timing principles.

Prerequisite: ENGRCEE 229A.

Restriction: Graduate students only.

ENGRCEE 231. Foundation Engineering. 4 Units.
Essentials for design and analysis of structural members that transmit superstructure loads to the ground. Topics include subsurface investigations, excavation, dewatering, bracing, footing, mat foundations, piles and pile foundations, caissons and cofferdams, other special foundations.

Prerequisite: ENGRCEE 156.

Restriction: Graduate students only.

ENGRCEE 232. Geotech Earthquake Engineering. 4 Units.
In-situ and laboratory determination of dynamic soil properties, liquefaction of soil, cyclic softening of clays, seismic compression and settlement analyses, ground improvement methods, seismic slope stability, introduction to soil structure interaction.

(Design units: 0)

Restriction: Graduate students only.

ENGRCEE 242. Advanced Strength of Materials. 4 Units.
Beams on elastic foundations. Combined axial and lateral loads. Curved beams. Unsymmetric bending. Shear center. Stresses and strains. Basic equations for theory of elasticity. Energy principles. Theory of torsion. Combined bending and torsion.

Prerequisite: ENGRCEE 150.

Restriction: Graduate students only.

ENGRCEE 243. Mechanics of Composite Materials. 4 Units.
Stress-strain relationship for orthotropic materials; invariant properties of an orthotropic lamina; biaxial strength theory for an orthotropic lamina; mechanics of materials approach to stiffness; elasticity approach to stiffness; classical lamination theory; strength of laminates; statistical theory of fatigue damage.

Restriction: Graduate students only.

ENGRCEE 245. Experimental Modal Analysis. 4 Units.
A thorough coverage of modal analysis techniques including digital signal processing concepts, structural dynamics theory, modal parameter estimation techniques, and application of modal measurement methods suitable for practical vibration analysis problems.

Prerequisite: ENGRCEE 247.

Restriction: Graduate students only.

ENGRCEE 247. Structural Dynamics. 4 Units.
Vibration of discrete and continuous mass elastic systems. Isolation and transmissability. Dynamic recording instruments. Introduction to nonlinear theory of vibration. Response of structures to earthquake, traffic, and wind loads. Response spectra concepts. Normal mode analysis. Numerical integration techniques.

Prerequisite: ENGRCEE 80.

Restriction: Graduate students only.

ENGRCEE 249. Earthquake Engineering. 4 Units.
Earthquake magnitude, intensity, and frequency. Seismic damage to structures. Earthquake load prediction including response spectra, normal mode, and direct integration techniques. The basis of building code earthquake load requirements for buildings. Seismic response of special structures. Lifeline engineering.

Restriction: Graduate students only.

ENGRCEE 250. Finite Element Method in Structural Engineering. 4 Units.
Finite element concepts in structural engineering including variational formulations, shape functions, elements assembly, convergence and computer programming. Stiffness of truss, beam, and frame members, two- and three-dimensional solids, plate and shell elements. Static, vibration, stability, and inelastic analysis.

Restriction: Graduate students only.

ENGRCEE 254. Advanced Reinforced Concrete Behavior and Design. 4 Units.
Flexural strength of reinforced concrete elements. Flexural ductility of unconfined and confined members with axial loads. Shear and torsional behaviors. Strength of reinforced concrete ductile frames and shear walls. Reinforced concrete detailing.

Restriction: Graduate students only.

ENGRCEE 255. Advanced Behavior and Design of Steel Structures. 4 Units.
Advanced principles of structural steel design. Analysis and design of beam-column members, braced and unbraced frames for buildings, and plate girders. Review of seismic design provisions. Design of connections.

Prerequisite: ENGRCEE 153.

Restriction: Graduate students only.

ENGRCEE 258. Earthquake Resistant Structural Design. 4 Units.
Objectives of seismic design. Cyclic load-distortion characteristics of typical structural elements. Desirable structural form. Ductility and methods of achieving it. Use of energy dissipators. Project involving design of multistory, multibay rigid-jointed plane frame.

Restriction: Graduate students only.

ENGRCEE 259. Structural Stability. 4 Units.
Structural stability emphasizing the behavior of simple structural components that illustrate various modes of instability: Euler columns, beam columns, and instability of simple frames. Energy methods. Beam torsion and lateral instability. Elementary matrix methods compatible with finite element models.

Prerequisite: ENGRCEE 150 or ENGRMAE 150.

Restriction: Graduate students only.

ENGRCEE 260. Desalination. 4 Units.
Introduction of state of technology, costs and benefits, environmental issues, and implementation issues related to desalination. Emphasis on membrane processes and biofouling prevention.

Restriction: Graduate students only.

ENGRCEE 261. Applied Environmental Microbiology. 4 Units.
Microbes in the environment and their impact on human interactions. Microbiological application in solving environmental engineering problems.

Restriction: Graduate students only.

ENGRCEE 262. Environmental Chemistry II. 4 Units.
Advanced concepts from physical and organic chemistry as they relate to environmental engineering. Emphasis on equilibrium and kinetics as they apply to redox reactions, coordination, absorption, gas phase reactions, and ion exchange. Laboratory on GC, GC-MS, and ion chromatography.

Prerequisite: ENGRCEE 162.

Restriction: Graduate students only.

ENGRCEE 263. Advanced Biological Treatment Processes. 4 Units.
Analysis of biological processes in natural and engineered systems. Biological treatment processes, both aerobic and anaerobic, with emphasis on suspended growth systems including design consideration. Containment degradation or control covered. Includes laboratory on molecular tools used in wastewater treatment.

Prerequisite: ENGRCEE 160.

Restriction: Graduate students only.

ENGRCEE 264. Carbon Footprint Analysis for Water and Wastewater Systems. 4 Units.
Mass- and energy-flux balance analysis applied to water and wastewater treatment systems. Case studies include analysis and design of aeration, membrane separations, disinfection, water supply, and water reclamation processes.

Prerequisite: ENGRCEE 160.

ENGRCEE 265. Physical-Chemical Treatment Processes. 4 Units.
Theory and dynamics of physical and chemical separation processes in water and wastewater treatment. Topics include coagulation, sedimentation, filtration, gas transfer, membrane separations, and absorption.

Prerequisite: ENGRCEE 160.

Restriction: Graduate students only.

Concurrent with ENGRCEE 165.

ENGRCEE 266. Drinking Water and Wastewater Biotechnology. 4 Units.
Water and wastewater microbiology. Engineering principles, molecular aspects, and overview of microorganisms of importance to public health. Topics include aerobic and anaerobic wastewater treatment and disinfection of pathogens in water, wastewaters, and biosolids.

Prerequisite: CHEM 51A and ENGRCEE 160 and ENGRCEE 162.

Restriction: Graduate students only.

ENGRCEE 267. Ecology of Coastal Waters. 4 Units.
Examines the ecological processes of the coastal environment. Investigates the causes of coastal ecosystem degradation and strategies to restore the ecosystem balance or prevent further coastal ecosystem health degradation.

Prerequisite: CHEM 1A and CHEM 1B and (SOCECOl E8 or ENGRCEE 60).

Restriction: Graduate students only.

Concurrent with ENGRCEE 167.

ENGRCEE 271. Flow in Unsaturated Porous Media. 4 Units.
Fluid flow in the unsaturated zone (zone of aeration) of the subsurface. Soil-water physics, flow in regional groundwater systems, miscible displacement, mathematical modeling techniques.

Prerequisite: ENGRCEE 172.

Restriction: Graduate students only.

ENGRCEE 272. Groundwater Hydrology. 4 Units.
Topics include conservation of fluid mass, storage properties or porous media, matrix compressibility, boundary conditions, flow nets, well hydraulics, groundwater chemistry, and solute transport. Includes introduction to advanced topics in porous media. Design projects and computer applications included.

Prerequisite: ENGRCEE 170.

Restriction: Graduate students only.

Concurrent with ENGRCEE 172.

ENGRCEE 273. Watershed Modeling. 4 Units.
Basic principles of hydrologic modeling are practiced. Concepts of watershed delineation, land use change impact, design studies, and GIS tools are discussed. Focus on the USACE (HEC) software tools (HEC-HMS, and HEC-RAS) along with their associated GIS interfaces.

Prerequisite: ENGRCEE 170 and ENGRCEE 176.

Restriction: Graduate students only.

Concurrent with ENGRCEE 173.

ENGRCEE 274. Climate Data Analysis. 4 Units.
Trend analysis; statistical indices for diagnosing and detecting changes in extremes; nonstationary processes; extreme value analysis; multivariate extreme value methods; tail dependence estimation; uncertainties in observed and projected changes in climate extremes.

ENGRCEE 275. Topics in Coastal Engineering. 4 Units.
Linear wave theory. Wave properties: particle kinematics, energy propagation, shoaling, refraction, reflection, diffraction, and breaking. Wave statistics and spectra. Selected topics from: design of coastal structures; harbor engineering; littoral transport and shoreline morphology; and hydrodynamics of estuaries.

Prerequisite: ENGRCEE 11 and ENGRCEE 171.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ENGRCEE 276. Hydrology. 4 Units.
Elements of the hydrologic cycle including precipitation, infiltration, evapotranspiration, ground water, and runoff. Unit Hydrograph theory and routing methods. Introduction to precipitation/runoff relationship and watershed modeling. Statistical methods and flood frequency analysis. Discussion section covers advanced topics.

Prerequisite: ENGRCEE 170 or ENGRMAE 130A.

Restriction: Graduate students only.

Concurrent with ENGRCEE 176.

ENGRCEE 277. Hydrologic Transport Fundamentals. 4 Units.
Process description, mathematical and numerical modeling of transport processes in surface and ground water. Topics include advection, molecular diffusion, Taylor dispersion, mechanical dispersion in porous media, shear flow dispersion in channels, and turbulent jets and plumes.

Prerequisite: (ENGRCEE 20 or ENGRMAE 10) and ENGRMAE 278.

Restriction: Graduate students only.

ENGRCEE 278. Fluid Mechanics of Open Channels. 4 Units.
Fundamentals of fluid motion in open channels. Navier-Stokes equations and one-dimensional momentum and energy principles. Topics include rapidly varied flow, flow resistance and turbulence, gradually varied flow, unsteady flow, and computational methods for channel flow modeling.

Prerequisite: (ENGRCEE 20 or ENGRMAE 10) and (ENGRCEE 170 or ENGRMAE 130A).

Restriction: Graduate students only.

Concurrent with ENGRCEE 178.

ENGRCEE 279. Hydrologic Computational Modeling. 4 Units.
Computational modeling of multi-dimensional flow and scalar transport problems in surface and ground water. Topics include mathematical model formulation, numerical method selection, serial and parallel implementation, model verification and validation.

Prerequisite: ENGRCEE 272 and ENGRCEE 277 and ENGRCEE 278.

Restriction: Graduate students only.

ENGRCEE 281. Structural Reliability. 4 Units.
Applications of probability theory to reliability analysis of engineering structures. Theory of structural reliability. Estimation of static random loads. Reliability analysis of structural components and system. Monte Carlo simulation.

Prerequisite: ENGRCEE 11.

Restriction: Graduate students only.

ENGRCEE 283. Mathematical Methods in Engineering Analysis. 4 Units.
Matrices; vector calculus; eigenvalue problems; Fourier analysis; partial differential equations; special functions; numerical analysis; finite difference method.

ENGRCEE 284. Engineering Decision and Risk Analysis. 4 Units.
Develops applications of statistical decision theory in engineering. Presents the fundamental tools used in engineering decision making and analysis of risk under conditions of uncertainty. All concepts are presented and illustrated thoroughly with engineering problems.

Prerequisite: ENGRCEE 11.

Restriction: Graduate students only.

ENGRCEE 285. Reliability of Engineering Systems I. 4 Units.
Develops the basic concepts for the definition and assessment of safety and reliability of engineering systems. Includes probabilistic modeling of engineering problems, assessment of component reliability, systems reliability, and introduction to probability-based design.

Prerequisite: ENGRCEE 11.

Restriction: Graduate students only.

ENGRCEE 287. Random Vibrations. 4 Units.
Stationary stochastic processes. Spectral analysis. Stochastic response of linear, single and multi-degrees of freedom systems. Probabilistic approach to dynamic response of structures to random loadings.

Prerequisite: ENGRCEE 11 and (ENGRCEE 281 or ENGRCEE 284).

Restriction: Graduate students only.

ENGRCEE 289. Analysis of Hydrologic Systems. 4 Units.
Application of systems theory in hydrologic, land surface, biogeochemical modeling. Design, identification, and calibration of conceptual models. Principles of dynamic systems, modeling approaches, theory of linear systems, mathematical concepts of differential calculus, theoretical concepts of parameter estimation and optimization theory.

ENGRCEE 290. Merging Models and Data. 4 Units.
Introduction to optimization and data assimilation methods for model calibration and uncertainty quantification. Local, global and multi-method search. Bayesian analysis using Monte Carlo simulation with Random Walk Metropolis, and adaptive samplers. Filtering methods for recursive inference. Illustration using environmental models.

Restriction: Graduate students only.

ENGRCEE 291. Hydrologic Remote Sensing. 4 Units.
Introduction to principles of remote sensing and application in hydrology. Review of sensor systems, thermal and multispectral image processing, and image classification. Examples from remote sensing of hydrologic processes such as precipitation, soil moisture, and vegetation are covered.

Prerequisite: (ENGRCEE 20 or ENGRMAE 10) and ENGRCEE 276.

Restriction: Graduate students only.

ENGRCEE 295. Seminars in Engineering. 1-4 Units.
Seminars scheduled each year by individual faculty in major field of interest.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ENGRCEE 296. Master of Science Thesis Research. 1-16 Units.
Individual research or investigation conducted in preparation of the thesis required for the M.S. degree in Engineering.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ENGRCEE 297. Doctor of Philosophy Dissertation Research. 1-16 Units.
Individual research or investigation conducted in preparation for the dissertation required for the Ph.D. degree in Engineering.

Repeatability: May be repeated for credit unlimited times.

ENGRCEE 298. Special Topics in Civil Engineering. 1-4 Units.
Presentation of advanced topics and special research areas in civil engineering.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ENGRCEE 299. Individual Research. 1-16 Units.
Individual research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Electrical Engineering and Computer Science

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http://www.eng.uci.edu/dept/eecs
H. Kumar Wickramsinghe, **Department Chair**

Electrical Engineering and Computer Science is a broad field encompassing such diverse subject areas as computer systems, distributed computing, computer networks, control, electronics, photonics, digital systems, circuits (analog, digital, mixed-mode, and power electronics), communications, signal processing, electromagnetics, and physics of semiconductor devices. Knowledge of the mathematical and natural sciences is applied to the theory, design, and implementation of devices and systems for the benefit of society. The Department offers three undergraduate degrees: Electrical Engineering, Computer Engineering, as well as Computer Science and Engineering. Computer Science and Engineering is offered in conjunction with the Donald Bren School of Information and Computer Sciences; information is available in the Interdisciplinary Studies section of the *Catalogue*.

Some electrical engineers focus on the study of electronic devices and circuits that are the basic building blocks of complex electronic systems. Others study power electronics and the generation, transmission, and utilization of electrical energy. A large group of electrical engineers studies the application of these complex systems to other areas, including medicine, biology, geology, and ecology. Still another group studies complex electronic systems such as automatic controls, telecommunications, wireless communications, and signal processing.

Computer engineers are trained in various fields of computer science and engineering. They engage in the design and analysis of digital computers and networks, including software and hardware. Computer design includes topics such as computer architecture, VLSI circuits, computer graphics, design automation, system software, data structures and algorithms, distributed computing, and computer networks. Computer Engineering courses include programming in high-level languages such as Python, C++ and Java; use of software packages for analysis and design; design of system software such as operating systems; design of hardware/software interfaces and embedded systems; and application of computers in solving engineering problems. Laboratories in both hardware and software experiences are integrated within the Computer Engineering curriculum.

The undergraduate curriculum in Electrical Engineering and Computer Engineering provides a solid foundation for future career growth, enabling graduates' careers to grow technically, administratively, or both. Many electrical and computer engineers will begin work in a large organizational environment as members of an engineering team, obtaining career satisfaction from solving meaningful problems that contribute to the success of the organization's overall goal. As their careers mature, technical growth most naturally results from the acquisition of an advanced degree and further development of the basic thought processes instilled in the undergraduate years. Administrative growth can result from the development of management skills on the job and/or through advanced degree programs in management.

Graduates of Electrical Engineering, Computer Engineering, and Computer Science and Engineering will find a variety of career opportunities in areas including wireless communication, voice and video coding, biomedical electronics, circuit design, optical devices and communication, semiconductor devices and fabrication, power systems, power electronics, computer hardware and software design, computer networks, design of computer-based control systems, application software, data storage and retrieval, computer graphics, pattern recognition, computer modeling, parallel computing, and operating systems.

- Computer Engineering (p. 564)
- Computer Science and Engineering (p. 566)
- Electrical Engineering (p. 566)

Undergraduate Major in Computer Engineering

Program Educational Objectives: Graduates of the Computer Engineering program will (1) be engaged in professional practice at or beyond the entry level or enrolled in high-quality graduate programs building on a solid foundation in engineering, mathematics, the sciences, humanities and social sciences, and experimental practice as well as modern engineering methods; (2) be innovative in the design, research and implementation of systems and products with strong problem solving, communication, teamwork, leadership, and entrepreneurial skills; (3) proactively function with creativity, integrity and relevance in the ever-changing global environment by applying their fundamental knowledge and experience to solve real-world problems with an understanding of societal, economic, environmental, and ethical issues. (Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

The undergraduate Computer Engineering curriculum includes a core of mathematics, physics, and chemistry. Engineering courses in fundamental areas fill in much of the remaining curriculum.

Admissions

High School Students: See School Admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one course in computational methods (e.g., C, C++), and two additional approved courses for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Computer Engineering

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 468)**.**

Major Requirements:

Mathematics and Basic Science Courses:	
EECS 55	Engineering Probability
EECS 70LA	Network Analysis I Laboratory
EECS 145	Electrical Engineering Analysis
I&C SCI 6D	Discrete Mathematics for Computer Science
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C	Classical Physics
PHYSICS 7LC	Classical Physics Laboratory
PHYSICS 7D- 7E	Classical Physics and Classical Physics
PHYSICS 7LD	Classical Physics Laboratory
One additional math or basic science elective from the following:	
I&C SCI 6B	Boolean Algebra and Logic
MATH 2E	Multivariable Calculus
PHYSICS 51A	Modern Physics
PHYSICS 52A	Fundamentals of Experimental Physics

or other courses as approved by faculty advisor.	
Engineering Topics Courses:	
Students must complete a minimum of 26 units of engineering design.	
Core Courses:	
EECS 1	Introduction to Electrical Engineering and Computer Engineering
EECS 12	Introduction to Programming
EECS 20	Computer Systems and Programming in C
EECS 22	Advanced C Programming
EECS 22L	Software Engineering Project in C Language
EECS 31	Introduction to Digital Systems
EECS 31L	Introduction to Digital Logic Laboratory
EECS 40	Object-Oriented Systems and Programming
EECS 50	Discrete-Time Signals and Systems
EECS 70A	Network Analysis I
EECS 70B	Network Analysis II
EECS 70LB	Network Analysis II Laboratory
EECS 111	System Software
EECS 112	Organization of Digital Computers
EECS 112L	Organization of Digital Computers Laboratory
EECS 113	Processor Hardware/Software Interfaces
EECS 114	Engineering Data Structures and Algorithms
EECS 118	Introduction to Knowledge Management for Software and Engineering
EECS 119	VLSI
EECS 148	Computer Networks
EECS 150	Continuous-Time Signals and Systems
EECS 159A- 159B- 159CW	Senior Design Project I and Senior Design Project II and Senior Design Project III
EECS 170A	Electronics I
EECS 170LA	Electronics I Laboratory
EECS 170B	Electronics II
EECS 170LB	Electronics II Laboratory
With the approval of a faculty advisor, students select any additional engineering topics courses needed to satisfy school and department requirements.	
Engineering Elective Courses:	
Select, with approval of a faculty advisor, a minimum of three courses of engineering topics.	
COMPSCI 142A	Compilers and Interpreters
EECS 101	Introduction to Machine Vision
EECS 116	Introduction to Data Management
EECS 117	Parallel Computer Systems
EECS 141A	Communication Systems I
EECS 141B	Communication Systems II
EECS 152A	Digital Signal Processing
EECS 152B	Digital Signal Processing Design and Laboratory
EECS 199	Individual Study (up to 3 graded units)

At most an aggregate total of 6 units of EECS 199 may be used to satisfy degree requirements; EECS 199 is open to students with a 3.0 GPA or higher.

(The nominal Computer Engineering program will require 191 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary.)

Planning a Program of Study

The sample program of study chart shown is typical for the major in Computer Engineering. Students should keep in mind that this program is based upon a sequence of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Students who are not

adequately prepared, or who wish to make changes in the sequence for other reasons, must have their program approved by their advisor. Computer Engineering majors must consult at least once every year with the academic counselors in the Student Affairs Office and with their faculty advisor.

Sample Program of Study — Computer Engineering

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
EECS 12	I&C SCI 6D	PHYSICS 7D
General Education	PHYSICS 7C- 7LC	PHYSICS 7LD
General Education	General Education	EECS 1
		EECS 20
		EECS 31
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	EECS 40
PHYSICS 7E	EECS 22L	EECS 50
EECS 22	EECS 55	EECS 70B
EECS 31L	EECS 70A	EECS 70LB
Math/Science Elective	EECS 70LA	General Education
Junior		
Fall	**Winter**	**Spring**
EECS 112	EECS 112L	EECS 111
EECS 114	EECS 150	EECS 113
EECS 145	EECS 170B	EECS 118
EECS 170A	EECS 170LB	General Education
EECS 170LA	General Education	
Senior		
Fall	**Winter**	**Spring**
EECS 159A	EECS 159B	EECS 159CW
EECS 119	General Education	Technical Elective
EECS 148	General Education	General Education
Technical Elective	Technical Elective	

Students must obtain approval for their program of study and must see their faculty advisor at least once each year.

Undergraduate Major in Computer Science and Engineering (CSE)

This program is administered jointly by the Department of Electrical Engineering and Computer Science (EECS) in The Henry Samueli School of Engineering and the Department of Computer Science in the Donald Bren School of Information and Computer Sciences. For information, see the Interdisciplinary Studies (p. 1102) section of the *Catalogue*.

Requirements for the B.S. Degree in Computer Science and Engineering

All students must meet the University Requirements (p. 71)**.**

Major Requirements: See the Interdisciplinary Studies (p. 1102) **section of the *Catalogue.***

Undergraduate Major in Electrical Engineering

Program Educational Objectives: Graduates of the Electrical Engineering program will (1) engage in professional practice in academia, industry, or government; (2) promote innovation in the design, research and implementation of products and services in the field of electrical engineering through strong communication, leadership and entrepreneurial skills; (3) engage in life-long learning in the field of electrical engineering. (Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

The undergraduate Electrical Engineering curriculum is built around a basic core of humanities, mathematics, and natural and engineering science courses. It is arranged to provide the fundamentals of synthesis and design that will enable graduates to begin careers in industry or to go on to graduate study. UCI Electrical Engineering students take courses in network analysis, electronics, electronic system design, signal processing, control systems, electromagnetics, and computer engineering. They learn to design circuits and systems to meet specific needs and to use modern computers in problem analysis and solution.

Electrical Engineering majors have the opportunity to select a specialization in Electro-optics and Solid-State Devices; and Systems and Signal Processing. In addition to the courses offered by the Department, the major program includes selected courses from the Donald Bren School of Information and Computer Sciences.

Admissions

High School Students: See School Admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one course in computational methods (e.g., C, C++), and two additional approved courses for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Electrical Engineering

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 468)**.**

Major Requirements:

Mathematics and Basic Science Courses:	
CHEM 1A	General Chemistry
EECS 55	Engineering Probability
EECS 70LA	Network Analysis I Laboratory
EECS 145	Electrical Engineering Analysis
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 2E	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C	Classical Physics
PHYSICS 7LC	Classical Physics Laboratory
PHYSICS 7D- 7E	Classical Physics and Classical Physics
PHYSICS 7LD	Classical Physics Laboratory
PHYSICS 51A	Modern Physics
Engineering Topics Courses:	
Students must complete each of the following courses and accumulate a minimum of 28 units of engineering design:	
EECS 1	Introduction to Electrical Engineering and Computer Engineering
EECS 10	Computational Methods in Electrical and Computer
EECS 31	Introduction to Digital Systems
EECS 31L	Introduction to Digital Logic Laboratory
EECS 50	Discrete-Time Signals and Systems
EECS 70A	Network Analysis I
EECS 70B	Network Analysis II
EECS 70LB	Network Analysis II Laboratory
EECS 150	Continuous-Time Signals and Systems
EECS 159A- 159B- 159CW	Senior Design Project I and Senior Design Project II and Senior Design Project III
EECS 160A	Introduction to Control Systems
EECS 160LA	Control Systems I Laboratory
EECS 170A	Electronics I
EECS 170LA	Electronics I Laboratory
EECS 170B	Electronics II
EECS 170LB	Electronics II Laboratory
EECS 170C	Electronics III
EECS 170LC	Electronics III Laboratory

EECS 180A	Engineering Electromagnetics I
Electrical Engineering Specialization:	
Students must satisfy the requirements for one of the five specializations listed below.	
Technical Elective Courses:	
In addition to a specialization, and with approval of a faculty advisor, students must select a minimum of three other technical elective courses, comprising of at least 10 units. At least one of these courses must be from outside the student's specialization. All EECS courses not required for the major are approved as technical electives. Four (4) units of 199 course work count as one technical elective.	

At most an aggregate total of 6 units of EECS 199 may be used to satisfy degree requirements; EECS 199 is open to students with a 3.0 GPA or higher.

(The nominal Electrical Engineering program will require 188-191 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary.)

Specialization in Electronic Circuit Design:	
Requires:	
EECS 170D	Integrated Electronic Circuit Design
EECS 170E	Analog and Communications IC Design
and select four of the following:	
EECS 166A	Industrial and Power Electronics
EECS 166B	Advanced Topics in Industrial and Power Electronics
EECS 174	Semiconductor Devices
EECS 176	Fundamentals of Solid-State Electronics and Materials
EECS 179	Microelectromechanical Systems (MEMS)
EECS 182	Monolithic Microwave Integrated Circuit (MMIC) Analysis and Design
EECS 188	Optical Electronics
Specialization in Semiconductors and Optoelectronics:	
Requires:	
EECS 174	Semiconductor Devices
EECS 188	Optical Electronics
PHYSICS 52A	Fundamentals of Experimental Physics
and select three of the following:	
EECS 170D	Integrated Electronic Circuit Design
EECS 176	Fundamentals of Solid-State Electronics and Materials
EECS 179	Microelectromechanical Systems (MEMS)
EECS 180B	Engineering Electromagnetics II
EECS 180C	Engineering Electromagnetics III
ENGR 54	Principles of Materials Science and Engineering
Specialization in RF, Antennas and Microwaves:	
Requires:	
EECS 144	Antenna Design for Wireless Communication Links
EECS 180B	Engineering Electromagnetics II
EECS 182	Monolithic Microwave Integrated Circuit (MMIC) Analysis and Design
and select three of the following:	
EECS 170D	Integrated Electronic Circuit Design
EECS 170E	Analog and Communications IC Design
EECS 180C	Engineering Electromagnetics III
EECS 188	Optical Electronics
PHYSICS 52A	Fundamentals of Experimental Physics
Specialization in Digital Signal Processing:	
Requires:	
EECS 22	Advanced C Programming
EECS 152A	Digital Signal Processing
EECS 152B	Digital Signal Processing Design and Laboratory
and select four of the following:	

EECS 20	Computer Systems and Programming in C
EECS 101	Introduction to Machine Vision
EECS 112	Organization of Digital Computers
EECS 141A	Communication Systems I
EECS 141B	Communication Systems II
EECS 160B	Sampled-Data and Digital Control Systems
Specialization in Communications:	
Requires:	
EECS 141A	Communication Systems I
EECS 141B	Communication Systems II
and select four of the following:	
EECS 20	Computer Systems and Programming in C
EECS 22	Advanced C Programming
EECS 144	Antenna Design for Wireless Communication Links
EECS 148	Computer Networks
EECS 152A	Digital Signal Processing
EECS 152B	Digital Signal Processing Design and Laboratory
EECS 170E	Analog and Communications IC Design
EECS 188	Optical Electronics

Program of Study

Listed below are sample programs for each of the five specializations within Electrical Engineering. These sample programs are typical for the accredited major in Electrical Engineering. Students should keep in mind that this program is based upon a rigid set of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Therefore, the course sequence should not be changed except for the most compelling reasons. Students who are not adequately prepared, or who wish to make changes in the sequence for other reasons, must have their programs approved by their advisor. Electrical Engineering majors must consult with the academic counselors in the Student Affairs Office and with their faculty advisors at least once a year.

Sample Program of Study — Electrical Engineering (Electronic Circuit Design Specialization)

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
EECS 10	PHYSICS 7C	PHYSICS 7D
General Education	PHYSICS 7LC	PHYSICS 7LD
General Education	CHEM 1A	EECS 1
	General Education	EECS 31
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
PHYSICS 7E	EECS 55	PHYSICS 51A
EECS 31L	EECS 70A	EECS 50
General Education	EECS 70LA	EECS 70B
	General Education	EECS 70LB
Junior		
Fall	**Winter**	**Spring**
EECS 145	EECS 150	EECS 170C
EECS 170A	EECS 170B	EECS 170LC
EECS 170LA	EECS 170LB	Spec. Elective
Spec. Elective	EECS 180A	General Education
General Education	Spec. Elective	General Education
Senior		
Fall	**Winter**	**Spring**
EECS 159A	EECS 159B	EECS 159CW
EECS 160A	EECS 170E	Technical Elective
EECS 160LA	Technical Elective	General Education
EECS 170D	Technical Elective	
Spec. Elective		

Students must obtain approval for their program of study and must see their faculty advisor at least once each year.

Sample Program of Study — Electrical Engineering (Semiconductors and Optoelectronics)

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
EECS 10	PHYSICS 7C	PHYSICS 7D
General Education	PHYSICS 7LC	PHYSICS 7LD
General Education	CHEM 1A	EECS 1
	General Education	EECS 31
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
PHYSICS 7E	EECS 55	PHYSICS 51A
PHYSICS 52A	EECS 70A	EECS 50
EECS 31L	EECS 70LA	EECS 70B
	General Education	EECS 70LB
Junior		
Fall	**Winter**	**Spring**
EECS 145	EECS 150	EECS 170C
EECS 170A	EECS 170B	EECS 170LC
EECS 170LA	EECS 170LB	EECS 188
General Education	EECS 174	Spec. Elective
General Education	EECS 180A	General Education
Senior		
Fall	**Winter**	**Spring**
EECS 159A	EECS 159B	EECS 159CW
EECS 160A	Spec. Elective	General Education
EECS 160LA	Technical Elective	Technical Elective
General Education	Technical Elective	
Spec. Elective		

Students must obtain approval for their program of study and must see their faculty advisor at least once each year.

Sample Program of Study — Electrical Engineering (RF, Antennas and Microwaves)

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
EECS 10	PHYSICS 7C	PHYSICS 7D
General Education	PHYSICS 7LC	PHYSICS 7LD
General Education	CHEM 1A	EECS 1
	General Education	EECS 31
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
PHYSICS 7E	EECS 55	PHYSICS 51A
EECS 31L	EECS 70A	EECS 50
General Education	EECS 70LA	EECS 70B
	General Education	EECS 70LB
Junior		
Fall	**Winter**	**Spring**
EECS 145	EECS 150	EECS 144
EECS 170A	EECS 170B	EECS 170C
EECS 170LA	EECS 170LB	EECS 170LC
General Education	EECS 180A	EECS 180B
General Education	Spec. Elective	Spec. Elective
Senior		
Fall	**Winter**	**Spring**
EECS 159A	EECS 159B	EECS 159CW
EECS 160A	General Education	General Education
EECS 160LA	Technical Elective	Technical Elective

EECS 182	Technical Elective
Spec. Elective	

Students must obtain approval for their program of study and must see their faculty advisor at least once each year.

Sample Program of Study — Electrical Engineering (Digital Signal Processing Specialization)

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
EECS 10	PHYSICS 7C	PHYSICS 7D
General Education	PHYSICS 7LC	PHYSICS 7LD
General Education	CHEM 1A	EECS 1
	General Education	EECS 31
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
PHYSICS 7E	EECS 55	PHYSICS 51A
EECS 22	EECS 70A	EECS 50
EECS 31L	EECS 70LA	EECS 70B
	General Education	EECS 70LB
Junior		
Fall	**Winter**	**Spring**
EECS 145	EECS 150	EECS 170C
EECS 152A	EECS 152B	EECS 170LC
EECS 170A	EECS 170B	Spec. Elective
EECS 170LA	EECS 170LB	Spec. Elective
Spec. Elective	Spec. Elective	General Education
Senior		
Fall	**Winter**	**Spring**
EECS 159A	EECS 159B	EECS 159CW
EECS 160A	EECS 180A	Technical Elective
EECS 160LA	Technical Elective	General Education
Technical Elective	General Education	General Education
General Education		

Students must obtain approval for their program of study and must see their faculty advisor at least once each year.

Sample Program of Study — Electrical Engineering (Communication Specialization)

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
EECS 10	PHYSICS 7C	PHYSICS 7D
General Education	PHYSICS 7LC	PHYSICS 7LD
General Education	CHEM 1A	EECS 1
	General Education	EECS 31
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
PHYSICS 7E	EECS 55	PHYSICS 51A
EECS 31L	EECS 70A	EECS 50
General Education	EECS 70LA	EECS 70B
	General Education	EECS 70LB
Junior		
Fall	**Winter**	**Spring**
EECS 145	EECS 150	EECS 170C
EECS 170A	EECS 170B	EECS 170LC
EECS 170LA	EECS 170LB	Spec. Elective
Spec. Elective	EECS 180A	Spec. Elective
General Education	Spec. Elective	General Education
Senior		
Fall	**Winter**	**Spring**
EECS 159A	EECS 159B	EECS 159CW

EECS 141A	EECS 141B	Technical Elective
EECS 160A	Technical Elective	General Education
EECS 160LA	General Education	
Technical Elective		

Students must obtain approval for their program of study and must see their faculty advisor at least once each year.

Graduate Study in Electrical and Computer Engineering

The Department offers M.S. and Ph.D. degrees in Electrical and Computer Engineering with a concentration in Electrical Engineering and in Computer Engineering. Because most graduate courses are not repeated every quarter, students should make every effort to begin their graduate program in the fall.

Detailed descriptions of the two concentrations are as follows.

Electrical Engineering Concentration (EE)

The Electrical Engineering faculty study the following areas: optical and solid-state devices, including quantum electronics and optics, integrated electro-optics and acoustics, design of semiconductor devices and materials, analog and mixed-signal IC design, microwave and microwave devices, and scanning acoustic microscopy; systems engineering and signal processing, including communication theory, machine vision, signal processing, power electronics, neural networks, communications networks, systems engineering, and control systems. Related communication networks topics are also addressed by the Networked Systems M.S. and Ph.D. degrees (listed in the Interdisciplinary Studies section of the *Catalogue*).

Computer Engineering Concentration (CPE)

The concentration in Computer Engineering provides students with a solid base in the design, development, and evaluation of computer systems. Thrust areas include computer architecture, software, and embedded systems, but the program is highly customizable to the specific interests of the student. The research activities of the faculty in this concentration include parallel and distributed computer systems, distributed software architectures and databases, ultra-reliable real-time computer systems, VLSI architectures, reconfigurable computing, computer design automation, low-power design, embedded systems, computer communication protocols, computer networks, security, programming languages for parallel/distributed processing, knowledge management, service-oriented architectures, and software engineering.

Master of Science Degree General Requirements

Two plans are offered for the M.S. degree: a thesis option and a comprehensive examination option. For either option, students are required to develop a complete program of study with advice from their faculty advisor. The graduate advisor must approve the study plan. Part-time study toward the M.S. degree is available. The program of study must be completed within four calendar years from first enrollment.

Plan I: Thesis Option

The thesis option requires completion of 12 courses of study; an original research investigation; the completion of an M.S. thesis; and approval of the thesis by a thesis committee. The thesis committee is composed of three full-time faculty members with the faculty advisor of the student serving as the chair. Required undergraduate core courses and graduate seminar courses, such as EECS 292, EECS 293, EECS 294, and EECS 295, may not be counted toward the 12 courses. No more than one course of EECS 299 and one undergraduate elective course may be counted toward the 12 courses. Up to four of the required 12 courses may be from EECS 296 (M.S. Thesis Research) with the approval of the student's thesis advisor. Additional concentration-specific requirements are as follows; a list of core and concentration courses is given at the end of this section.

Electrical Engineering Concentration:

At least seven concentration courses in the Electrical Engineering Concentration (EE) must be completed.

Computer Engineering Concentration:

Three core courses in the Computer Engineering Concentration (CPE) must be completed with a grade of B (3.0) or better; EECS 211, EECS 213, and EECS 215. At least four additional concentration or approved courses must also be completed.

Plan II: Comprehensive Examination Option

The comprehensive examination option requires the completion of 12 courses and a comprehensive examination. Only one EECS 299 course can be counted if the EECS 299 course is four or more units. Undergraduate core courses and graduate seminar courses, such as EECS 292, EECS 293, EECS 294, and EECS 295, may not be counted toward the 12 courses requirement. No more than two of undergraduate elective courses may be counted. In fulfillment of the comprehensive examination element of the M.S. degree program, students will complete one term paper-length report on the current state-of-the-art of a technical field corresponding to the concentration area. The term paper is completed as part of the end-of-course requirements for one of the following three alternatives 1) EECS 290 Curricular Practical Training, 2) EECS 294 Electrical Engineering and Computer Science Colloquium, or 3) EECS 299 Individual Research taken under the graduate advisor which will involve reviewing an IEEE journal publication in the concentration area and submitting a review summary as the term-paper. Any of the three alternatives may be taken for 1 unit and completed with a satisfactory grade to fulfill the comprehensive exam requirements. Additional concentration-specific requirements are as follows; a list of core and concentration courses is given at the end of this section.

Electrical Engineering Concentration:	
Students enrolled in the Electrical Engineering (EE) concentration who choose the Comprehensive Examination option must select one of the following plans of study.	
Circuits and Devices Plan of Study:	
Select four of the following:	
EECS 270A	Advanced Analog Integrated Circuit Design I
EECS 270B	Advanced Analog Integrated Circuit Design II
EECS 277A	Advanced Semiconductor Devices I
EECS 277B	Advanced Semiconductor Devices II
EECS 280A	Advanced Engineering Electromagnetics I
EECS 285A	Optical Communications
At least five additional courses from the list of EE concentration courses must be completed. All must be completed with a grade of B (3.0) or better.	
Systems Plan of Study:	
Select four of the following: [1]	
EECS 240	Random Processes
EECS 241A	Digital Communications I
EECS 250	Digital Signal Processing I
EECS 251A	Detection, Estimation, and Demodulation Theory
EECS 260A	Linear Systems I
EECS 267A	Industrial and Power Electronics
At least five additional courses from the list of EE concentration courses must be completed. All must be completed with a grade of B (3.0) or better.	

1 If all six courses are not offered in an academic year, students who graduate in that year can petition to replace the courses that are not offered by EECS 242 and/or EECS 244.

List of Concentration Courses for

Electrical Engineering Concentration:	
EECS 202A- 202B	Principles of Imaging and Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging
EECS 203A	Digital Image Processing
EECS 210	Modeling and Rendering for Image Synthesis
EECS 213	Computer Architecture
EECS 215	Design and Analysis of Algorithms
EECS 217	VLSI System Design
EECS 240	Random Processes
EECS 241A- 241B	Digital Communications I and Digital Communications II
EECS 242	Information Theory
EECS 243	Error Correcting Codes
EECS 244	Wireless Communications
EECS 245	Space-Time Coding
EECS 248A	Computer and Communication Networks
EECS 250	Digital Signal Processing I
EECS 251A- 251B	Detection, Estimation, and Demodulation Theory and Detection, Estimation, and Demodulation Theory
EECS 260A	Linear Systems I
EECS 261A	Linear Optimization Methods
EECS 267A- 267B	Industrial and Power Electronics and Topics in Industrial and Power Electronics
EECS 270A	Advanced Analog Integrated Circuit Design I
EECS 270B- 270C- 270D	Advanced Analog Integrated Circuit Design II and Design of Integrated Circuits for Broadband Applications and Radio-Frequency Integrated Circuit Design

EECS 272	Topics in Electronic System Design
EECS 274	Biomedical Microdevices (MEMOS)
EECS 275A- 275B	Very Large Scale Integration (VLSI) Project and Very Large Scale Integration (VLSI) Project Testing
EECS 277A- 277B- 277C	Advanced Semiconductor Devices I and Advanced Semiconductor Devices II and Nanotechnology
EECS 278	Micro-System Design
EECS 279	Micro-Sensors and Actuators
EECS 280A	Advanced Engineering Electromagnetics I
EECS 280B	Advanced Engineering Electromagnetics II
EECS 282	Monolithic Microwave Integrated Circuit (MMIC) Analysis and Design II
EECS 285A	Optical Communications
EECS 285B	Lasers and Photonics

List of Concentration Courses for

Computer Engineering Concentration:

Three core courses in the Computer Engineering Concentration (CPE) must be completed with a grade of B (3.0) or better: EECS 211, EECS 213, and EECS 215. At least four additional concentration or approved courses must also be completed.

Computer Engineering Concentration:

EECS 210	Modeling and Rendering for Image Synthesis
EECS 211	Advanced System Software [1]
EECS 213	Computer Architecture [1]
EECS 215	Design and Analysis of Algorithms [1]
EECS 217	VLSI System Design
EECS 219	Distributed Software Architecture and Design
EECS 221	Topics in Computer Engineering
EECS 222	Embedded System Modeling
EECS 223	Real-Time Computer Systems
EECS 225	Embedded Systems Design
EECS 226	Embedded System Software
EECS 227	Cyber-Physical System Design
EECS 230	Energy Efficiency
EECS 248A	Computer and Communication Networks
COMPSCI 233	Networking Laboratory
COMPSCI 234	Advanced Networks
COMPSCI 236	Wireless and Mobile Networking

[1] This course is also a core course.

NOTE: Students who entered prior to fall of 2012 should follow the course requirements outlined within the *Catalogue* of the year they entered. The change in number of units per course is not intended to change the course requirements for the degree nor to have any impact in the number of courses students are taking. As such, students will need to continue to meet the same high standards and plan of study requirements as previously required. Students will work with their advisor to create a plan of study encompassing the equivalent topical requirements, as well as the equivalent number of courses to the previous 36-unit requirement.

In addition to fulfilling the course requirements outlined above, it is a University requirement for the Master of Science degree that students fulfill a minimum of 36 units of study.

Doctor of Philosophy Degree General Requirements

The doctoral program in Electrical and Computer Engineering is tailored to the individual background and interest of the student. There are several milestones to pass: admission to the Ph.D. program by the Graduate Committee; Ph.D. preliminary examination on the background and potential for success in the doctoral program; departmental teaching requirement which can be satisfied through service as a teaching assistant or equivalent; original research work; development of a research report and dissertation proposal; advancement to Ph.D. candidacy in the third year (second year for students who entered with a master's degree) through the Ph.D. qualifying examination conducted on behalf of the Irvine Division of the Academic

Senate; completion of a significant research investigation; and completion and approval of a dissertation. A public Ph.D. dissertation defense is also required. During the Ph.D. study, four quarters of EECS 290, EECS 294, or EECS 299 (taken with the graduate advisor) must be completed.

The Ph.D. preliminary examination is conducted twice a year, in the spring and fall quarters. Detailed requirements for each concentration are specified in the departmental Ph.D. preliminary examination policies, available from the EECS Graduate Admissions Office. The depth examination is conducted during each spring quarter. A student who already has an M.S. on enrollment must pass the Ph.D. preliminary examination within one complete academic year cycle after entering the Ph.D. program. A student who does not already have an M.S. on enrollment must pass the Ph.D. preliminary examination within two complete academic year cycles after entering the Ph.D. program. A student has only two chances to take and pass the Ph.D. preliminary examination. A student who fails the Ph.D. preliminary examination twice will be asked to withdraw from the program, or will be dismissed from the program, and may not be readmitted into the program.

The Ph.D. degree is granted upon the recommendation of the Doctoral Committee and the Dean of Graduate Studies. Part-time study toward the Ph.D. degree is not permitted. The normative time for completion of the Ph.D. is five years (four years for students who entered with a master's degree). The maximum time permitted is seven years.

Graduate Specialization in Teaching

The graduate specialization in Teaching will allow Engineering Ph.D. students to receive practical training in pedagogy designed to enhance their knowledge and skill set for future teaching careers. Students will gain knowledge and background in college-level teaching and learning from a variety of sources, and experience in instructional practices. Students completing the specialization in Teaching must fulfill all of their Ph.D. requirements in addition to the specialization requirements. Upon fulfillment of the requirements, students will be provided with a certificate of completion. Upon receipt of the certificate of completion, the students can then append "Specialization in Teaching" to their curricula vitae. For details visit the Graduate Specialization in Teaching website.

The graduate specialization in Teaching is available only for certain degree programs and concentrations:

- Ph.D. degree in Biomedical Engineering
- Ph.D. degree in Electrical and Computer Engineering
- Ph.D. degree in Engineering with a concentration in Materials and Manufacturing Technology

Program in Law and Graduate Studies (J.D./M.S.-ECE; J.D./Ph.D.-ECE)

Highly qualified students interested in combining the study of law with graduate qualifications in the ECE program are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Gradate Studies (PLGS). Students in this program pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Master's or Ph.D. degree in the ECE program. Additional information is available from the PLGS Program Director's Office, (949) 824-4158, or by e-mail to plgs@uci.edu. A full description of the program, with links to all relevant application information can be found at the School of Law Concurrent Degree Programs (http://www.law.uci.edu/plgs) website and in the Law School (p. 1115) section of the *Catalogue*.

Faculty

Mohammad A. Al Faruque, Ph.D. University of Kaiserslautern, *Assistant Professor of Electrical Engineering and Computer Science* (system-level design, embedded systems, cyber-physical-systems, multi-core systems)

Nicolaos G. Alexopoulos, Ph.D. University of Michigan, *Professor Emeritus of Electrical Engineering and Computer Science* (high-frequency integrated circuit antennas, wireless communication, materials)

Animashree Anandkumar, Ph.D. Cornell University, *Assistant Professor of Electrical Engineering and Computer Science; Computer Science* (statistical inference and learning of graphical models, scalable network algorithms)

Ender Ayanoglu, Ph.D. Stanford University, *Professor of Electrical Engineering and Computer Science* (communication systems, communication theory, communication networks)

Mark G. Bachman, Ph.D. University of Texas at Austin, *Assistant Professor of Electrical Engineering and Computer Science; Biomedical Engineering* (integrated microsystems, microfabrication technology, biomedical microdevices, sensor systems, human sensing, human-machine interface)

Nader Bagherzadeh, Ph.D. University of Texas at Austin, *Professor of Electrical Engineering and Computer Science; Computer Science* (parallel processing, computer architecture, computer graphics, VLSI design)

Casper W. Barnes, Ph.D. Stanford University, *Professor Emeritus of Electrical Engineering and Computer Science*

Neil J. Bershad, Ph.D. Rensselaer Polytechnic Institute, *Professor Emeritus of Electrical Engineering and Computer Science* (communication and information theory, signal processing)

Lubomir Bic, Ph.D. University of California, Irvine, *Professor of Computer Science; Biomedical Engineering; Electrical Engineering and Computer Science* (parallel and distributed computing, mobile agents)

Ozdal Boyraz, Ph.D. University of Michigan, *Associate Professor of Electrical Engineering and Computer Science* (silicon photonics and optical communications systems)

Elaheh Bozorgzadeh, Ph.D. University of California, Los Angeles, *Associate Professor of Computer Science; Electrical Engineering and Computer Science* (design automation and synthesis for embedded systems, VLSI CAD, reconfigurable computing)

Peter J. Burke, Ph.D. Yale University, *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Chemical Engineering and Materials Science* (nano-electronics, bio-nanotechnology)

Carter Butts, Ph.D. Carnegie Mellon University, *Professor of Sociology; Electrical Engineering and Computer Science; Statistics* (mathematical sociology, social networks, quantitative methodology, human judgment and decision making, economic sociology)

Filippo Capolino, Ph.D. University of Florence, *Associate Professor of Electrical Engineering and Computer Science* (optics/electromagnetics in nanostructures and sensors, antennas/microwaves, RF and wireless systems)

Zhongping Chen, Ph.D. Cornell University, *Professor of Biomedical Engineering; Chemical Engineering and Materials Science; Electrical Engineering and Computer Science; Otolaryngology; Surgery* (biomedical optics, optical coherence tomography, bioMEMS, biomedical devices)

Pai H. Chou, Ph.D. University of Washington, *Professor of Electrical Engineering and Computer Science; Computer Science* (embedded systems, wireless sensor systems, medical devices, real-time systems, hardware/software co-synthesis)

Jose B. Cruz, Ph.D. University of Illinois at Urbana-Champaign, *Professor Emeritus of Electrical Engineering and Computer Science*

Hooman Darabi, Ph.D. University of California, Los Angeles, *Assistant Adjunct Professor of Electrical Engineering and Computer Science* (analog and RF integrated circuit design for wireless communication)

Franco De Flaviis, Ph.D. University of California, Los Angeles, *Professor of Electrical Engineering and Computer Science* (microwave systems, wireless communications, electromagnetic circuit simulations)

Brian C. Demsky, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Electrical Engineering and Computer Science* (compiler programming, language software engineering, fault tolerance)

Rainer B. Doemer, Ph.D. Dortmund University, *Associate Professor of Electrical Engineering and Computer Science* (system-level design, embedded computer systems, design methodologies, specification and modeling languages)

Nikil D. Dutt, Ph.D. University of Illinois at Urbana–Champaign, *UCI Chancellor's Professor of Computer Science; Electrical Engineering and Computer Science* (embedded systems, computer architecture, electronic design automation, software systems, brain-inspired architectures and computing)

Magda S. El Zarki, Ph.D. Columbia University, *Professor of Computer Science; Electrical Engineering and Computer Science; Informatics* (telecommunications, networks, wireless communication, video transmission)

Ahmed Eltawil, Ph.D. University of California, Los Angeles, *Associate Professor of Electrical Engineering and Computer Science* (design of system and VLSI architectures for broadband wireless communication, implementations and architectures for digital processing)

Leonard A. Ferrari, Ph.D. University of California, Irvine, *Professor Emeritus of Electrical Engineering and Computer Science* (machine vision, signal processing, computer graphics)

Charless C. Fowlkes, Ph.D. University of California, Berkeley, *Associate Professor of Computer Science; Cognitive Sciences; Electrical Engineering and Computer Science* (computer vision, machine learning, computational biology)

Michael S. Franz, Ph.D. Swiss Federal Institute of Technology in Zurich, *Professor of Computer Science; Electrical Engineering and Computer Science* (systems software, particularly compilers and virtual machines, trustworthy computing, software engineering)

Daniel D. Gajski, Ph.D. University of Pennsylvania, *Professor Emeritus of Electrical Engineering and Computer Science* (embedded systems, software/hardware design, design methodologies and tools, science of design)

Jean-Luc Gaudiot, Ph.D. University of California, Los Angeles, *Professor of Electrical Engineering and Computer Science* (parallel processing, computer architecture, processor architecture)

Michael T. Goodrich, Ph.D. Purdue University, *UCI Chancellor's Professor of Computer Science; Electrical Engineering and Computer Science* (computer security, algorithm design, data structures, Internet algorithmics, geometric computing, graphic drawing)

Michael M. Green, Ph.D. University of California, Los Angeles, *Professor of Electrical Engineering and Computer Science* (analog/mixed-signal IC design, broadband circuit design, theory of nonlinear circuits)

Gultekin Gulsen, Ph.D. Bogazici University, *Associate Professor of Radiological Sciences; Biomedical Engineering; Electrical Engineering and Computer Science; Physics and Astronomy* (in vivo molecular imaging, diffuse optical tomography, fluorescence tomography, photo-magnetic imaging, multi-modality imaging)

Ian G. Harris, Ph.D. University of California, San Diego, *Associate Professor of Computer Science; Electrical Engineering and Computer Science* (hardware/software covalidation, manufacturing test)

Glenn E. Healey, Ph.D. Stanford University, *Professor of Electrical Engineering and Computer Science* (machine vision, computer engineering, image processing, computer graphics, intelligent machines)

Payam Heydari, Ph.D. University of Southern California, *Professor of Electrical Engineering and Computer Science* (design and analysis of analog, RF and mixed-signal integrated circuits, analysis of signal integrity and high-frequency effects of on-chip interconnects in high-speed VLSI circuits)

Dan S. Hirschberg, Ph.D. Princeton University, *Professor of Computer Science; Electrical Engineering and Computer Science* (analyses of algorithms, concrete complexity, data structures, models of computation)

Syed A. Jafar, Ph.D. Stanford University, *Professor of Electrical Engineering and Computer Science* (wireless communication and information theory)

Hamid Jafarkhani, Ph.D. University of Maryland, College Park, *Conexant-Broadcom Chair in the Center for Pervasive Communications* and *UCI Chancellor's Professor of Electrical Engineering and Computer Science* (communication theory, coding, wireless networks, multimedia networking)

Scott A. Jordan, Ph.D. University of California, Berkeley, *Professor of Computer Science; Electrical Engineering and Computer Science* (pricing and differentiated services in the Internet, resource allocation in wireless networks, telecommunications policy)

David P. Kirkby, Ph.D. California Institute of Technology, *Professor of Physics and Astronomy; Electrical Engineering and Computer Science* (observational cosmology, data science, embedded systems)

Stuart A. Kleinfelder, Ph.D. Stanford University, *Professor of Electrical Engineering and Computer Science* (first integrated sensor/readout arrays for visual, IR, X-ray, charged particles)

Fadi J. Kurdahi, Ph.D. University of Southern California, *Director, Center for Embedded Computer Systems and Professor of Electrical Engineering and Computer Science; Computer Science* (VLSI system design, design automation of digital systems)

Tomas Lang, Ph.D. Stanford University, *Professor Emeritus of Electrical Engineering and Computer Science* (numerical processors and multiprocessors, parallel computer systems)

Chin C. Lee, Ph.D. Carnegie Mellon University, *Professor of Electrical Engineering and Computer Science* (bonding technology, electronic packaging, acoustics, microwaves, semiconductor devices, thermal management)

Henry P. Lee, Ph.D. University of California, Berkeley, *Professor of Electrical Engineering and Computer Science* (photonics, fiber-optics and compound semiconductors)

Guann-Pyng Li, Ph.D. University of California, Los Angeles, *Director of the UCI Division of the California Institute for Telecommunications and Information Technology (Calit2), Director of the Integrated Nanosystems Research Facility and Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Chemical Engineering and Materials Science* (high-speed semiconductor technology, optoelectronic devices, integrated circuit fabrication and testing)

Kwei-Jay Lin, Ph.D. University of Maryland, College Park, *Professor of Electrical Engineering and Computer Science; Computer Science* (real-time systems, distributed systems, service-oriented computing)

Aditi Majumder, Ph.D. University of North Carolina at Chapel Hill, *Associate Professor of Computer Science; Electrical Engineering and Computer Science* (novel displays and cameras for computer graphics and visualization, human-computer interaction, applied computer vision)

Athina Markopoulou, Ph.D. Stanford University, *Associate Professor of Electrical Engineering and Computer Science; Information and Computer Sciences* (networking—reliability and security, multimedia networking, measurement and control, design and analysis of network protocols and algorithims, internet reliability and security, multimedia streaming, network measurements and control)

Gopi Meenakshisumdaram, Ph.D. University of North Carolina at Chapel Hill, *Professor of Computer Science; Electrical Engineering and Computer Science* (geometry and topology for computer graphics, image-based rendering, object representation, surface reconstruction, collision detection, virtual reality, telepresence)

Sabee Y. Molloi, Ph.D. University of Wisconsin-Madison, *Professor of Radiological Sciences; Biomedical Engineering; Electrical Engineering and Computer Science* (quantitative aspects of medical x-ray imaging and its applications to cardiac and breast imaging)

Zoran Nenadic, Ph.D. Washington University, *Associate Professor of Biomedical Engineering; Electrical Engineering and Computer Science* (adaptive biomedical signal processing, control algorithms for biomedical devices, brain-machine interfaces, modeling and analysis of biological neural networks)

Alexandru Nicolau, Ph.D. Yale University, *Professor of Computer Science; Electrical Engineering and Computer Science* (architecture, parallel computation, programming languages and compilers)

Henry Samueli, Ph.D. University of California, Los Angeles, *Adjunct Professor of Electrical Engineering and Computer Science* (digital signal processing, communications systems engineering, CMOS integrated circuit design for applications in high-speed data transmission systems)

Isaac D. Scherson, Ph.D. Weizmann Institute of Science, *Professor of Computer Science; Electrical Engineering and Computer Science* (parallel computing architectures, massively parallel systems, parallel algorithms, interconnection networks, performance evaluation)

Phillip C-Y Sheu, Ph.D. University of California, Berkeley, *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Computer Science* (database systems, interactive multimedia systems)

Frank G. Shi, Ph.D. California Institute of Technology, *Professor of Chemical Engineering and Materials Science; Electrical Engineering and Computer Science* (optoelectronic devices and materials, optoelectronic device packaging materials, optoelectronic medical devices and packaging, white LED technologies, high power LED packaging)

Andrei M. Shkel, Ph.D. University of Wisconsin-Madison, *Professor of Mechanical and Aerospace Engineering; Biomedical Engineering; Electrical Engineering and Computer Science* (design and advanced control of micro-electro-mechanical systems (MEMS), precision micro-sensors and actuators for telecommunication and information technologies, MEMS-based health monitoring systems, disposable diagnostic devices, prosthetic implants)

Jack Sklansky, Sc.D. Columbia University, *Professor Emeritus of Electrical Engineering and Computer Science* (digital radiology, pattern recognition, medical imaging, neural learning, computer engineering)

Keyue M. Smedley, Ph.D. California Institute of Technology, *Professor of Electrical Engineering and Computer Science* (power electronics and analog circuit design)

A. Lee Swindlehurst, Ph.D. Stanford University, *Professor of Electrical Engineering and Computer Science* (signal processing, estimation and detection theory, applications in wireless communications, geo-positioning, radar, sonar, biomedicine)

Harry H. Tan, Ph.D. University of California, Los Angeles, *Professor Emeritus of Electrical Engineering and Computer Science* (communication and information theory, stochastic processes)

William C. Tang, Ph.D. University of California, Berkeley, *Professor of Biomedical Engineering; Electrical Engineering and Computer Science* (micro-electro-mechanical systems (MEMS) nanoscale engineering for biomedical applications, microsystems integration, microimplants, microbiomechanics, microfluidics)

Chen S. Tsai, Ph.D. Stanford University, *UCI Chancellor's Professor of Electrical Engineering and Computer Science* (integrated and fiber optics, devices and materials, integrated acoustooptics and magnetooptics, integrated microwave magnetics, Ultrasonic Atomization for Nanoparticles Synthesis, silicon photonics)

Wei Kang (Kevin) Tsai, Ph.D. Massachusetts Institute of Technology, *Professor Emeritus of Electrical Engineering and Computer Science* (data communication networks, control systems)

H. Kumar Wickramasinghe, Ph.D. University of London, *Henry Samueli Endowed Chair in Engineering and Department Chair* and *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Chemical Engineering and Materials Science* (nanoscale measurements and characterization, scanning probe microscopy, storage technology, nano-bio measurement technology)

Xiangmin Xu, Ph.D. Vanderbilt University, *Assistant Professor of Anatomy and Neurobiology; Biomedical Engineering; Electrical Engineering and Computer Science; Microbiology and Molecular Genetics* (local cortical circuits)

Homayoun Yousefi'zadeh, Ph.D. University of Southern California, *Adjunct Professor of Electrical Engineering and Computer Science* (communications networks)

Courses

EECS 1. Introduction to Electrical Engineering and Computer Engineering. 1 Unit.
Introduction to the fields of Electrical Engineering and Computer Engineering, including possible careers in both traditional and new emerging areas. Background on both the Electrical Engineering and the Computer Engineering majors, curriculum requirements, specializations, and faculty research interests.

Restriction: Computer Engineering and Electrical Engineering majors have first consideration for enrollment.

EECS 10. Computational Methods in Electrical and Computer. 4 Units.
An introduction to computers and structured programming. Binary Data Representation. Hands-on experience with a high-level structured programming language. Introduction to algorithm efficiency. Applications of structured programming in solving engineering problems. Programming laboratory.

(Design units: 0)

Corequisite: MATH 2A.
Prerequisite: MATH 2A.

Overlaps with ENGR 10, ENGRMAE 10, EECS 12.

Restriction: School of Engineering majors have first consideration for enrollment.

EECS 12. Introduction to Programming. 4 Units.
An introduction to computers and programming. Python programming syntax/style, types. Numbers and sequences. Control flow. I/O and errors/exceptions. Function calling, parameter passing, formal arguments, return values. Variable scoping. Programming laboratory.

(Design units: 0)

Corequisite: MATH 2A.

Overlaps with ENGR 10, EECS 10, ENGRMAE 10.

Restriction: School of Engineering majors have first consideration for enrollment.

EECS 20. Computer Systems and Programming in C. 4 Units.
Introduction to computing systems. Data representation and operations. Simple logic design. Basic computer organization. Instruction set architecture and assembly language programming. Introduction to C functions, data structures, pointers. Programming laboratory.

(Design units: 1)

Prerequisite: EECS 12.

Restriction: Computer Engineering majors have first consideration for enrollment.

EECS 22. Advanced C Programming. 3 Units.
C language programming concepts. Control flow, function calls, recursion. Basic and composite data types, static and dynamic data structures. Program modules and compilation units. Preprocessor macros. C standard libraries.

(Design units: 1)

Prerequisite: EECS 10 or EECS 20.

Restriction: Computer Engineering and Electrical Engineering majors have first consideration for enrollment.

EECS 22L. Software Engineering Project in C Language. 3 Units.
Hands-on experience with the ANSI-C programming language. Medium-sized programming projects, team work. Software specification, documentation, implementation, testing. Definition of data structures and application programming interface. Creation of program modules, linking with external libraries. Rule-based compilation, version control.

(Design units: 3)

Prerequisite: EECS 22.

EECS 31. Introduction to Digital Systems. 4 Units.
Digital representation of information. Specification, analysis, design and optimization or combinational and sequential logic, register-transfer components and register-transfer systems with datapaths and controllers. Introduction to high-level and algorithmic state-machines and custom processors. Course may be offered online.

(Design units: 2)

Prerequisite: CSE 41 or I&C SCI 31 or EECS 10 or EECS 12 or ENGRMAE 10 or CSE 21 or I&C SCI 21 or I&C SCI H21.

Same as CSE 31.

Restriction: Computer Engineering, Computer Science and Engineering, Electrical Engineering majors have first consideration for enrollment.

EECS 31L. Introduction to Digital Logic Laboratory. 3 Units.
Introduction to common digital integrated circuits: gates, memory circuits, MSI components. Operating characteristics, specifications, applications. Design of simple combinational and sequential digital systems (arithmetic processors game-playing machines). Construction and debugging techniques using hardware description languages and CAD tools. Materials fee. Course may be offered online.

(Design units: 3)

Prerequisite: (EECS 31 or CSE 31) and (EECS 10 or EECS 12 or (CSE 22 or I&C SCI 22) or (CSE 42 or I&C SCI 32)).

Same as CSE 31L.

Restriction: Computer Engineering, Computer Science and Engineering, and Electrical Engineering majors have first consideration for enrollment.

EECS 40. Object-Oriented Systems and Programming. 4 Units.
Primitive types and expressions. The class and method definition. Information hiding and encapsulation. Objects and reference. Overloading. Constructors. Inheritance basics. Programming with inheritance. Dynamic binding and polymorphism. Exception handling. An overview of streams and file input/output. Programming laboratory.

(Design units: 2)

Prerequisite: EECS 22L.

Restriction: Computer Engineering majors have first consideration for enrollment.

EECS 50. Discrete-Time Signals and Systems. 4 Units.
Analysis of discrete-time linear-time-invariant (DTLTI) systems in the time domain and using z-transforms. Introduction to techniques based on Discrete-Time, Discrete, and Fast Fourier Transforms. Examples of their application to digital signal processing and digital communications.

(Design units: 0)

Prerequisite: EECS 70A or CSE 70A.

Same as CSE 50.

Restriction: Computer Engineering, Computer Science and Engineering, and Electrical Engineering majors have first consideration for enrollment.

EECS 55. Engineering Probability. 4 Units.
Sets and set operations; nature of probability, sample spaces, fields of events, probability measures; conditional probability, independence, random variables, distribution functions, density functions, conditional distributions and densities; moments, characteristic functions, random sequences, independent and Markov sequences.

(Design units: 0)

Prerequisite: MATH 2D.

Restriction: Computer Engineering and Electrical Engineering majors have first consideration for enrollment.

EECS 70A. Network Analysis I. 4 Units.
Modeling and analysis of electrical networks. Basic network theorems. Sinusoidal steady state and transient analysis of RLC networks and the impedance concept.

(Design units: 1)

Corequisite: MATH 3D.
Prerequisite: PHYSICS 7D and (EECS 10 or EECS 12 or ENGRMAE 10 or CSE 41 or I&C SCI 31).

Same as CSE 70A.
Overlaps with ENGRMAE 60.

Restriction: Aerospace Engineering, Biomedical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Environmental Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

EECS 70B. Network Analysis II. 4 Units.
Laplace transforms, complex frequency, and the s-plane. Network functions and frequency response, including resonance. Bode plots. Two-port network characterization.

(Design units: 1)

Corequisite: EECS 70LB.
Prerequisite: (EECS 10 or ENGRCEE 10 or ENGRMAE 10) and EECS 70A.

Restriction: Computer Engineering, Electrical Engineering, and Materials Science Engineering majors have first consideration for enrollment.

EECS 70LA. Network Analysis I Laboratory. 1 Unit.
Laboratory to accompany EECS 70A.

Corequisite: EECS 70A.
Prerequisite: PHYSICS 7D and EECS 10.

EECS 70LB. Network Analysis II Laboratory. 1 Unit.
Laboratory to accompany EECS 70B. Materials fee.

(Design units: 1)

Corequisite: EECS 70B.
Prerequisite: (EECS 10 or ENGRCEE 10 or ENGRMAE 10) and EECS 70A.

Restriction: Computer Engineering and Electrical Engineering majors have first consideration for enrollment.

EECS 101. Introduction to Machine Vision. 3 Units.
The use of digital computers for the analysis of visual scenes; image formation and sensing, color, segmentation, shape estimation, motion, stereo, pattern classification, computer architectures, applications. Computer experiments are used to illustrate fundamental principles.

(Design units: 2)

Prerequisite: EECS 150 or EECS 50 or CSE 50.

Restriction: Electrical Engineering, Computer Engineering, and Computer Science and Engineering majors have first consideration for enrollment.

EECS 111. System Software. 4 Units.
Multiprogramming, interrupt, processes, kernel, parallelism, critical sections, deadlocks, communication, multiprocessing, multilevel memory management, binding, name management, file systems, protection, resource allocation, scheduling. Experience with concurrent programming, synchronization mechanisms, interprocess communication.

(Design units: 2)

Prerequisite: EECS 112 and (CSE 46 or I&C SCI 46 or EECS 114).

Overlaps with COMPSCI 143A.

Restriction: Computer Engineering and Electrical Engineering majors have first consideration for enrollment.

EECS 112. Organization of Digital Computers. 4 Units.
Building blocks and organization of digital computers, the arithmetic, control, and memory units, and input/out devices and interfaces. Microprogramming and microprocessors.

(Design units: 4)

Prerequisite: EECS 31L or CSE 31L.

Same as CSE 132.
Overlaps with COMPSCI 152.

Restriction: Computer Engineering, Computer Science and Engineering, and Electrical Engineering majors have first consideration for enrollment.

EECS 112L. Organization of Digital Computers Laboratory. 3 Units.
Specification and implementation of a processor-based system using a hardware description language such as VHDL. Hands-on experience with design tools including simulation, synthesis, and evaluation using testbenches.

(Design units: 3)

Prerequisite: EECS 112 or CSE 132.

Same as CSE 132L.

Restriction: Computer Engineering and Computer Science and Engineering majors have first consideration for enrollment.

EECS 113. Processor Hardware/Software Interfaces. 4 Units.
Hardware/software interfacing, including memory and bus interfaces, devices, I/O, and compiler code generation/instruction scheduling. Experience microcontroller programming and interfacing. Specific compiler code generation techniques cover including local variable and register allocations, instruction dependence and scheduling, and code optimization.

(Design units: 3)

Prerequisite: EECS 112 or CSE 132.

Restriction: Computer Engineering, Electrical Engineering, and Computer Science and Engineering majors have first consideration for enrollment.

EECS 114. Engineering Data Structures and Algorithms. 4 Units.
Introduces abstract behavior of classes data structures, alternative implementations, informal analysis of time and space efficiency. Also introduces classic algorithms and efficient algorithm design techniques (recursion, divide-and-conquer, branch-and-bound, dynamic programming).

(Design units: 2)

Prerequisite: EECS 40.

Restriction: Computer Engineering majors have first consideration for enrollment.

EECS 116. Introduction to Data Management. 4 Units.
Introduction to the design of databases and the use of database management systems (DBMS) for applications. Topics include entity-relationship modeling for design, relational data model, relational algebra, relational design theory, and Structured Query Language (SQL) programming.

(Design units: 1)

Prerequisite: I&C SCI 23 or CSE 23 or I&C SCI H23 or I&C SCI 46 or CSE 46 or IN4MATX 45 or I&C SCI 33 or CSE 43 or EECS 114. I&C SCI 23 with a grade of C or better CSE 23 with a grade of C or better I&C SCI H23 with a grade of C or better I&C SCI 46 with a grade of C or better CSE 46 with a grade of C or better IN4MATX 45 with a grade of C or better I&C SCI 33 with a grade of C or better CSE 43 with a grade of C or better

Same as COMPSCI 122A.

Restriction: School of Information and Computer Sciences majors and Computer Engineering majors have first consideration for enrollment.

EECS 117. Parallel Computer Systems. 3 Units.
General introduction to parallel computing focusing on parallel algorithms and architectures. Parallel models: Flynn's taxonomy, dataflow models. Parallel architectures: systolic arrays, hypercube architecture, shared memory machines, dataflow machines, reconfigurable architectures. Parallel algorithms appropriate to each machine type area also discussed.

(Design units: 1)

Prerequisite: EECS 20 and EECS 112 or CSE 132.

Restriction: Computer Engineering and Computer Science and Engineering majors have first consideration for enrollment.

EECS 118. Introduction to Knowledge Management for Software and Engineering. 4 Units.
Introduction of basic concepts in knowledge engineering and software engineering. Knowledge representation and reasoning, search planning, software life cycle, requirements engineering, software design languages, declarative programing, testing, maintenance, and connections between knowledge engineering and software engineering.

(Design units: 2)

Prerequisite: EECS 40.

Restriction: Computer Engineering majors have first consideration for enrollment.

EECS 119. VLSI. 4 Units.
Design techniques for Very Large Scale Integrated (VLSI) systems and chips. Review CMOS and related process technologies; primitives such as logic gates and larger design blocks; layout; floor planning; design hierarchy, component interfaces; use of associated CAD tools for design.

(Design units: 4)

Prerequisite: (EECS 112 or CSE 132) and EECS 170B.

Overlaps with CSE 112, EECS 170D.

EECS 129A. Computer Engineering Senior Design Project. 2 Units.
Conception, planning, implementation, programming, testing of an approved project. Options include: parallel processing, VLSI design, microprocessor-based design, among others.

(Design units: 2)

Grading Option: In progress only.

Restriction: Seniors only. Computer Engineering majors only.

EECS 129B. Computer Engineering Senior Design Project. 2 Units.
Conception, planning, implementation, programming, testing of an approved project. Options include: parallel processing, VLSI design, microprocessor-based design, among others. Materials fee.

(Design units: 2)

Prerequisite: EECS 129A.

Restriction: Seniors only. Computer Engineering majors only.

EECS 141A. Communication Systems I. 3 Units.
Introduction to analog communication systems including effects of noise. Modulation-demodulation for AM, DSB-SC, SSB, VSB, QAM, FM, PM, and PCM with application to radio, television, and telephony. Signal processing as applied to communication systems.

(Design units: 1)

Prerequisite: EECS 55 and EECS 150.

Restriction: Computer Engineering, Electrical Engineering, and Computer Science and Engineering majors have first consideration for enrollment.

EECS 141B. Communication Systems II. 3 Units.
Signal space analysis. Optimum receivers for digital communication. Maximum a posteriori and maximum likelihood detection. Matched filter and correlation receiver. PAM, QAM, PSK, FSK, and MSK and their performance. Introduction to equalization, synchronization, information theory, and error control codes.

(Design units: 1)

Prerequisite: EECS 141A.

Restriction: Computer Engineering, Electrical Engineering, and Computer Science and Engineering majors have first consideration for enrollment.

EECS 144. Antenna Design for Wireless Communication Links. 4 Units.
Analysis and synthesis of antennas and antenna arrays. Adaptive arrays and digital beam forming for advanced wireless links. Friis transmission formula. Wireless communication equations for cell-site and mobile antennas, interference, slow and fast fading in mobile communication.

Prerequisite: EECS 180A.

EECS 145. Electrical Engineering Analysis. 4 Units.
Vector calculus, complex functions and linear algebra with applications to electrical engineering problems.

(Design units: 0)

Prerequisite: MATH 3D.

Restriction: Computer Engineering and Electrical Engineering majors have first consideration for enrollment.

EECS 148. Computer Networks. 4 Units.
Computer network architectures, protocols, and applications. Internet congestion control, addressing, and routing. Local area networks. Multimedia networking.

(Design units: 2)

Prerequisite: EECS 55 or STATS 67.

Same as COMPSCI 132.

Restriction: Computer Engineering and Computer Science and Engineering majors have first consideration for enrollment.

EECS 150. Continuous-Time Signals and Systems. 4 Units.
Characteristics and properties of continuous-time (analog) signals and systems. Analysis of linear time-invariant continuous-time systems using differential equation convolutional models. Analysis of these systems using Laplace transforms, Fourier series, and Fourier transforms. Examples from applications to telecommunications. Formerly EECS 150A.

(Design units: 0)

Prerequisite: (EECS 70A or CSE 70A) and EECS 145.

Restriction: Computer Engineering and Electrical Engineering majors have first consideration for enrollment.

EECS 152A. Digital Signal Processing. 3 Units.
Nature of sampled data, sampling theorem, difference equations, data holds, z-transform, w-transform, digital filters, Butterworth and Chebychev filters, quantization effects.

(Design units: 2)

Prerequisite: EECS 50 or CSE 50.

Same as CSE 135A.

Restriction: Computer Engineering, Electrical Engineering, and Computer Science and Engineering majors have first consideration for enrollment.

EECS 152B. Digital Signal Processing Design and Laboratory. 3 Units.
Design and implementation of algorithms on a DSP processor and using computer simulation. Applications in signal and image processing, communications, radar, etc. Materials fee.

(Design units: 3)

Prerequisite: EECS 152A or CSE 135A.

Same as CSE 135B.

Restriction: Computer Engineering, Electrical Engineering, and Computer Science and Engineering majors have first consideration for enrollment.

EECS 159A. Senior Design Project I. 3 Units.
Teaches problem definition, detailed design, integration and testability with teams of students specifying, designing, building, and testing complex systems. Lectures include engineering values, discussions, and ethical ramifications of engineering decisions.

(Design units: 3)

Prerequisite: EECS 113 or EECS 170C.

Grading Option: In progress only.

Restriction: Electrical Engineering and Computer Engineering majors have first consideration for enrollment. EECS 159A-EECS 159B-EECS 159CW must be taken in the same academic year.

EECS 159B. Senior Design Project II. 3 Units.
Teaches problem definition, detailed design, integration and testability with teams of students specifying, designing, building, and testing complex systems. Lectures include engineering values, discussions, and ethical ramifications of engineering decisions.

(Design units: 3)

Prerequisite: EECS 159A.

Restriction: Electrical Engineering and Computer Engineering majors have first consideration for enrollment. EECS 159A-EECS 159B-EECS 159CW must be taken in the same academic year.

EECS 159CW. Senior Design Project III. 3 Units.
Completion, documentation, and presentation of senior design projects. Teaches engineering documentation and presentation skills. Students write comprehensive project reports individually and participate in a presentation of project results.

(Design units: 0)

Prerequisite: EECS 159A and EECS 159B. Satisfactory completion of Lower-Division Writing requirement.

Overlaps with CSE 181CW, ENGR 190W.

Restriction: Electrical Engineering and Computer Engineering majors have first consideration for enrollment. EECS 159A-EECS 159B-EECS 159CW must be taken in the same academic year.

(Ib)

EECS 160A. Introduction to Control Systems. 4 Units.
Modeling, stability, and specifications of feedback control systems. Root locus, Bode plots, Nyquist criteria, and state-space methods for dynamic analysis and design.

(Design units: 2)

Corequisite: EECS 160LA.
Prerequisite: (EECS 10 or ENGRMAE 10) and EECS 150 and EECS 170B and EECS 170LB.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 160B. Sampled-Data and Digital Control Systems. 3 Units.
Sampled-data and digital control systems. Sampling process and theory of digital signals; z-transform and modeling; stability; z-plane, frequency response, state-space techniques of digital control system synthesis.

(Design units: 2)

Prerequisite: EECS 31 and EECS 160A and EECS 160LA.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 160LA. Control Systems I Laboratory. 1 Unit.
Laboratory accompanying EECS 160A. Materials fee.

(Design units: 1)

Corequisite: EECS 160A.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 161. Electric Machines and Drives. 3 Units.
Magnetic circuits and transformers. Fundamentals of energy conversion. Application to synchronous, induction, commutator, and special purpose machines. Electric Drives.

(Design units: 2)

Corequisite: EECS 161L.
Prerequisite: EECS 70B.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 161L. Electric Machines and Drives Laboratory. 1 Unit.
Laboratory exercises supplementing the content of EECS 161.

(Design units: 0)

Corequisite: EECS 161.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 163. Power Systems. 4 Units.
Generation, transmission, and use of electrical energy. Fault calculation, protection, stability, and power flow.

(Design units: 1)

Corequisite: EECS 163L.
Prerequisite: EECS 70B.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 163L. Power Systems Laboratory. 1 Unit.
Experiments and field trips relevant to studies in power systems. Materials fee.

(Design units: 0)

Corequisite: EECS 163.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 166A. Industrial and Power Electronics. 4 Units.
Power switching devices, pulse width modulation (PWM) methods, switching converter topologies, control, and magnetics. Materials fee.

(Design units: 2)

Prerequisite: EECS 170C and EECS 160A.

Restriction: Electrical Engineering majors have first consideration for enrollment.

Concurrent with EECS 267A.

EECS 166B. Advanced Topics in Industrial and Power Electronics. 3 Units.
Practical design of switching converters, electromagnetic compatibility, thermal management, and/or control methods.

(Design units: 1)

Prerequisite: EECS 166A.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 170A. Electronics I. 4 Units.
The properties of semiconductors, electronic conduction in solids, the physics and operation principles of semiconductor devices such as diodes and transistors, transistor equivalent circuits, and transistor amplifiers.

(Design units: 1)

Corequisite: PHYSICS 7E.
Prerequisite: PHYSICS 7D and EECS 70A.

Restriction: Computer Engineering and Electrical Engineering majors have first consideration for enrollment.

EECS 170B. Electronics II. 4 Units.
Design and analysis of single-stage amplifiers, biasing circuits, inverters, logic gates, and memory elements based on CMOS transistors.

(Design units: 2)

Corequisite: EECS 170LB.
Prerequisite: EECS 70B and EECS 170A and EECS 170LA.

Restriction: Computer Engineering, Electrical Engineering, and Materials Science Engineering majors have first consideration for enrollment.

EECS 170C. Electronics III. 4 Units.
Principles of operation, design, and utilization of integrated circuit modules, including multi-stage amplifiers, operational amplifiers and logic circuits.

(Design units: 2)

Corequisite: EECS 170LC.
Prerequisite: EECS 170B and EECS 170LB.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 170D. Integrated Electronic Circuit Design. 4 Units.
Design and fabrication of modern digital integrated circuits. Fabrication of CMOS process, transistor-level design simulation, functional characteristics of basic digital integrated circuits, and different logic families including the static and dynamic logic, layout, and extraction of digital circuits.

(Design units: 4)

Prerequisite: EECS 170C and EECS 170LC.

Overlaps with EECS 119, CSE 112.

Restriction: Electrical Engineering and Computer Engineering majors have first consideration for enrollment.

EECS 170E. Analog and Communications IC Design. 4 Units.
Advanced topics in design of analog and communications integrated circuits. Topics include: implementation of passive components in integrated circuits; overview of frequency response of amplifiers, bandwidth estimation techniques, high-frequency amplifier design; design of radio-frequency oscillators.

(Design units: 3)

Prerequisite: EECS 170C.

EECS 170LA. Electronics I Laboratory. 1 Unit.
Laboratory accompanying EECS 170A to perform experiments on semiconductor material properties, semiconductor device physics and operation principles, and transistor amplifiers to improve experimental skills and to enhance the understanding of lecture materials.

(Design units: 1)

Corequisite: EECS 170A and PHYSICS 7E.
Prerequisite: PHYSICS 7D and EECS 70B.

Restriction: Computer Engineering, Electrical Engineering, and Materials Science Engineering majors have first consideration for enrollment.

EECS 170LB. Electronics II Laboratory. 1 Unit.
Laboratory accompanying EECS 170B.

(Design units: 1)

Corequisite: EECS 170B.
Prerequisite: EECS 170A and EECS 170LA.

Restriction: Computer Engineering and Electrical Engineering majors have first consideration for enrollment.

EECS 170LC. Electronics III Laboratory. 1 Unit.
Laboratory accompanying EECS 170C to provide hands-on training in design of digital/analog circuits/subsystems. Materials fee.

(Design units: 1)

Corequisite: EECS 170C.
Prerequisite: EECS 170B and EECS 170LB.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 174. Semiconductor Devices. 4 Units.
Metal-semiconductor junctions, diodes, bipolar junction transistors, MOS structures, MOSFETs, CMOS technology, LEDs, and laser diodes.

(Design units: 1)

Prerequisite: EECS 170A.

Restriction: Electrical Engineering and Materials Science Engineering majors have first consideration for enrollment.

EECS 176. Fundamentals of Solid-State Electronics and Materials. 4 Units.
Physical properties of semiconductors and the roles materials play in device operation. Topics include: crystal structure, phonon vibrations, energy band, transport phenomenon, optical properties and quantum confinement effect essential to the understanding of electronic, optoelectronic and nanodevices.

(Design units: 1)

Prerequisite: EECS 170A.

Restriction: Electrical Engineering and Materials Science Engineering majors have first consideration for enrollment.

EECS 179. Microelectromechanical Systems (MEMS). 4 Units.
Small-scale machines, small-scale phenomena, MEMS fabrication, MEMS CAD tools, MEMS devices and packaging, MEMS testing.

(Design units: 2)

Restriction: Biomedical Engineering and Electrical Engineering majors have first consideration for enrollment. Upper-division students only.

EECS 180A. Engineering Electromagnetics I. 4 Units.
Electrostatics, magnetostatics, and electromagnetic fields: solutions to problems in engineering applications; transmission lines, Maxwell's equations and phasors, plane wave propagation, reflection, and transmission. Formerly EECS 180.

(Design units: 1)

Corequisite: MATH 2D and MATH 3D.
Prerequisite: PHYSICS 7E and EECS 145.

Restriction: Biomedical Engineering, Electrical Engineering, and Materials Science Engineering majors have first consideration for enrollment.

EECS 180B. Engineering Electromagnetics II. 4 Units.
Time-varying electromagnetic fields, plane waves, polarization, guidance of waves like rectangular waveguides and microstrips, optical fibers resonant cavities, skin effects and losses, spherical waves, radiation and reception of waves, antenna basics. Formerly EECS 187.

(Design units: 1)

Prerequisite: EECS 180A.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 180C. Engineering Electromagnetics III. 4 Units.
ropagation in anisotropic media. Propagation in ferrites and non-reciprocal devices. Scattering and dispersion. Electromagnetic properties of materials. Scattering of small nanoparticles. Spherical waves. Cross section of large and small objects. Radar equation. Coherent and incoherent radiation.

(Design units: 0)

Prerequisite: EECS 180B.

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 182. Monolithic Microwave Integrated Circuit (MMIC) Analysis and Design. 4 Units.
Design of microwave amplifiers including low-noise amplifiers, multiple stage amplifiers, power amplifiers, and introduction to broadband amplifiers. The goal is to provide the basic knowledge for the design of microwave amplifiers ranging from wireless system to radar system.

(Design units: 3)

Prerequisite: EECS 180A.

EECS 188. Optical Electronics. 4 Units.
Photodiodes and optical detection, photometry and radiometry, geometric optics, lens theory, imaging system, EM wave propagation, optical waveguides and fibers, heterojunction structures, laser theory, semiconductor lasers, and optical transmission system.

(Design units: 1)

Restriction: Electrical Engineering majors have first consideration for enrollment.

EECS 189A. Electrical Engineering Senior Design Project I. 2 Units.
Design projects for seniors in the Electrical Engineering program. Each project is supervised by a faculty member. Materials fee.

(Design units: 2)

Prerequisite: EECS 150 and EECS 170C and EECS 180A.

Grading Option: In progress only.

Restriction: Electrical Engineering majors only.

EECS 189B. Electrical Engineering Senior Design Project II. 2 Units.
Design projects for seniors in the Electrical Engineering program. Each project is supervised by a faculty member. Materials fee.

(Design units: 2)

Prerequisite: EECS 189A.

Restriction: Electrical Engineering majors only.

EECS 195. Special Topics in Electrical and Computer Engineering. 1-4 Units.
Studies special topics in selected areas of Electrical and Computer Engineering. Topics addressed vary each quarter.

(Design units: 1-4)

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

EECS 198. Group Study. 1-4 Units.
Group study of selected topics in Electrical and Computer Engineering.

(Design units: 1-4)

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

EECS 199. Individual Study. 1-4 Units.
For undergraduate Engineering majors in supervised but independent reading, research, or design. Students taking Individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Repeatability: May be taken for credit for 8 units.

EECS 199P. Individual Study. 1-4 Units.
For undergraduate Engineering majors in supervised but independent reading, research, or design. Students taking individual study for design credit are to submit a written paper to the instructor and to the Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

EECS 202A. Principles of Imaging. 4 Units.
Linear systems, probability and random processes, image processing, projecting imaging, tomographic imaging.

Prerequisite: PHYSICS 51B or PHYSICS 61B.

Same as PHYSICS 233A.

Restriction: Graduate students only.

Concurrent with PHYSICS 147A.

EECS 202B. Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging. 4 Units.
Ionizing radiation, planar and tomographic radiographic and nuclear imaging, magnetism, NMR, MRI imaging.

Prerequisite: EECS 202A.

Same as PHYSICS 233B.

Restriction: Graduate students only.

Concurrent with PHYSICS 147B.

EECS 202C. Techniques in Medical Imaging II: Ultrasound, Electrophysiological, Optical. 4 Units.
Sound and ultrasound, ultrasonic imaging, physiological electromagnetism, EEG, MEG, ECG, MCG, optical properties of tissues, fluorescence and bioluminescence, MR impedance imaging, MR spectroscopy, electron spin resonance and ESR imaging.

Prerequisite: EECS 202B.

Same as PHYSICS 233C.

Restriction: Graduate students only.

Concurrent with PHYSICS 147C.

EECS 203A. Digital Image Processing. 4 Units.
Pixel-level digital image representation and elementary operations; Fourier and other unitary transforms; compression, enhancement, filtering, and restoration; laboratory experience is provided.

Prerequisite: EECS 152A.

Restriction: Graduate students only.

EECS 210. Modeling and Rendering for Image Synthesis. 4 Units.
Provides the fundamental understanding of mathematical and physical models used in image synthesis applications: geometric models, physics of color image formation, polygon approximations, ray tracing, and radiosity.

EECS 211. Advanced System Software. 4 Units.
Study of operating systems including interprocess communication, scheduling, resource management, concurrency, reliability, validation, protection and security, and distributed computing support. System software design languages and modeling analysis.

Prerequisite: EECS 111 and EECS 112.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EECS 213. Computer Architecture. 4 Units.
Problems in hardware, firmware (microprogram), and software. Computer architecture for resource sharing, real-time applications, parallelism, microprogramming, and fault tolerance. Various architectures based on cost/performance and current technology.

Prerequisite: EECS 112 and EECS 112L.

Restriction: Graduate students only.

EECS 215. Design and Analysis of Algorithms. 4 Units.
Computer algorithms from a practical standpoint. Algorithms for symbolic and numeric problems such as sorting, searching, graphs, and network flow. Analysis includes algorithm time and space complexity.

EECS 217. VLSI System Design. 4 Units.
Overview of integrated fabrication, circuit simulation, basic device physics, device layout, timing; MOS logic design; layout generation, module generation, techniques for very large scale integrated circuit design.

Prerequisite: EECS 112.

Restriction: Graduate students only.

EECS 219. Distributed Software Architecture and Design. 4 Units.
Practical issues for reducing the software complexity, lowering cost, and designing and implementing distributed software applications. Topics include the distributed object model distributed environment, platform-independent software agents and components, the middleware architecture for distributed real-time and secure services.

Prerequisite: EECS 211.

Restriction: Graduate students only.

EECS 220. Advanced Digital Signal Processing Architecture. 4 Units.
Study the latest DSP architectures for applications in communication (wired and wireless) and multimedia processing. Emphasis given to understanding the current design techniques and to evaluate the performance, power, and application domain of the latest DSP processors.

Prerequisite: EECS 213.

Restriction: Graduate students only.

EECS 221. Topics in Computer Engineering. 4 Units.
New research results in computer engineering.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EECS 222. Embedded System Modeling. 4 Units.
Computational models for embedded systems. System-level specification and description languages. Concepts, requirements, examples. Embedded system models at different levels of abstraction. Modeling of test benches, design under test, IP components. Discrete event simulation, semantics, and algorithms. Formerly EECS 222A.

Restriction: Graduate students only.

EECS 223. Real-Time Computer Systems. 4 Units.
Time bases, clock synchronization, real-time communication protocols, specification of requirements, task scheduling. Validation of timelines, real-time configuration management.

Prerequisite: EECS 211 and EECS 213.

Restriction: Graduate students only.

EECS 225. Embedded Systems Design. 4 Units.
Embedded systems design flow and methodology. Design space exploration. Co-design of hardware and software, embedded architecture and network exploration and synthesis. System software/hardware interface generation. Real-time constraints, specification-to-architecture mapping, design tools and methodologies. Formerly EECS 222B. Course may be offered online.

Restriction: Graduate students only.

EECS 226. Embedded System Software. 4 Units.
Embedded system software concepts, requirements, examples, for engineering applications such as multi-media and automotive. Software generation methodology. Algorithmic specification, design constraints. Embedded operating systems. Static, dynamic, real-time scheduling. Input/output, interrupt handling. Code generation, compilation, instruction set simulation. Formerly EECS 222C.

Restriction: Graduate students only.

EECS 227. Cyber-Physical System Design. 4 Units.
Model-based design of cyber-physical systems including, e.g., plant, sensing, control, actuation, embedded hardware/software, communication, real-time analysis, various levels of simulation (MILS, SILS, HILS), tools and methodologies for automatic synthesis, and application from various interdisciplinary domains.

(Design units: 0)

Restriction: Graduate students only.

EECS 228. Program Analysis. 4 Units.
Advance study of programming languages, compliers, and interpreters. Static and dynamic program analysis and its use in compilation, optimization, garbage collection, bug finding, and parallelization.

Prerequisite: EECS 215 or COMPSCI 260.

Restriction: Graduate students only.

EECS 229. Low Power SoC Design. 4 Units.
From an inverter to server centers, low-power design theory and practice in modern systems-on-chip (SoC), energy efficient design time and runtime methods are surveyed at circuit, RTL, and architecture levels. Lab assignments will help students quantify tradeoffs and design practices.

Prerequisite: EECS 119 and EECS 217.

Restriction: Graduate students only.

EECS 230. Energy Efficiency. 4 Units.
Green energy sources for production, transmission, storage, and utilization of electricity, with a special focus on solar, wind, and nuclear energy production. Study of newly developed renewable sources of energy including capital cost, product cost, environmental issues, and technical feasibility.

EECS 240. Random Processes. 4 Units.
Extensions of probability theory to random variables varying with time. General properties of stochastic processes. Convergence. Estimation, including nonlinear and linear minimum mean square error and maximum likelihood. Spectral density and linear filters. Poisson processes and discrete-time Markov chains.

Prerequisite: EECS 55.

Restriction: Graduate students only.

EECS 241A. Digital Communications I. 4 Units.
Concepts and applications of digital communication systems. Baseband digital transmission of binary, multiamplitude, and multidimensional signals. Introduction to and performance analysis of different modulation schemes.

EECS 241B. Digital Communications II. 4 Units.
Concepts and applications of equalization, multi-carrier modulation, spread spectrum and CDMA. Digital communications through fading memory channels.

Prerequisite: EECS 241A.

Restriction: Graduate students only.

EECS 242. Information Theory. 4 Units.
Fundamental capabilities and limitations of information sources and information transmission systems. Analytical framework for modeling and evaluating communication systems: entropy, mutual information asymptotic equipartition property, entropy rates of a stochastic process, data compression, channel capacity, differential entropy, the Gaussian channel.

Prerequisite: EECS 240.

EECS 243. Error Correcting Codes. 4 Units.
Different techniques for error correcting codes and analyzing their performance. Linear block codes; cyclic codes; convolutional codes. Minimum distance; optimal decoding; Viterbi decoding; bit error probability. Coding gain; trellis coded modulation.

Prerequisite: EECS 240.

Restriction: Graduate students only.

EECS 244. Wireless Communications. 4 Units.
Introduction to wireless communications systems. Wireless channel modeling. Single carries, spread spectrum, and multi-carrier wireless modulation schemes. Diversity techniques. Multiple-access schemes. Transceiver design and system level tradeoffs. Brief overview of GSM, CDMA, (IS-95) and 2.5, 3G cellular schemes.

Prerequisite: EECS 241B.

Restriction: Graduate students only.

EECS 245. Space-Time Coding. 4 Units.
A fundamental study of: Capacity of MIMO Channels, space-time code design criteria, space-time block codes, space-time trellis codes, differential detection for multiple antennas, spatial multiplexing, BLAST.

Prerequisite: EECS 242.

Restriction: Graduate students only.

EECS 246. Network Coding: Theory and Applications. 4 Units.
Theoretical frameworks for network coding: linear, algebraic and random network coding; linear programming and combinatorial frameworks. Network code design. Benefits and costs. Practical network coding. Applications to wireless networks, content distribution, security, and other areas.

Prerequisite: EECS 248A or NET SYS 201 or COMPSCI 232.

Same as NET SYS 256.

Restriction: Graduate students only.

EECS 248A. Computer and Communication Networks. 4 Units.
Network architecture of the Internet, telephone networks, cable networks, and cell phone networks. Network performance models. Network performance models. Advanced concepts and implementations of flow and congestion control, addressing, internetworking, forwarding, routing, multiple access, streaming, and quality-of-service.

Prerequisite: EECS 148 or COMPSCI 132.

Same as COMPSCI 232, NET SYS 201.

Restriction: Graduate students only.

EECS 250. Digital Signal Processing I. 4 Units.
Fundamental principles of digital signal processing, sampling, decimation and interpolation, discrete Fourier transforms and FFT algorithms, transversal and recursive filters, discrete random processes, and finite-word effects in digital filters.

Prerequisite: EECS 152A.

Restriction: Graduate students only.

EECS 251A. Detection, Estimation, and Demodulation Theory. 4 Units.
Fundamentals of hypothesis testing and Bayes and Maximum Likelihood Estimation. ARMA and state variable models for random time series analysis. Wiener and Kalman filtering and prediction. Adaptive algorithms for identification and tracking of parameters of time-varying models.

Prerequisite: EECS 240.

EECS 251B. Detection, Estimation, and Demodulation Theory. 4 Units.
Fundamentals of hypothesis testing and Bayes and Maximum Likelihood Estimation. ARMA and state variable models for random time series analysis. Wiener and Kalman filtering and prediction. Adaptive algorithms for identification and tracking of parameters of time-varying models.

Prerequisite: EECS 240.

EECS 260A. Linear Systems I. 4 Units.
State-space representation of continuous-time and discrete-time linear systems. Controllability, observability, stability. Realization of rational transfer functions.

Prerequisite: EECS 160A.

Restriction: Graduate students only.

EECS 261A. Linear Optimization Methods. 4 Units.
Formulation, solution, and analysis of linear programming and linear network flow problems. Simplex methods, dual ascent methods, interior point algorithms and auction algorithms. Duality theory and sensitivity analysis. Shortest path, max-flow, assignment, and minimum cost flow problems.

Prerequisite: MATH 3A.

Restriction: Graduate students only.

EECS 267A. Industrial and Power Electronics. 4 Units.
Power switching devices, pulse width modulation (PWM) methods, switching converter topologies, control, and magnetics. Materials fee.

Prerequisite: EECS 160A and EECS 170C.

Restriction: Graduate students only.

Concurrent with EECS 166A.

EECS 267B. Topics in Industrial and Power Electronics. 4 Units.
Practical design of switching converters, electromagnetic compatibility, thermal management, and/or control methods.

Prerequisite: EECS 267A.

Restriction: Graduate students only.

EECS 270A. Advanced Analog Integrated Circuit Design I. 4 Units.
Basic transistor configurations; differential pairs; active load/current sources; supply/temperature-independent biasing; op-amp gain and output stages; amplifier frequency response and stability compensation; nonidealities in op-amps; noise and dynamic range in analog circuits.

Prerequisite: EECS 170C and EECS 170LC.

Restriction: Graduate students only.

EECS 270B. Advanced Analog Integrated Circuit Design II. 4 Units.
Advanced transistor modeling issues; discrete-time and continuous-time analog Integrated Circuit (IC) filters; phase-locked loops; design of ICs operating at radio frequencies; low-voltage/low-power design techniques; A/D and D/A converters; AGC circuits.

Prerequisite: EECS 270A.

Restriction: Graduate students only.

EECS 270C. Design of Integrated Circuits for Broadband Applications. 4 Units.
Topics include: broadband standards and protocols; high-frequency circuit design techniques; PLL theory and design; design of transceivers; electrical/optical interfaces.

Prerequisite: EECS 270A.

Restriction: Graduate students only.

EECS 270D. Radio-Frequency Integrated Circuit Design. 4 Units.
Topics include: RF component modeling; matching network design; transmission line theory/modeling; Smith chart and S-parameters; noise modeling of active and passive components; high-frequency amplifier design; low-noise amplifier (LNA) design; mixer design; RF power amplifier.

Prerequisite: EECS 270A.

Restriction: Graduate students only.

EECS 272. Topics in Electronic System Design. 4 Units.
New research results in electronic system design.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EECS 273. Electronics Packaging. 4 Units.
Materials, processes, techniques, and principles in interconnect and packaging of electronic products after the device-containing semiconductor wafer is fabricated. The electronic, optical, thermal, mechanical, and reliability properties of the materials are evaluated in the context of modern electronics manufacturing processes.

Restriction: Graduate students only.

EECS 274. Biomedical Microdevices (MEMOS). 4 Units.
Construction of biomedical microdevices, lithographic patterning and etching of microdevices, sealing and connecting microdevices, molding of microdevices, testing of microdevices.

Prerequisite: EECS 179.

Restriction: Graduate students only.

EECS 275A. Very Large Scale Integration (VLSI) Project. 4 Units.
Students create VLSI design projects from conception through architecture, floor planning, detailed design, simulation, verification, and submission for project fabrication. Emphasis on practical experience in robust VLSI design techniques. (Successful students are expected to take EECS 275B.).

Prerequisite: EECS 119 or EECS 170D.

Restriction: Graduate students only.

EECS 275B. Very Large Scale Integration (VLSI) Project Testing. 4 Units.
Test and document student-created Complementary Metal Oxide Semiconductor (CMOS) Very Large Scale Integration (VLSI) projects designed in EECS 275A. Emphasis on practical laboratory experience in VLSI testing techniques. Materials fee.

Prerequisite: EECS 275A.

Restriction: Graduate students only.

EECS 277A. Advanced Semiconductor Devices I. 4 Units.
Advanced complementary metal-oxide-semiconductor field-effect transistors (CMOSFET), device scaling, device modeling and fabrication, equivalent circuits, and their applications for digital, analog, RF.

Prerequisite: EECS 174.

Restriction: Graduate students only.

EECS 277B. Advanced Semiconductor Devices II. 4 Units.
Metal-semiconductor field-effect transistors (MESFET), heterojunction bipolar transistors (HBT), microwave semiconductor devices, equivalent circuits, device modeling and fabrication, microwave amplifiers, transmitters, and receivers.

Prerequisite: EECS 174.

Restriction: Graduate students only.

EECS 277C. Nanotechnology. 4 Units.
Fabrication and characterization techniques of electrical circuit elements at the nanometer scale. Quantized conductance, semiconductor quantum dots, single electron transistors, molecular wires, carbon nanotubes, self-assembly of nano-circuit elements, quantum methods of information processing.

Prerequisite: EECS 170A and PHYSICS 51A.

Restriction: Graduate students only.

EECS 278. Micro-System Design. 4 Units.
Covers the fundamentals of the many disciplines needed for design of Micro-Electro-Mechanical Systems (MEMS): microfabrication technology, structural mechanics on micro-scale, electrostatics, circuit interface, control, computer-aided design, and system integration.

Same as ENGRMAE 247.

Restriction: Graduate students only.

EECS 279. Micro-Sensors and Actuators. 4 Units.
Introduction to the technology of Micro-Electro-Mechanical Systems (MEMS). Fundamental principles and applications of important microsensors, actuation principles on microscale. Introduction to the elements of signal processing; processing of materials for micro sensor/actuator fabrication; smart sensors and microsensor/microactuator array devices.

Same as ENGRMAE 249.

Restriction: Graduate students only.

EECS 280A. Advanced Engineering Electromagnetics I. 4 Units.
Stationary electromagnetic fields, Maxwell's equations, circuits and transmission lines, plane waves, guided waves, and radiation.

Prerequisite: EECS 180A.

Restriction: Graduate students only.

EECS 280B. Advanced Engineering Electromagnetics II. 4 Units.
Two- and three-dimensional boundary value problems, dielectric waveguides and other special waveguides, microwave networks and antenna arrays, electromagnetic properties of materials, and electromagnetic optics.

Prerequisite: EECS 280A.

Restriction: Graduate students only.

EECS 282. Monolithic Microwave Integrated Circuit (MMIC) Analysis and Design II. 4 Units.
Design of microwave amplifiers using computer-aided design tools. Covers low-noise amplifiers, multiple stage amplifiers, broadband amplifiers, and power amplifiers. Hybrid circuit design techniques including filters and baluns. Theory and design rules for microwave oscillator design.

Prerequisite: EECS 180A and EECS 182.

Restriction: Graduate students only.

EECS 285A. Optical Communications. 4 Units.
Introduction to fiber optic communication systems, optical and electro-optic materials, and high-speed optical modulation and switching devices.

Prerequisite: EECS 180A.

EECS 285B. Lasers and Photonics. 4 Units.
Covers the fundamentals of lasers and applications, including Gaussian beam propagation, interaction of optical radiation with matters, and concepts of optical gain and feedback. Applications are drawn from diverse fields of optical communication, signal processing, and material diagnosis.

Prerequisite: Undergraduate course work in electromagnetic theory and atomic physics.

EECS 285C. Nano Imaging. 3 Units.
Theory and practice of modern naoscale imaging techniques and applications. Traces the development of microscopy from ancient times to modern day techniques used for visualizing the nano-world from atoms to molecules including hands-on experience in the laboratory.

Restriction: Graduate students only.

EECS 290. Curricular Practical Training. 1 Unit.
Curricular practical training. Students will go through practical training under an industry mentor in a technical field corresponding to their concentration area.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EECS 292. Preparation for M.S. Comprehensive Examination. 1-8 Units.
Individual reading and preparation for the M.S. comprehensive examination.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EECS 293. Preparation for Ph.D. Preliminary Examination. 1-8 Units.
Individual reading and preparation for the Ph.D. preliminary examination.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EECS 294. Electrical Engineering and Computer Science Colloquium. 1 Unit.
Invited speakers discuss their latest research results in electrical engineering and computer science.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EECS 295. Seminars in Engineering. 1-4 Units.
Scheduled each year by individual faculty in major field of interest.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EECS 296. Master of Science Thesis Research. 1-16 Units.
Individual research or investigation conducted in the pursuit of preparing and completing the thesis required for the M.S. degree in Engineering.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EECS 297. Doctor of Philosophy Dissertation Research. 1-16 Units.
Individual research or investigation conducted in preparing and completing the dissertation required for the Ph.D. degree in Engineering.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EECS 298. Topics in Electrical Engineering and Computer Science. 4 Units.
Study of Electrical and Computer Engineering concepts.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EECS 299. Individual Research. 1-16 Units.
Individual research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Mechanical and Aerospace Engineering

4221 Engineering Gateway; 949-824-8451
http://mae.eng.uci.edu/
Kenneth Mease, **Department Chair**

The Department of Mechanical and Aerospace Engineering offers two undergraduate B.S. degree programs: one in Mechanical Engineering and the other in Aerospace Engineering. M.S. and Ph.D. degree programs in Mechanical and Aerospace Engineering are also offered.

Mechanical engineers design, manufacture, and control machines ranging from robots to aircraft and spacecraft, design engines and power plants that drive these machines, analyze the environmental impact associated with power generation, and strive to promote environmental quality. To achieve their goals, mechanical engineers use mathematics, physics, and chemistry together with engineering science and technology in areas such as fluid

mechanics, heat transfer, dynamics, controls, and atmospheric science. Mechanical Engineering students at UCI learn the problem-solving, modeling, and testing skills required to contribute to advances in modern technology.

Mechanical Engineering undergraduates complete required courses that provide engineering fundamentals and technical electives that allow students to study particular areas of interest. Specializations are available in Aerospace Engineering, Energy Systems and Environmental Engineering, Flow Physics and Propulsion Systems, and Design of Mechanical Systems. Independent research opportunities allow students to pursue other avenues for focusing their studies.

Aerospace Engineering deals with all aspects of aircraft and spacecraft design and operation, thus requiring the creative use of many different disciplines. Aerospace engineers work the forefront of technological advances and are leaders in scientific discoveries.

The undergraduate curriculum in Aerospace Engineering includes courses in subsonic and supersonic aerodynamics, propulsion, controls and performance, light-weight structures, spacecraft dynamics, and advanced materials. In the senior capstone course, students work in teams on the preliminary design of a commercial jet transport.

Career opportunities for Aerospace Engineering graduates are in the broad range of aerospace industries, including manufacturers of aircraft, spacecraft, engines, and aircraft/spacecraft components; makers of aircraft/spacecraft simulators; and government research laboratories.

- Aerospace Engineering (p. 598)
- Mechanical Engineering (p. 600)

Undergraduate Major in Aerospace Engineering

Program Educational Objectives: Graduates of the program will have the professional and scientific education that allows them to be successful as career engineers and in the most demanding graduate programs. Specifically, they will be able to (1) function in professional environments in industry, government, and academia applying and building upon engineering science knowledge, problem-solving skills, and communication skills; (2) function as members of teams and in leadership roles applying ethical standards including the AIAA code of ethics within and beyond traditional Aerospace Engineering disciplines; and (3) remain current with technology and contemporary scientific and societal issues, and consequently improve skills and knowledge through a lifelong process of learning. (Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

The undergraduate Aerospace Engineering curriculum includes a core of mathematics, physics, and chemistry. Engineering courses in fundamental areas constitute much of the remaining curriculum. A few technical electives allow the undergraduate student to specialize somewhat or to pursue broader understanding. A senior capstone design experience culminates the curriculum.

Admissions

High School Students: See School admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one course in general chemistry (with laboratory), and two additional approved courses for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Aerospace Engineering

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 468)**.**

Major Requirements

Mathematics and Basic Science Courses:

CHEM 1A	General Chemistry
CHEM 1LE	Accelerated General Chemistry Lab
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 2E	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C	Classical Physics
PHYSICS 7LC	Classical Physics Laboratory

PHYSICS 7D- 7E	Classical Physics and Classical Physics
PHYSICS 7LD	Classical Physics Laboratory
PHYSICS 52A	Fundamentals of Experimental Physics
One additional General Education Category II course offered by the Schools of Physical Sciences, Biological Sciences, or Information and Computer Sciences.	
Engineering Topics Courses:	
Students must complete a minimum of 24 units of engineering design.	
Core Courses:	
ENGR 54	Principles of Materials Science and Engineering
ENGRMAE 10	Introduction to Engineering Computations
ENGRMAE 30	Statics
ENGRMAE 60	Electric Circuits
or EECS 70A	Network Analysis I
ENGRMAE 80	Dynamics
ENGRMAE 91	Introduction to Thermodynamics
ENGRMAE 106	Mechanical Systems Laboratory
ENGRMAE 108	Aerospace Laboratory
ENGRMAE 112	Propulsion
ENGRMAE 120	Heat and Mass Transfer
ENGRMAE 130A	Introduction to Fluid Mechanics
ENGRMAE 130B	Introduction to Viscous and Compressible Flows
ENGRMAE 135	Compressible Flow
ENGRMAE 136	Aerodynamics
ENGRMAE 146	Astronautics
ENGRMAE 150	Mechanics of Structures
ENGRMAE 150L	Mechanics of Structures Laboratory
ENGRMAE 157	Lightweight Structures
ENGRMAE 158	Aircraft Performance
ENGRMAE 159	Aircraft Design
ENGRMAE 170	Introduction to Control Systems
ENGRMAE 175	Dynamics and Control of Aerospace Vehicles
Technical Elective Courses:	
Students select a minimum of 8 units of technical electives, incorporating at least 1 unit of design. Any upper-division course in the department not used for the degree may be used as a technical elective. With approval of the Undergraduate Advisor, students may choose from other departments' upper-division courses that have primarily technical content. Preapproved courses are listed on the MAE Web site: http://mae.eng.uci.edu/undergraduate/TechElect.htm.	
Engineering Professional Topics Course:	
ECON 20A	Basic Economics I
ENGR 190W	Communications in the Professional World

At most an aggregate total of 4 units of 199 or H199 courses may be used to satisfy degree requirements.

(The nominal Aerospace Engineering program will require 185 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary.)

Design unit values are indicated at the end of each course description. The faculty advisors and the Undergraduate Student Affairs Office can provide necessary guidance for satisfying the design requirements. Selection of elective courses must be approved by the student's faculty advisor and the departmental undergraduate advisor.

Program of Study

Sample Program of Study — Aerospace Engineering

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D

ENGRMAE 10	PHYSICS 7C	PHYSICS 7D
CHEM 1A	PHYSICS 7LC	PHYSICS 7LD
General Education	CHEM 1LE	Basic Science
	General Education	
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
PHYSICS 7E	ENGR 54	ENGRMAE 91
PHYSICS 52A	ENGRMAE 60	General Education
ENGRMAE 30	ENGRMAE 80	
General Education		
Junior		
Fall	**Winter**	**Spring**
ENGRMAE 130A	ENGRMAE 130B	ENGRMAE 106
ENGRMAE 150	ENGRMAE 146	ENGRMAE 120
ENGRMAE 150L	ENGRMAE 157	ENGRMAE 135
General Education	General Education	General Education
Senior		
Fall	**Winter**	**Spring**
ENGRMAE 108	ENGRMAE 112	ENGRMAE 159
ENGRMAE 136	ENGRMAE 158	ENGRMAE 175
ENGRMAE 170	Technical Elective	Technical Elective
General Education	General Education	General Education

The sample program of study chart shown is typical for the major in Aerospace Engineering. This program is based upon a set of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Students who are not adequately prepared, or who wish to make changes in the sequence for other reasons, must have their programs approved by their faculty advisor. Aerospace Engineering majors must consult at least once every year with the academic counselors in the Student Affairs Office and with their faculty advisor.

Undergraduate Major in Mechanical Engineering

Program Educational Objectives: Graduates of the program will have the professional and scientific education that allows them to be successful as career engineers and in the most demanding graduate programs. Specifically, they will be able to (1) function in professional environments in industry, government, and academia applying and building upon engineering science knowledge, problem-solving skills, and communication skills; (2) function as members of teams and in leadership roles applying ethical standards including the ASME code of ethics within and beyond traditional Mechanical Engineering disciplines; and (3) remain current with technology and contemporary scientific and societal issues, and consequently improve skills and knowledge through a lifelong process of learning. (Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

The undergraduate Mechanical Engineering curriculum includes a foundation of mathematics, physics, and chemistry. Engineering courses in fundamental areas constitute much of the remaining curriculum. A few technical electives allow the undergraduate student to specialize somewhat or to pursue broader understanding. A senior capstone design experience culminates the curriculum.

Admissions

High School Students: See School Admissions (p. 468) information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following **required** courses: one year of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one course in general chemistry (with laboratory), and two additional approved courses for the major.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

Requirements for the B.S. Degree in Mechanical Engineering

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 468)**.**

Major Requirements

Mathematics and Basic Science Courses:

CHEM 1A	General Chemistry
CHEM 1LE	Accelerated General Chemistry Lab

MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 2E	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C	Classical Physics
PHYSICS 7LC	Classical Physics Laboratory
PHYSICS 7D- 7E	Classical Physics and Classical Physics
PHYSICS 7LD	Classical Physics Laboratory
PHYSICS 52A	Fundamentals of Experimental Physics
One additional General Education Category II course offered by the Schools of Physical Sciences, Biological Sciences, or Information and Computer Sciences.	
Engineering Topics Courses:	
Students must complete a minimum of 24 units of engineering design.	
Core Courses:	
ENGR 54	Principles of Materials Science and Engineering
ENGRMAE 10	Introduction to Engineering Computations
ENGRMAE 30	Statics
ENGRMAE 52	Computer-Aided Design
ENGRMAE 60	Electric Circuits
or EECS 70A	Network Analysis I
ENGRMAE 80	Dynamics
ENGRMAE 91	Introduction to Thermodynamics
ENGRMAE 106	Mechanical Systems Laboratory
ENGRMAE 107	Fluid Thermal Science Laboratory
ENGRMAE 112	Propulsion
or ENGRMAE 115	Applied Engineering Thermodynamics
ENGRMAE 120	Heat and Mass Transfer
ENGRMAE 130A	Introduction to Fluid Mechanics
ENGRMAE 130B	Introduction to Viscous and Compressible Flows
ENGRMAE 145	Theory of Machines and Mechanisms
ENGRMAE 147	Vibrations
ENGRMAE 150	Mechanics of Structures
ENGRMAE 150L	Mechanics of Structures Laboratory
ENGRMAE 151	Mechanical Engineering Design
ENGRMAE 155	Composite Materials and Structures
or ENGRMAE 156	Mechanical Behavior and Design Principles
or ENGRMAE 157	Lightweight Structures
ENGRMAE 170	Introduction to Control Systems
ENGRMAE 189	Senior Project - Special Topics (minimum of 3 units)
Technical Elective Courses:	
Students select a minimum of 16 units of technical electives. Any upper-division course in the department not used for the degree may be used as a technical elective. At least 8 units of the technical electives must come from mechanical engineering oriented MAE courses. With approval of the Undergraduate Advisor, students may choose any remaining technical elective units from other departments' upper-division courses that have primarily technical content. Preapproved courses from other departments as well as the identified mechanical engineering oriented MAE courses are listed on the MAE Web site: http://mae.eng.uci.edu/undergraduate/TechElect.htm.	
Engineering Professional Topics Course:	
ECON 20A	Basic Economics I
ENGR 190W	Communications in the Professional World

At most an aggregate total of 4 units of 199 or H199 courses may be used to satisfy degree requirements.

(The nominal Mechanical Engineering program will require 189 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary.)

Specialization in Aerospace Engineering:	
Completion of a Senior Design Project in this area, and	
select two of the following:	
ENGRMAE 112	Propulsion
ENGRMAE 135	Compressible Flow
ENGRMAE 136	Aerodynamics
ENGRMAE 158	Aircraft Performance
ENGRMAE 159	Aircraft Design
ENGRMAE 175	Dynamics and Control of Aerospace Vehicles
Specialization in Energy Systems and Environmental Engineering:	
Completion of a Senior Design Project in this area, and	
select two of the following:	
ENGRMAE 110	Combustion and Fuel Cell Systems
ENGRMAE 112	Propulsion
ENGRMAE 115	Applied Engineering Thermodynamics
ENGRMAE 117	Solar and Renewable Energy Systems
ENGRMAE 118	Sustainable Energy Systems
ENGRMAE 164	Air Pollution and Control
Specialization in Flow Physics and Propulsion Systems:	
Completion of a Senior Design Project in this area, and	
select two of the following:	
ENGRMAE 110	Combustion and Fuel Cell Systems
ENGRMAE 112	Propulsion
ENGRMAE 113	Electric Propulsion
ENGRMAE 135	Compressible Flow
Specialization in Design of Mechanical Systems:	
Completion of a Senior Design Project in this area, and	
select two of the following:	
ENGRMAE 152	Introduction to Computer-Aided Engineering
ENGRMAE 171	Digital Control Systems
ENGRMAE 172	Design of Computer-Controlled Robots
ENGRMAE 183	Computer-Aided Mechanism Design
ENGRMAE 188	Engineering Design in Industry

Design unit values are indicated at the end of each course description. The faculty advisors and the Student Affairs Office can provide necessary guidance for satisfying the design requirements. Selection of elective courses must be approved by the student's faculty advisor and the departmental undergraduate advisor.

Program of Study

The sample program of study chart shown is typical for the accredited major in Mechanical Engineering. Students should keep in mind that this program is based upon a rigid set of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Therefore, the course sequence should not be changed except for the most compelling reasons. Students who are not adequately prepared, or who wish to make changes in the sequence for other reasons, must have their programs approved by their faculty advisor. Mechanical Engineering majors must consult at least once every year with the academic counselors in the Student Affairs Office and with their faculty advisors.

Sample Program of Study — Mechanical Engineering

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
ENGRMAE 10	PHYSICS 7C	PHYSICS 7D
CHEM 1A	PHYSICS 7LC	PHYSICS 7LD
General Education	CHEM 1LE	Basic Science
	General Education	

Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 2E
PHYSICS 7E	ENGR 54	ENGRMAE 52
PHYSICS 52A	ENGRMAE 60	ENGRMAE 91
ENGRMAE 30	ENGRMAE 80	General Education
General Education		
Junior		
Fall	**Winter**	**Spring**
ENGRMAE 115	ENGRMAE 130B	ENGRMAE 106
ENGRMAE 130A	ENGRMAE 147	ENGRMAE 120
ENGRMAE 150	ENGRMAE 156 or 157	ENGRMAE 145
ENGRMAE 150L	General Education	General Education
General Education		
Senior		
Fall	**Winter**	**Spring**
ENGRMAE 107	ENGRMAE 151	ENGRMAE 189
ENGRMAE 170	Technical Elective	Technical Elective
General Education	Technical Elective	Technical Elective
	General Education	General Education

ENGRMAE 155 may be used instead of ENGRMAE 156 or ENGRMAE 157. Students can dual major in Mechanical Engineering and Aerospace Engineering by satisfying the degree requirements for both majors.

Graduate Study in Mechanical and Aerospace Engineering

The Mechanical and Aerospace Engineering faculty have special interest and expertise in four thrust areas: continuum mechanics; power, propulsion, and environment; micro/nanomechanics; and systems and design.

Continuum mechanics faculty study the physics of fluids, physics and chemistry of solids, and structural mechanics. Areas of emphasis in fluid mechanics include incompressible and compressible turbulent flows, multiphase flows, chemically reacting and other nonequilibrium flows, aeroacoustics, aerooptics, and fluid-solid interaction. In the field of solid mechanics, research and course work emphasize theoretical and computational approaches which contribute to a basic understanding of and new insight into the properties and behavior of condensed matter. General areas of interest are large-strain and large-rotation inelastic solids, constitutive modeling, and fracture mechanics. Computational algorithms center on boundary element methods and the new class of meshless methods. Studies in structural mechanics involve the analysis and synthesis of low-mass structures, smart structures, and engineered materials, with emphasis on stiffness, stability, toughness, damage tolerance, longevity, optimal life-cycle costs and self-adaptivity.

Research in power, propulsion, and environment encompasses aerospace propulsion, combustion and thermophysics, fuel cell technologies, and atmospheric physics and impacts. In aerospace propulsion, particular emphasis is placed in the areas of turbomachinery, spray combustion, combustion instability, innovative engine cycles, and compressible turbulent mixing. The topic of combustion and thermophysics addresses the fundamental fluid-dynamical, heat-transfer, and chemical mechanisms governing combustion in diverse settings. Fuel cell research encompasses the development of fuel-cell technology, hybrid engines, and thermionic devices. Activities cover the thermodynamics of energy systems, the controls associated with advanced energy systems, and systems analyses. The area of atmospheric physics and impacts deals with the modeling and controlling of chemical pollution, particle dispersion, and noise emission caused by energy-generation and propulsion devices. Research on atmospheric turbulence addresses the energy exchanges between the Earth’s land and ocean surfaces and the overlying atmosphere.

Micro/nanomechanics encompasses the thrusts of miniaturization engineering, mechatronics, and biotechnology. Miniaturization engineering is relevant to the development of small-scale mechanical, chemical and biological systems for applications in biotechnology, automotive, robotic, and alternative energy applications. It involves the establishment of scaling laws, manufacturing methods, materials options and modeling from the atom to the macro system. Mechatronic design is the integrated and optimal design of a mechanical system and its embedded control system. Main focus research is the design, modeling, and characterization of Micro Electro Mechanical Systems (MEMS). Particular emphasis is placed on analysis and design of algorithmic methods and physical systems that realize sensor-based motion planning. The thematic area of biotechnology involves the understanding, modeling, and application of fundamental phenomena in mechanical engineering, electrical engineering, and chemistry towards the development of bio-sensors and actuators.

Systems and design research is conducted in the areas of dynamic systems optimization and control, biomechanical engineering, robotics and machine learning, and design engineering. Advanced concepts in dynamics, optimization and control are applied to the areas of biorobotics, flight trajectory design, guidance and navigation, learning systems, micro sensors and actuators, flexible structures, combustion, fuel cells, and fluid-optical interactions. Biomechanical engineering integrates physiology with engineering in order to develop innovative devices and algorithms for medical diagnosis and treatment. The focus of robotics and machine learning is the creation of machines with human-like intelligence capabilities for learning. Faculty in design engineering develop methodologies to address issues ranging from defining the size and shape of components needed for force and motion specifications, to characterizing performance in terms of design parameters, cost and complexity.

Aerospace engineering research efforts combine specialties from each of the four thrust areas toward the design, modeling, and operation of complex systems.

The Department offers the M.S. and Ph.D. degrees in Mechanical and Aerospace Engineering.

Master of Science Degree

Two plans are available to pursue study toward the M.S. degree: a thesis option and a comprehensive examination option. Opportunities are available for part-time study toward the M.S. degree. The Plan of Study for both options must be developed in consultation with a Faculty Advisor and approved by the Department Graduate Advisor.

Plan I: Thesis Option

The thesis option requires completion of eight graduate, technical and science courses; the completion of an original research project with a Faculty Advisor, the writing of the thesis describing it; and approval of the thesis by a thesis committee. This plan is available for those who wish to gain research experience or as preparation for study toward the doctoral degree. Students must complete 12 units of ENGRMAE 296, 3 units of ENGRMAE 298 , and four graduate courses from a restricted list in the selected major. Additionally, four of the eight required graduate courses must be from the MAE Department. With the approval of the graduate advisor, one non-core graduate course may be replaced by an upper-division undergraduate course in MAE; this course may not have been used to satisfy the undergraduate degree requirements.

NOTE: Students who enter prior to fall of 2008 should follow the course requirements outlined within the *Catalogue* of the year they entered. The change in number of units per course is not intended to change the course requirements for the degree or to have any impact in the number of courses students are taking. As such, students will need to continue to meet the same high standards and plan of study requirements as previously required. Students will work with their advisor to create a plan of study encompassing the equivalent topical requirements, as well as the equivalent number of courses to the previous 36 unit requirement (i.e., at least 8 graduate-level courses to meet the 24, 200–289 level unit requirement).

Plan II: Comprehensive Examination Option

The comprehensive examination option requires completion of eleven graduate, technical and science courses, plus a comprehensive exam. Students must complete 3 units of ENGRMAE 298 and four graduate courses from a restricted list. Additionally, six of the eleven required graduate courses must be from the MAE Department. Up to two of the required courses may be replaced by an equivalent number of units of ENGRMAE 294, which includes execution and documentation of a research or design project under a faculty advisor. With the approval of the graduate advisor, one graduate course may be replaced by an upper-division undergraduate course in MAE; this course may not be used to satisfy both undergraduate and graduate degree requirements. Consult the MAE Department (http://mae.eng.uci.edu) website or Graduate Advisor, for detailed information on the comprehensive exam.

NOTE: Students who entered prior to fall of 2008 should follow the course requirements outlined within the *Catalogue* of the year they entered. The change in number of units per course is not intended to change the course requirements for the degree or to have any impact in the number of courses students are taking. As such, students will need to continue to meet the same high standards and plan of study requirements as previously required. Students will work with their advisor to create a plan of study encompassing the equivalent topical requirements, as well as the equivalent number of courses to the previous 36 unit requirement (i.e., at least 11 graduate-level courses to meet the 33, 200–289 level unit requirement).

Doctor of Philosophy Degree

The doctoral program in Mechanical and Aerospace Engineering is tailored to the individual needs and background of the student. The detailed program of study for each Ph.D. student is formulated in consultation with a faculty advisor who takes into consideration the objectives and preparation of the candidate.

Within this flexible framework the Department maintains specific guidelines that outline the milestones of a typical doctoral program. All doctoral students should consult the Departmental Ph.D. guidelines for program details, but there are several milestones to be passed: admission to the Ph.D. program by the faculty; completion of six non-research graduate, technical courses beyond M.S. degree requirements; passage of a preliminary examination or similar assessment of the student's background and potential for success in the doctoral program; course work; meeting departmental teaching requirements, which can be satisfied through service as a teaching assistant or equivalent; research preparation; formal advancement to candidacy in the third year (second year for students who entered with a master's degree) through a qualifying examination conducted on behalf of the Irvine division of the Academic Senate; development of a research proposal; completion of a significant research investigation, and completion and defense of an acceptable dissertation. There is no foreign language requirement. The degree is granted upon the recommendation of the Doctoral Committee and the Dean of Graduate Studies. Students enrolled in the Ph.D. program must take a full-time load (minimum of 12 units). The normative time for completion of the Ph.D. is five years (four years for students who entered with a master's degree). The maximum time permitted is seven years.

Before seeking admission, Ph.D. applicants are encouraged to communicate directly and in some detail with prospective faculty sponsors. The student's objectives and financial resources must coincide with a faculty sponsor's research interests and research support. Financial aid in the form of a teaching assistantship or fellowship may not cover the period of several years required to complete the program. During the balance of the period the student will be in close collaboration with the faculty research advisor.

Faculty

Satya N. Atluri, ScD Massachusetts Institute of Technology, *UCI Distinguished Professor of Mechanical and Aerospace Engineering* (continuum mechanics, computational mechanics, meshless methods, damage tolerance and structural integrity, computational nanoscience and technology)

James E. Bobrow, Ph.D. University of California, Los Angeles, *Professor Emeritus of Mechanical and Aerospace Engineering* (robotics, applied nonlinear control, optimization methods)

Jacob Brouwer, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Mechanical and Aerospace Engineering; Civil and Environmental Engineering* (high-temperature electrochemical dynamics, fuel cells, renewable and sustainable energy)

Donald Dabdub, Ph.D. California Institute of Technology, *Professor of Mechanical and Aerospace Engineering; Civil and Environmental Engineering* (mathematical modeling of urban and global air pollution, dynamics of atmospheric aerosols, secondary organic aerosols, impact of energy generation on air quality, chemical reactions at gas-liquid interfaces)

Derek Dunn-Rankin, Ph.D. University of California, Berkeley, *Professor of Mechanical and Aerospace Engineering; Civil and Environmental Engineering; Environmental Health Sciences* (combustion, optical particle sizing, particle aero-dynamics, laser diagnostics and spectroscopy)

Said E. Elghobashi, Ph.D. University of London, *Professor of Mechanical and Aerospace Engineering* (direct numerical simulation of turbulent, chemically reacting and dispersed two-phase flows)

Manuel Gamero-Castaño, Ph.D. Yale University, *Associate Professor of Mechanical and Aerospace Engineering* (electric propulsion, electrospray, atomization, aerosol diagnostics)

Faryar Jabbari, Ph.D. University of California, Los Angeles, *Professor of Mechanical and Aerospace Engineering* (robust and nonlinear control theory, adaptive parameter identification)

Joyce H. Keyak, Ph.D. University of California, San Francisco, *Professor in Residence of Radiological Sciences; Biomedical Engineering; Mechanical and Aerospace Engineering* (bone mechanics, finite element modeling, quantitative computed tomography, prosthetic implants, osteoporosis, metastatic tumors in bone, radiation therapy)

Arash Kheradvar, Ph.D. California Institute of Technology, *Associate Professor of Biomedical Engineering; Mechanical and Aerospace Engineering* (cardiac mechanics, cardiovascular devices, cardiac imaging)

John C. Larue, Ph.D. University of California, San Diego, *Professor of Mechanical and Aerospace Engineering* (fluid mechanics, micro-electrical-mechanical systems (MEMS), turbulence, heat transfer, instrumentation)

Abraham P. Lee, Ph.D. University of California, Berkeley, *William J. Link Chair in Biomedical Engineering and Department Chair* and *Professor of Biomedical Engineering; Mechanical and Aerospace Engineering* (Lab-on-a-Chip health monitoring instruments, drug delivery micro/nanoparticles, integrated cell sorting microdevices, lipid vesicles as carriers for cells and biomolecules, high throughput droplet bioassays, microfluidic tactile sensors)

Robert H. Liebeck, Ph.D. University of Illinois at Urbana-Champaign, *Adjunct Professor of Mechanical and Aerospace Engineering* (aircraft design)

Feng Liu, Ph.D. Princeton University, *Professor of Mechanical and Aerospace Engineering* (computational fluid dynamics and combustion, aerodynamics, aeroelasticity, propulsion, turbomachinery aerodynamics and aeromechanics)

Marc J. Madou, Ph.D. Ghent University, *UCI Chancellor's Professor of Mechanical and Aerospace Engineering; Biomedical Engineering; Chemical Engineering and Materials Science* (fundamental aspects of micro/nano-electro-mechanical systems (MEMS/NEMS), biosensors, nanofluidics, biomimetics)

J. Michael McCarthy, Ph.D. Stanford University, *Henry Samueli Endowed Chair in Engineering in the Center for Engineering Science in Design* and *Professor of Mechanical and Aerospace Engineering* (machine design and kinematic synthesis of spatial mechanisms and robots)

Vincent G. McDonell, Ph.D. University of California, Irvine, *Adjunct Professor of Mechanical and Aerospace Engineering* (droplet transport, measurement, simulation, control, analysis of liquid spray and gas fired combustion systems and alternative fuels)

Kenneth D. Mease, Ph.D. University of Southern California, *Department Chair and Professor of Mechanical and Aerospace Engineering* (flight guidance and control, nonlinear dynamical systems)

Carsten R. Mehring, Ph.D. University of California, Irvine, *Associate Adjunct Professor of Mechanical and Aerospace Engineering* (multidisciplinary multi-scale systems and phenomena)

Farghalli A. Mohamed, Ph.D. University of California, Berkeley, *Professor Emeritus of Chemical Engineering and Materials Science; Mechanical and Aerospace Engineering* (mechanical behavior of engineering materials such as metals, composites and ceramics, the correlation between behavior and microstructure, creep and superplasticity, mechanisms responsible for strengthening and fracture)

Lawrence J. Muzio, Ph.D. University of California, Berkeley, *Adjunct Professor of Mechanical and Aerospace Engineering* (thermodynamics, combustion and combustion in practical systems, air pollution formation and control, advanced diagnostics applied to practical combustion systems)

Dimitri Papamoschou, Ph.D. California Institute of Technology, *Professor of Mechanical and Aerospace Engineering* (compressible mixing and turbulence, jet noise reduction, diagnostics for compressible flow, acoustics in moving media)

Roger H. Rangel, Ph.D. University of California, Berkeley, *Professor of Mechanical and Aerospace Engineering* (fluid dynamics and heat transfer of multiphase systems including spray combustion, atomization and metal spray solidification, applied mathematics and computational methods)

David J. Reinkensmeyer, Ph.D. University of California, Berkeley, *Professor of Anatomy and Neurobiology; Biomedical Engineering; Mechanical and Aerospace Engineering; Physical Medicine and Rehabilitation* (robotics, mechatronics, biomedical engineering, rehabilitation, biomechanics, neural control of movement)

Timothy Rupert, Ph.D. Massachusetts Institute of Technology, *Assistant Professor of Mechanical and Aerospace Engineering; Chemical Engineering and Materials Science* (mechanical behavior, nanomaterials, structure property relationships, microstructural stability, grain boundaries and interfaces, materials characterization)

G. Scott Samuelsen, Ph.D. University of California, Berkeley, *Director of Advanced Power and Energy Program, Research Professor and Professor Emeritus of Mechanical and Aerospace Engineering; Civil and Environmental Engineering* (energy, fuel cells, hydrogen economy, propulsion, combustion and environmental conflict, turbulent transport in complex flows, spray physics, NOx and soot formation, laser diagnostics and experimental methods, application of engineering science to practical propulsion and stationary systems, environmental ethics)

William E. Schmitendorf, Ph.D. Purdue University, *Professor Emeritus of Mechanical and Aerospace Engineering* (control theory and applications)

William Randall Seeker, Ph.D. Kansas State University, *Adjunct Professor of Mechanical and Aerospace Engineering* (energy systems, air pollution formation and control processes and technology, chemical, kinetics, combustion science, emissions monitoring, experimental combustion diagnostics)

Andrei M. Shkel, Ph.D. University of Wisconsin-Madison, *Professor of Mechanical and Aerospace Engineering; Biomedical Engineering; Electrical Engineering and Computer Science* (design and advanced control of micro-electro-mechanical systems (MEMS), precision micro-sensors and actuators for telecommunication and information technologies, MEMS-based health monitoring systems, disposable diagnostic devices, prosthetic implants)

Athanasios Sideris, Ph.D. University of Southern California, *Professor of Mechanical and Aerospace Engineering* (robust and optimal control theory and design, neural networks, learning systems and algorithms)

William A. Sirignano, Ph.D. Princeton University, *Henry Samueli Endowed Chair in Engineering* and *Professor of Mechanical and Aerospace Engineering* (combustion theory and computational methods, multiphase flows, high-speed turbulent reacting flows, flame spread, microgravity combustion, miniature combustors, fluid dynamics, applied mathematics)

Edriss S. Titi, Ph.D. Indiana University, *Professor Emeritus of Mathematics; Mechanical and Aerospace Engineering* (analysis and partial differential equations, applied and computational mathematics)

Lorenzo Valdevit, Ph.D. Princeton University, *Associate Professor of Mechanical and Aerospace Engineering; Chemical Engineering and Materials Science* (multifunctional sandwich structures, thermal protection systems, morphing structures, active materials, MEMS, electronic packaging, cell mechanics)

Vasan Venugopalan, ScD Massachusetts Institute of Technology, *Department Chair and Professor of Chemical Engineering and Materials Science; Biomedical Engineering; Mechanical and Aerospace Engineering; Surgery* (laser-induced thermal, mechanical and radiative transport processes for application in medical diagnostics, therapeutics, biotechnology, micro-electro-mechanical systems (MEMS))

Frederic Yui-Ming Wan, Ph.D. Massachusetts Institute of Technology, *Professor of Mathematics; Mechanical and Aerospace Engineering* (applied and computational mathematics, mathematical and computational biology)

Yun Wang, Ph.D. Pennsylvania State University, *Associate Professor of Mechanical and Aerospace Engineering* (fuel cells, computational modeling, thermo-fluidics, two-phase flows, electrochemistry, Computational Fluid Dynamics (CFD), turbulent combustion)

Gregory N. Washington, Ph.D. North Carolina State University at Raleigh, *Dean of The Henry Samueli School of Engineering and Professor of Mechanical and Aerospace Engineering* (dynamic systems: modeling and control, design and control of mechanically actuated antennas, advanced control of machine tools, design and control of Hybrid Electric Vehicles, structural position, vibration control with smart materials)

Courses

ENGRMAE 10. Introduction to Engineering Computations. 4 Units.
Introduction to the solution of engineering problems through the use of the computer. Elementary programming in FORTRAN and Matlab is taught. No previous knowledge of computer programming is assumed.

(Design units: 1)

Corequisite: MATH 2A.
Prerequisite: MATH 2A.

Overlaps with ENGR 10, EECS 10, EECS 12.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGRMAE 30. Statics. 4 Units.
Addition and resolution of forces distributed forces, equivalent system of forces centroids, first moments, moments and products on inertia, equilibrium of rigid bodies, trusses, beams, cables.

(Design units: 0)

Corequisite: MATH 2D.
Prerequisite: MATH 2D and PHYSICS 7C.

Same as ENGRCEE 30, ENGR 30.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGRMAE 52. Computer-Aided Design. 4 Units.
Develops skills for interpretation and presentation of mechanical design drawings and the use of CAD in engineering design. An integrated approach to drafting based on sketching, manual drawing, and three-dimensional CAD techniques is presented.

(Design units: 0.5)

Restriction: Mechanical Engineering and Materials Science Engineering majors have first consideration for enrollment.

ENGRMAE 57. Manufacturing Processes in Engineering. 2 Units.
With laboratory. Machines and processes of mechanical manufacturing. Safety and professional procedures emphasized. Use of measuring instruments, hand tools, lathe, mill, drill press, bandsaw, grinder, welding equipment.

(Design units: 0)

Grading Option: Pass/no pass only.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGRMAE 60. Electric Circuits. 4 Units.
Design and analysis of analog circuits based on lumped circuit elements with emphasis on the use of operational amplifiers. Sinusoidal and transient response. Constructional and laboratory testing of analog circuits, and introduction to data acquisition. Materials fee.

(Design units: 2)

Corequisite: MATH 3D.
Prerequisite: PHYSICS 7D and PHYSICS 7LD.

Overlaps with EECS 70A, CSE 70A.

Restriction: Mechanical Engineering and Aerospace Engineering majors have first consideration for enrollment.

ENGRMAE 80. Dynamics. 4 Units.
Introduction to the kinetics and dynamics of particles and rigid bodies. The Newton-Euler, Work/Energy, and Impulse/Momentum methods are explored for ascertaining the dynamics of particles and rigid bodies. An engineering design problem using these fundamental principles is also undertaken. Course may be offered online.

(Design units: 0.5)

Prerequisite: MATH 2D and PHYSICS 7C.

Same as ENGRCEE 80, ENGR 80.

Restriction: School of Engineering majors have first consideration for enrollment.

ENGRMAE 91. Introduction to Thermodynamics. 4 Units.
Thermodynamic principles; open and closed systems representative of engineering problems. First and Second law of thermodynamics with applications to engineering systems and design.

(Design units: 0.5)

Prerequisite: PHYSICS 7C and MATH 2D.

Overlaps with CBEMS 45B.

Restriction: Aerospace Engineering, Civil Engineering, Environmental Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 106. Mechanical Systems Laboratory. 4 Units.
Experiments in linear systems, including op-amp circuits, vibrations, and control systems. Emphasis on demonstrating that mathematical models can be useful tools for the analysis and design of electro-mechanical systems. Materials fee.

(Design units: 2)

Prerequisite: ENGRMAE 60 or EECS 70A.

Restriction: Aerospace Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 107. Fluid Thermal Science Laboratory. 4 Units.
Fluid and thermal engineering laboratory. Experimental analysis of fluid flow, heat transfer, and thermodynamic systems. Probability, statistics, and uncertainly analysis. Report writing is emphasized and a design project is required. Materials fee.

(Design units: 1)

Corequisite: ENGRMAE 120.

Restriction: Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 108. Aerospace Laboratory. 4 Units.
Analytical and experimental investigation in aerodynamics, fluid dynamics, and heat transfer. Emphasis on study of flow over objects and lift and drag on airfoils. Introduction to basic diagnostic techniques. Report writing is emphasized. Design project is required. Materials fee.

(Design units: 2)

Prerequisite: ENGRMAE 130B.

Restriction: Aerospace Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 110. Combustion and Fuel Cell Systems. 4 Units.
Fundamentals of gaseous, liquid, and coal-fired combustion and fuel cell systems. Fuels, fuel-air mixing, aerodynamics, and combustion and fuel cell thermodynamics. Operating and design aspects of practical systems including engines, power generators, boilers, furnaces, and incinerators.

(Design units: 2)

Prerequisite: ENGRMAE 115.

Restriction: Chemical Engineering, Environmental Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 112. Propulsion. 4 Units.
Application of thermodynamics and fluid mechanics to basic flow processes and cycle performance in propulsion systems: gas turbines, ramjets, scramjets, and rockets.

(Design units: 1)

Prerequisite: ENGRMAE 130B.

Restriction: Aerospace Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 113. Electric Propulsion. 4 Units.
Space propulsion requirements and maneuvers, stressing those best suited to electric propulsion. An introduction to plasma physics. Electrothermal, electromagnetic and electrostatis accelerators, with emphasis in technologies (ion engines, Hall thrusters and colloidal thrusters) belonging to the latter family.

(Design units: 1)

Prerequisite: ENGRMAE 112.

Concurrent with ENGRMAE 213.

ENGRMAE 114. Fuel Cell Fundamentals and Technology. 4 Units.
Introduction to electrochemistry and electrocatalysis; nature of fuel-cell electrodes and electrolytes; charge transfer reactions at interfaces; charge transport and mass transport processes; fuel processing reactions; determination of fuel cell efficiency, fuel flexibility, emissions and other characteristics.

(Design units: 0)

Prerequisite: ENGRMAE 115.

Restriction: Aerospace Engineering and Mechanical Engineering majors have first consideration for enrollment. Seniors only.

Concurrent with ENGRMAE 214A

ENGRMAE 115. Applied Engineering Thermodynamics. 4 Units.
Application of thermodynamic principles to compressible and incompressible processes representative of practical engineering problems-power cycles, refrigeration cycles, multicomponent mixtures, air conditioning systems, combustion and compressible flow. Design of a thermodynamic process.

(Design units: 2)

Prerequisite: ENGRMAE 91.

Restriction: Chemical Engineering, Environmental Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 117. Solar and Renewable Energy Systems. 4 Units.
Basic principles, design, and operation of solar and other renewable energy systems including solar photo-voltaic, solar thermal, hydroelectric, wind, and biomass gasification and combustion. Includes power generation and storage, and renewable fuels for transportation and stationary power generation.

(Design units: 1)

Prerequisite: ENGRMAE 115.

Restriction: Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 118. Sustainable Energy Systems. 4 Units.
Basic principles, design, and operation of sustainable energy systems including wind, solar photo-voltaic and thermal, hydroelectric, geothermal, oceanic, biomass combustion, advanced coal, and next generation nuclear. Includes power generation, storage, and transmission for stationary power generation.

(Design units: 1)

Prerequisite: ENGRMAE 115.

Concurrent with ENGRMAE 218.

ENGRMAE 120. Heat and Mass Transfer. 4 Units.
Fundamentals of heat and mass transfer. Conduction, heat and mass transfer by convection in laminar and turbulent flows, radiation heat transfer, and combined modes of heat and mass transfer. Practical engineering applications.

(Design units: 0)

Prerequisite: MATH 2D and PHYSICS 7C and ENGRMAE 91 and ENGRMAE 130B. MATH 2D with a grade of C- or better. PHYSICS 7C with a grade of C- or better. ENGRMAE 91 with a grade of C- or better.

Overlaps with CBEMS 125B.

Restriction: Aerospace Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 130A. Introduction to Fluid Mechanics. 4 Units.
Fundamental concepts; fluid statics; fluid dynamics; Bernoulli's equation; control-volume analysis; basic flow equations of conservation of mass, momentum, and energy; differential analysis; potential flow; viscous incompressible flow.

(Design units: 0)

Prerequisite: PHYSICS 7C and MATH 2D and MATH 2E and ENGRMAE 30 and ENGRMAE 80. MATH 2D with a grade of C- or better. MATH 2E with a grade of C- or better. ENGRMAE 30 with a grade of C- or better. ENGRMAE 80 with a grade of C- or better.

Overlaps with CBEMS 125A, ENGRCEE 170.

Restriction: Aerospace Engineering, Civil Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 130B. Introduction to Viscous and Compressible Flows. 4 Units.
Introduction to the analysis of viscous flows including fully developed laminar and turbulent flow in a pipe, viscous flow over immersed bodies, evaluation of boundary layer characteristics, lift and drag, compressible flow in a duct and normal shock waves.

(Design units: 1)

Prerequisite: MATH 2D and PHYSICS 7C and ENGRMAE 91 and ENGRMAE 130A. MATH 2D with a grade of C- or better. PHYSICS 7C with a grade of C- or better. ENGRMAE 91 with a grade of C- or better.

Restriction: Aerospace Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 135. Compressible Flow. 4 Units.
Compressibility effects in fluid mechanics. One-dimensional flow with area variation, friction, heat transfer, and shocks. Design of gas supply systems. Two-dimensional flow with oblique shocks and isentropic waves. Supersonic airfoil theory and design, wind tunnel design. Basic diagnostics.

(Design units: 1)

Prerequisite: ENGRMAE 91 and ENGRMAE 130A and ENGRMAE 130B.

Restriction: Aerospace Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 136. Aerodynamics. 4 Units.
Analysis of flow over aircraft wings and airfoils, prediction of lift, moment and drag. Topics: fluid dynamics equations; flow similitude; viscous effects; vorticity, circulation, Kelvin's theorem, potential flow; superposition principle, Kutta-Joukowski theorem; thin airfoil theory; finite wing theory; compressibility.

(Design units: 1)

Prerequisite: ENGRMAE 130A and ENGRMAE 130B.

Restriction: Aerospace Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 140. Introduction to Engineering Analysis. 4 Units.
Analytical methods of engineering. Nonhomogeneous linear ordinary differential equations. Variable coefficient linear ordinary differential equations. Eigenfunction expansions. Laplace transforms. Introduction to Fourier transforms. Linear partial differential equations.

(Design units: 0)

Prerequisite: MATH 2E and MATH 3D.

Restriction: Aerospace Engineering, Civil Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 145. Theory of Machines and Mechanisms. 4 Units.
Presents the basic mathematical theory of machines. Focuses on the principles of cam design, gearing and gear train analysis, and the kinematic and dynamic analysis of linkages, together with an introduction to robotics.

(Design units: 2)

Prerequisite: ENGRMAE 52 and ENGRMAE 80 and MATH 3A.

Restriction: Mechanical Engineering and Materials Science Engineering majors have first consideration for enrollment.

ENGRMAE 146. Astronautics. 4 Units.
Motion in gravitational force fields, orbit transfers, rocketry, interplanetary trajectories, attitude dynamics and stabilization, navigation, reentry, the space environment.

(Design units: 1)

Prerequisite: ENGRMAE 80.

Restriction: Aerospace Engineering majors have first consideration for enrollment.

ENGRMAE 147. Vibrations. 4 Units.
Analysis of structural vibrations of mechanical systems. Modeling for lumped and distributed parameter systems. Topics: single and multi-degree of freedom systems, free and forced vibrations, Fourier series, convolution integral, mass/stiffness matrices, and normal modes with design project.

(Design units: 1)

Prerequisite: ENGRMAE 80 and MATH 2E.

Restriction: Materials Science Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 150. Mechanics of Structures. 4 Units.
Stresses and strains. Torsion. Bending. Beam deflection. Shear force and moment distributions in beams. Yielding and buckling of columns. Combined loading. Transformation of stresses and strain. Yielding criteria. Finite elements analysis of frames. Dynamic of two-bar truss.

(Design units: 2)

Prerequisite: (ENGRCEE 30 or ENGR 30 or ENGRMAE 30) and MATH 3A.

Same as ENGR 150.
Overlaps with ENGRCEE 150.

Restriction: Aerospace Engineering, Chemical Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 150L. Mechanics of Structures Laboratory. 1 Unit.
Experimental techniques for the measurement of mechanical properties of materials and structures. Methods for load, displacement, and strain measurements. Tension, bending, compression tests. Determination of strength, stiffness, toughness for metals, polymers, ceramics, and composites. Deformation of structures. Materials fee.

(Design units: 0)

Corequisite: ENGRMAE 150.
Prerequisite: ENGRMAE 30 or ENGR 30 or ENGRCEE 30.

Overlaps with ENGRCEE 150L.

Restriction: Aerospace Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 151. Mechanical Engineering Design. 4 Units.
A comprehensive group design project experience that involves identifying customer needs, idea generation, reverse engineering, preliminary design, standards, prototype development, testing, analysis, and redesign of a product involving fluid, thermal, and mechanical components. Introduces design for manufacturing and the environment. Materials fee.

(Design units: 3)

Prerequisite: ENGRMAE 120 and ENGRMAE 145 and ENGRMAE 170.

Restriction: Seniors only. Materials Science Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 152. Introduction to Computer-Aided Engineering. 4 Units.
Elements and principles of computer-aided engineering with modern hardware and software are presented with a design focus. Case studies are used to assist in finite-element method techniques. Not offered every year.

(Design units: 2)

Prerequisite: (ENGRMAE 150 or ENGR 150) and ENGRMAE 120.

Restriction: Materials Science Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 153. Advanced BIOMEMS Manufacturing Techniques. 4 Units.
Introduction to BIOMEMS. Advanced biotechnology/biomedicine equipment based on MEMS and NEMS. Fundamentals of MEMS/NEMS sensing techniques and the biological and physics principles involved and the preferred MEMS and NEMS manufacturing techniques.

(Design units: 0)

Concurrent with ENGRMAE 253.

ENGRMAE 155. Composite Materials and Structures. 4 Units.
Motivation for composite materials. Different classifications according to the nature of the matrix (PMC, MMC, CMC) and the reinforcement topology (fibers, whiskers, particulates). Mechanical properties. Failure mechanisms. Designing with composite materials. Advantages and limitations of homogenization techniques for numerical modeling.

(Design units: 0)

Prerequisite: ENGR 54 and (ENGRMAE 150 or ENGRCEE 150 or ENGR 150).

Restriction: Chemical Engineering, Civil Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

Concurrent with ENGRMAE 255.

ENGRMAE 156. Mechanical Behavior and Design Principles. 4 Units.
Principles governing structure and mechanical behavior of materials, relationship relating microstructure and mechanical response with application to elasticity, plasticity, yielding, necking, creep, and fracture of materials. Introduction to experimental techniques to characterize the properties of materials. Design parameters.

(Design units: 2)

Prerequisite: ENGR 54.

Same as CBEMS 155.

Restriction: Chemical Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 157. Lightweight Structures. 4 Units.
Fundamentals of torsion and bending. Analysis and design of thin-wall and composite beams. Stress analysis of aircraft components. Stiffness, strength, and buckling. Introduction to the Finite Element method and its application to plates and shells.

(Design units: 2)

Prerequisite: ENGR 150 or ENGRCEE 150 or ENGRMAE 150.

Restriction: Aerospace Engineering, Civil Engineering, Materials Science Engineering, and Mechanical Engineering majors have frist consideration for enrollment.

ENGRMAE 158. Aircraft Performance. 4 Units.
Flight theory applied to subsonic propeller and jet aircraft. Nature of aerodynamic forces, drag and lift of wing and fuselage, high-lift devices, level-flight performance, climb and glide performance, range, endurance, take-off and landing distances, static and dynamic stability and control.

(Design units: 2)

Prerequisite: ENGRMAE 130A.

Restriction: Aerospace Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 159. Aircraft Design. 4 Units.
Preliminary design of subsonic general aviation and transport aircraft with emphasis on layout, aerodynamic design, propulsion, and performance. Estimation of total weight and weight distribution, design of wings, fuselage, and tail, selection and location of engines, prediction of overall performance.

(Design units: 4)

Prerequisite: ENGRMAE 112 and ENGRMAE 136 and ENGRMAE 158.

Restriction: Aerospace Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 164. Air Pollution and Control. 4 Units.
Sources, dispersion, and effects of air pollutants. Topics include emission factors, emission inventory, air pollution, meteorology, air chemistry, air quality modeling, impact assessment, source and ambient monitoring, regional control strategies.

(Design units: 2)

Prerequisite: ENGRMAE 91 and (ENGRMAE 130A or ENGRCEE 170).

Restriction: Chemical Engineering, Environmental Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 170. Introduction to Control Systems. 4 Units.
Feedback control systems. Modeling, stability, and systems specifications. Root locus, Nyquist, and Bode methods of analysis and design.

(Design units: 2)

Prerequisite: MATH 2D and PHYSICS 7C and ENGRMAE 80 and ENGRMAE 106. MATH 2D with a grade of C- or better. PHYSICS 7C with a grade of C- or better. ENGRMAE 80 with a grade of C- or better.

Restriction: Aerospace Engineering, Civil Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 171. Digital Control Systems. 4 Units.
Methods for analysis and design of discrete-time control systems. Z-transforms, difference equations, discrete Fourier transforms. Sampling theorem and applications. Z-plane stability, frequency response. Digital controller design. Introduction to digital filters.

(Design units: 2)

Prerequisite: ENGRMAE 170.

Restriction: Civil Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 172. Design of Computer-Controlled Robots. 4 Units.
Students design a small robotic device and program it to exhibit sentient behaviors. The basic aspects of mechatronic design are covered, including motor and sensor selection, control strategies, and microcomputer programming for the implementation of control paradigms.

(Design units: 3)

Corequisite: ENGRMAE 60.
Prerequisite: ENGRMAE 170.

Restriction: Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 175. Dynamics and Control of Aerospace Vehicles. 4 Units.
Equations of motion, linearization, stability derivatives, and longitudinal and lateral modes of motion. Handling qualities, sensors and actuators, and effects of various feedbacks on stability and performance. Stability augmentation. Autopilot design.

(Design units: 3)

Prerequisite: ENGRMAE 106.

Restriction: Aerospace Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 183. Computer-Aided Mechanism Design. 4 Units.
Focuses on design of planar, spherical, and spatial mechanisms using computer algebra and graphics. Topics include exact and approximate analytical design techniques. Students are required to use existing software (or develop new algorithms) to design various mechanisms for new applications.

(Design units: 4)

Prerequisite: MATH 3A.

Restriction: Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 185. Numerical Analysis in Mechanical Engineering. 4 Units.
Solution of mechanical-engineering equations by means of numerical methods. Errors in numerical analysis. Nonlinear equation and sets of equations. Numerical differentiation and integration. Ordinary differential equations. Boundary-value problems. Partial differential equations.

(Design units: 2)

Prerequisite: ENGRMAE 10 and MATH 3D and MATH 2E.

Overlaps with MATH 105A.

Restriction: Civil Engineering and Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 188. Engineering Design in Industry. 4 Units.
Principles of engineering design in the context of an industrial application. Local manufacturing firms define an engineering design project to be completed in 10 weeks. Projects include initial brainstorming to final design, with a formal presentation.

(Design units: 4)

Repeatability: May be taken for credit 3 times.

Restriction: Mechanical Engineering majors have first consideration for enrollment.

ENGRMAE 189. Senior Project - Special Topics. 1-4 Units.
Group or individual senior project of theoretical or applied nature involving design. Materials fee.

(Design units: 1-4)

Repeatability: May be taken for credit for 12 units as topics vary.

Restriction: Seniors only. Mechanical Engineering majors only.

ENGRMAE 195. Seminars in Engineering. 1-4 Units.
Seminars by individual faculty in major fields of interest. Materials fee.

(Design units: 1-4)

Repeatability: Unlimited as topics vary.

ENGRMAE 198. Group Study. 1-4 Units.
Group study of selected topics in Aerospace and Mechanical Engineering.

(Design units: 1-4)

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

ENGRMAE 199. Individual Study. 1-4 Units.
For undergraduate Engineering majors in supervised but independent reading, research, or design. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Repeatability: May be taken for credit for 8 units.

ENGRMAE 199P. Individual Study. 1-4 Units.
For undergraduate Engineering majors in supervised but independent reading, research, or design. Students taking individual study for design are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

ENGRMAE 200A. Engineering Analysis I. 4 Units.
Linear algebra, including vector spaces, matrices, linear systems of equations, least squares, and the eigenvalue problem. Ordinary differential equations, including analytical and numerical solution methods, stability, and phase portraits.

Restriction: Graduate students only.

ENGRMAE 200B. Engineering Analysis II. 4 Units.
Review of ordinary differential equations, including Bessel and Legendre functions. Partial differential equations, including the diffusion equation, Laplace's equation, and the wave equation. Fourier series, Fourier and Laplace transforms and their applications.

Restriction: Graduate students only.

ENGRMAE 205. Perturbation Methods in Engineering. 4 Units.
Asymptotic Expansions of integrals. Regular and singular perturbations. Perturbation methods for ordinary and partial differential equations. Matched asymptotic expansions. Multiple-scale asymptotic expansion schemes. Not offered every year.

Prerequisite: ENGRMAE 200A and ENGRMAE 200B or knowledge of linear differential equations.

Restriction: Graduate students only.

ENGRMAE 206. Nonlinear Optimization Methods. 4 Units.
Numerical methods for constrained and unconstrained optimization. Necessary and sufficient conditions for optimimality. Conjugate gradient, variable metric algorithms. Gradient projection, penalty functions, and Lagrange methods. Not offered every year.

Prerequisite: ENGRMAE 200A.

Restriction: Graduate students only.

ENGRMAE 207. Methods of Computer Modeling in Engineering and the Sciences. 4 Units.
Unified introduction to finite volume, finite element, field-boundary element, meshless, primal, dual, and mixed methods. Nonlinear problems posed by ordinary as well as partial differential equations. Computer implementations and comparisons of accuracy and convergence.

Restriction: Graduate students only.

ENGRMAE 210. Advanced Fundamentals of Combustion. 4 Units.
Premixed, nonpremixed, and heterogenous reactions, with emphasis on kinetics, thermal ignition, turbulent flame propogation, detonations, explosions, flammability limits, diffusion flame, quenching, flame stabilization, and particle and spray combustion. Not offered every year.

Prerequisite: ENGRMAE 224 or ENGRMAE 230B.

Restriction: Graduate students only.

ENGRMAE 212. Engineering Electrochemistry: Fundamentals and Applications. 4 Units.
Introduction to engineering electrochemistry fundamentals and applications. Examine thermodynamics and transport principles in typical electrochemical systems. Electrochemical sensors, batteries, fuel cells, and supercapacitors. Manufacturing aspects will also be covered.

Prerequisite: ENGRMAE 91.

Restriction: Graduate students only.

ENGRMAE 213. Electric Propulsion. 4 Units.
Space propulsion requirements and maneuvers, stressing those best suited to electric propulsion. An introduction to plasma physics. Electrothermal, electromagnetic and electrostatic accelerators, with emphasis in technologies (ion engines, Hall thrusters and colloidal thrusters) belonging to the latter family.

Restriction: Graduate students only.

Concurrent with ENGRMAE 113.

ENGRMAE 214A. Fuel Cell Fundamentals and Technology. 4 Units.
Introduction to electrochemistry and electrocatalysis; nature of fuel-cell electrodes and electrolytes; charge transfer reactions at interfaces; charge transport and mass transport processes; fuel processing reactions; determination of fuel cell efficiency, fuel flexibility, emissions and other characteristics.

Restriction: Graduate students only.

Concurrent with ENGRMAE 114

ENGRMAE 214B. Fuel Cell Systems and Degradation. 4 Units.
Fuel cell systems design; impacts of operating conditions; experimental and theoretical analysis methods for fuel cells systems; introduction to degradation mechanisms and mitigation techniques; provides broad insight into fuel-cell science, technology, system design and operation. Offered every other year.

Prerequisite: ENGRMAE 214A.

Restriction: Graduate students only.

ENGRMAE 214C. PEM Fuel Cells . 4 Units.
An in-depth introduction to the fundamentals of PEM fuel cells, including thermodynamics, kinetics, and transport in electrochemical systems. Topics of specific interest to mechanical engineers will include water/heat management and dynamic responses.

Prerequisite: ENGRMAE 214A.

Restriction: Graduate students only.

ENGRMAE 215. Advanced Combustion Technology. 4 Units.
Pollutant formation and experimental methods. Formation of gaseous pollutants and soot; transformation and emission of fuel contaminants in gas, liquid, and solid fuel combustion; methods employed to measure velocity, turbulence intensity, temperature, composition, particle size; methods to visualize reacting flows.

Prerequisite: ENGRMAE 110 and ENGRMAE 200A and (ENGRMAE 230A or ENGRMAE 270A).

Restriction: Graduate students only.

ENGRMAE 216. Statistical Thermodynamics. 4 Units.
Statistics of independent particles, development of quantum mechanical description of atoms and molecules, application of quantum mechanics, evaluation of thermodynamics properties for solids, liquids, and gases, statistical mechanics of dependent particles (ensembles).

Prerequisite: ENGRMAE 91.

Restriction: Graduate students only.

ENGRMAE 217. Generalized Thermodynamics. 4 Units.
Generalized thermodynamics develops the laws of continuum thermodynamics from a set of plausible and intuitive postulates. The postulates are motivated qualitatively by a statistical description of matter and are justified by a posterior success for the resulting theory.

Prerequisite: ENGRMAE 91 or ENGRMAE 115.

Restriction: Graduate students only.

ENGRMAE 218. Sustainable Energy Systems. 4 Units.
Basic principles, design and operation of sustainable energy systems including wind, solar photo-voltaic and thermal, hydroelectric, geothermal, oceanic, biomass combustion, advanced coal and next generation nuclear. Includes power generation, storage, and transmission for stationary power generation.

Restriction: Graduate students only.

Concurrent with ENGRMAE 118.

ENGRMAE 220. Conduction Heat Transfer. 4 Units.
Steady state and transient conduction heat transfer in one- and multi-dimensional geometries. Analytical methods, exact and approximate. Numerical techniques are also included.

Prerequisite: ENGRMAE 120.

Restriction: Graduate students only.

ENGRMAE 221. Convective Heat and Mass Transfer. 4 Units.
Laminar and turbulent convective heat and mass transfer in external and internal flows. Forced and free convection. Exact and approximate solutions. Similarity solutions. Variable properties. Concentration boundary layer theory. Mass transfer conductance.

Prerequisite: ENGRMAE 230B.

Restriction: Graduate students only.

ENGRMAE 222. Radiative Heat Transfer. 4 Units.
Black body radiation. Radiative transport equations for surfaces separated by non-participating media. Radiant energy transfer through absorbing, emitting, and scattering media. Radiation-conduction interaction. Radiation-convection interaction. Introduction to finite-difference solutions.

Restriction: Graduate students only.

ENGRMAE 223A. Numerical Methods in Heat, Mass, and Momentum Transport (Laminar Flows) I. 4 Units.
Introduction to the discretization of various types of partial differential equations (parabolic, elliptic, hyperbolic). Finite-volume discretization for one- and two-dimensional flows. Use of a two-dimensional elliptic procedure to predict sample laminar flows.

Corequisite: ENGRMAE 230A.
Prerequisite: ENGRMAE 230A.

Restriction: Graduate students only.

ENGRMAE 223B. Numerical Methods in Heat, Mass, and Momentum II. 4 Units.
Introduction to turbulence. Reynolds-averaging of Navier-Stokes equations. Second-order closure of the average equations. Use of two-dimensional elliptic procedure to predict confined turbulent flows. Not offered every year.

Prerequisite: ENGRMAE 223A.

Restriction: Graduate students only.

ENGRMAE 224. Advanced Transport Phenomena. 4 Units.
Fundamentals of transport phenomena in fluid (gas and liquid), solid, and nano systems. Conservation equations, fundamentals of diffusion, ion transport, dispersion in turbulent/laminar flows, absorption, differential/staged distillation, transport in membranes, and nano/microscale transport phenomena. Not offered every year.

Prerequisite: ENGRMAE 120.

Restriction: Graduate students only.

ENGRMAE 226. Special Topics in Fluid and Thermal Sciences. 1-4 Units.
Special topics of current interest in fluid mechanics, heat and mass transfer, multiphase flows, or combustion. Emphasis could be placed on theory, computational methods, or experimental techniques.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ENGRMAE 230A. Inviscid Incompressible Fluid Mechanics I. 4 Units.
Equations of motion. Vector notation. Flow kinematics. Potential flow and complex potential. Vorticity and circulation. Bernoulli's theorem. Crocco's theorem. Conformal, Joukowski, and Schwarz-Christoffel transformations.

Prerequisite: ENGRMAE 130A.

Restriction: Graduate students only.

ENGRMAE 230B. Viscous Incompressible Fluid Mechanics II. 4 Units.
Review of mass, momentum, energy equations. Stress tensor, constitutive relations. Laminar flows. Stokes and Oseen flows. Self-similarity. Boundary layer theory: thin-layer approximation, Falkner-Skan, Blasius solutions, integral methods. Jet, wake, cavity flows. Introduction to turbulence: instability, Reynolds averaging, mixing length.

Restriction: Graduate students only.

ENGRMAE 230C. Compressible Fluid Dynamics. 4 Units.
One-dimensional unsteady flow; Riemann invariants, acoustics, shock tube. Two-dimensional flow: shock polars, linear theory, similarity rules, method of characteristics. Three dimensional flow: slender-body theory. Effects of viscosity and conductivity: laminar boundary layer, Crocco-Busemann relations.

Prerequisite: ENGRMAE 230A or ENGRMAE 230B.

Restriction: Graduate students only.

ENGRMAE 230D. Theoretical Foundations of Fluid Mechanics. 4 Units.
Well-posed problems and boundary, initial, and interface conditions; strong and weak solutions. Similarity, perturbation theory and limit behavior, bifurcations. Dispersive and nondispersive wave propagation, acoustics, ship waves, internal gravity waves, water waves. Vortices: mutual interactions and stability. Jets, wakes, cavities.

Prerequisite: ENGRMAE 230A and ENGRMAE 230B.

Restriction: Graduate students only.

ENGRMAE 231. Fundamentals of Turbulence. 4 Units.
Phenomenon of turbulence. Reynolds equations. Dynamics of turbulence. Free turbulent shear flows. Wall-bounded turbulent shear flows. Turbulent transport of scalar quantities. Spectral dynamics. Mathematical models of turbulence.

Prerequisite: ENGRMAE 230A and ENGRMAE 230B.

Restriction: Graduate students only.

ENGRMAE 233. Turbulent Free Shear Flows. 4 Units.
Practical and theoretical aspects of turbulent free shear flows. Instability, global scaling laws, mixing, and noise generation in incompressible and compressible shear layers, jets, and wakes. Kelvin-Helmholtz instability, near- and far-field growth rates, effect of compressibility, aeroacoustics of jets.

Prerequisite: ENGRMAE 200B and ENGRMAE 230A and ENGRMAE 230B.

Restriction: Graduate students only.

ENGRMAE 236. Nonequilibrium Gas Dynamics. 4 Units.
Molecular description of fluid flow. Boltzmann equation. Chapman-Enskog expansion for flows with translational nonequilibrium. Shock structure. Inviscid flows with chemical and vibrational nonequilibrium. Not offered every year.

Prerequisite: ENGRMAE 230C.

Restriction: Graduate students only.

ENGRMAE 237. Computational Fluid Dynamics. 4 Units.
Mathematical, physical, and computational fundamentals of computational fluid dynamics, numerical methods for solving the Euler and Navier-Stokes equations. Topics include: finite-difference and finite-volume discretization, time marching methods, von Neumann analysis, upwinding, flux splitting, TVD, and other high-resolution shock-capturing schemes.

Prerequisite: ENGRMAE 230C.

Restriction: Graduate students only.

ENGRMAE 238. Experimental Fluid Dynamics. 4 Units.
Concepts and techniques for measurement of fluid motion. Quantitative and qualitative flow visualization. Flow facilities, shadowgraph, schlieren, interferometer, thermal anemometer. Laser diagnostics, fluorescence, Rayleigh, Raman, Mie scattering. Laser-Doppler, particle-image, and image-correlation velocimetry. Three- and four-dimensional digital imaging.

Prerequisite: ENGRMAE 230A and ENGRMAE 230B.

Restriction: Graduate students only.

ENGRMAE 241. Dynamics. 4 Units.
Kinematics and dynamics of three-dimensional motions. Lagrange's equations, Newton-Euler equations. Applications include robot systems and spinning satellites.

Prerequisite: ENGRMAE 147.

Restriction: Graduate students only.

ENGRMAE 242. Robotics. 4 Units.
Spatial rigid-body transformations. Forward and inverse kinematics. Jacobian of serial and parallel chains. Screw coordinates and transformations. Rate and static analyses using screw theory. Singularity analysis. Trajectory generation. Not offered every year.

Restriction: Graduate students only.

ENGRMAE 243. Spaceflight Mechanics. 4 Units.
Accurate force modeling; spacecraft trajectory design problem; two-body dynamics; Lambert problem; orbit perturbations and maintenance; applications to Earth and Moon missions; gravity assists and three-body dynamics; applications to Moon, Mars, interplanetary missions; libration point missions and dynamical system theory methods.

Restriction: Graduate students only.

ENGRMAE 244. Theoretical Kinematics. 4 Units.
Spatial rigid body kinematics is presented with applications to robotics. Orthogonal Matrices, Rodrigues' formula, Quaternions, Plucker coordinates, screw theory, and dual numbers are studied using modern projective geometry and multi-linear algebra. Applications include trajectory planning, inverse kinematics, and workspace analysis.

Restriction: Graduate students only.

ENGRMAE 245. Spatial Mechanism Design. 4 Units.
Fundamental kinematic theory required for planar, spherical, and spatial mechanism design. The focus is on algebraic methods for the exact solution of constraint equations. Not offered every year.

Restriction: Graduate students only.

ENGRMAE 247. Micro-System Design. 4 Units.
Covers the fundamentals of the many disciplines needed for design of Micro-Electro-Mechanical Systems (MEMS): microfabrication technology, structural mechanics on micro-scale, electrostatics, circuit interface, control, computer-aided design, and system integration.

Same as EECS 278.

Restriction: Graduate students only.

ENGRMAE 249. Micro-Sensors and Actuators. 4 Units.
Introduction to the technology of Micro-Electro-Mechanical Systems (MEMS). Fundamental principles and applications of important microsensors, actuation principles on microscale. Introduction to the elements of signal processing; processing of materials for micro sensor/actuator fabrication; smart sensors and microsensor/microactuator array devices.

Same as EECS 279.

Restriction: Graduate students only.

ENGRMAE 250. Biorobotics. 4 Units.
Sensors, actuators, and neural circuits for biological movement control from an engineering perspective. Current approaches to robotic and mechatronic devices that support and enhance human movement in health and following neurologic injuries like stroke and spinal cord injury.

Restriction: Graduate students only.

ENGRMAE 252. Fundamentals of Microfabrication. 4 Units.
Introduces Engineering and Science students to the science of miniaturization. Different options to make very small machines (micro and nano size) are reviewed, materials choices are discussed, scaling laws are analyzed, and many practical applications are listed.

Restriction: Graduate students only.

ENGRMAE 253. Advanced BIOMEMS Manufacturing Techniques. 4 Units.
Introduction to BIOMEMS. Advanced biotechnology/biomedicine equipment based on MEMS and NEMS. Fundamentals of MEMS/NEMS sensing techniques and the biological and physics principles involved and the preferred MEMS and NEMS manufacturing techniques.

Restriction: Graduate students only.

Concurrent with ENGRMAE 153.

ENGRMAE 254. Mechanics of Solids and Structures. 4 Units.
Finite deformation kinematics; stress and strain measures; invariance in solid mechanics; objective rates; constitutive theory of elastic and inelastic solids; rate formulations; computational approaches; theories of plates and shells; applications to aerospace vehicles.

Restriction: Graduate students only.

ENGRMAE 255. Composite Materials and Structures. 4 Units.
Motivation for composite materials. Different classifications according to the nature of the matrix (PMC, MMC, CMC) and the reinforcement topology (fibers, whiskers, particulates). Mechanical properties. Failure mechanisms. Designing with composite materials. Advantages and limitations of homogenization techniques for numerical modeling.

Restriction: Graduate students only.

Concurrent with ENGRMAE 155.

ENGRMAE 258. Mechanical Behavior of Solids - Continuum Theories. 4 Units.
Presents a continuum, macroscopic view of deformation and failure of solids. Covers elasticity, plasticity, visco-elasticity, visco-plasticity, fracture and fatigue. Topics include discussions of physical behavior, mathematical formalism and measurement techniques.

Prerequisite: ENGRMAE 254.

Restriction: Graduate students only.

ENGRMAE 259. Mechanical Behavior of Solids - Atomistic Theories. 4 Units.
Presents atomistic mechanisms that control mechanical behavior of materials. Covers plasticity, dislocation theory, strengthening mechanisms, high-temperature diffusion and gain boundary sliding, shear localization, void formation, ductile rupture, brittle fracture and fatigue.

Restriction: Graduate students only.

ENGRMAE 260. Current Issues Related to Tropospheric and Stratosheric Processes. 4 Units.
Examination of current issues related to the atmosphere, including energy usage; toxicology; effects on humans, forests, plants, and ecosystems; particulate matter (PM10); combustion; modeling and meteorology; airborne toxic chemicals and risk assessment; application of science to development of public policies.

Prerequisite: ENGRMAE 164 or ENGRMAE 261 or CHEM 245 or EARTHSS 240.

Same as CHEM 241.

ENGRMAE 261. Air Quality Modeling. 4 Units.
Fundamental principles necessary to understand the dynamics of air pollutants. Derivation and description of mathematical techniques for the numerical solution of the atmospheric equation. Formulation and development of air quality models. Not offered every year.

Prerequisite: ENGRMAE 230A and ENGRMAE 230B and ENGRMAE 10.

Restriction: Graduate students only.

ENGRMAE 270A. Linear Systems I. 4 Units.
Input-output and state-space representations of continuous-time linear systems. State transition matrices, Controllability and observability. Irreducible realizations. State feedback and observer design.

Prerequisite: ENGRMAE 170 and EECS 160A.

Restriction: Graduate students only.

ENGRMAE 270B. Linear Systems II. 4 Units.
Advanced topics in linear systems: bases, linear operator representations, and Jordan forms. Review of dynamical systems, and stability. Time-varying systems, discrete-time representations, and multi-input/multi-output systems. Introduction to continuous and discrete time linear regulator (LQR) problems. Not offered every year.

Prerequisite: ENGRMAE 270A.

Restriction: Graduate students only.

ENGRMAE 272. Robust Control Theory. 4 Units.
Methods for control design of systems with uncertainty. Feedback stability and small gain theorem. Multivariable stability margins and multiplier theory. H-infinity-optimal control, linear matrix inequalities. Not offered every year.

Prerequisite: ENGRMAE 270A.

Restriction: Graduate students only.

ENGRMAE 273. Control of Robot Systems. 4 Units.
Dynamic analysis and control system design of open- and closed-chained mechanisms. Methods for real time control of nonlinear systems. Lyapunov Stability. Advanced motion planning algorithms. Not offered every year.

Prerequisite: ENGRMAE 270A and ENGRMAE 241.

Restriction: Graduate students only.

ENGRMAE 274. Optimal Control. 4 Units.
Principles and methods of optimal control. Topics include: objectives and issues in controlling nonlinear systems; linear variational and adjoint equations; optimality conditions via variational calculus, maximum principle, and dynamic programming; solution methods; applications to control of robots and aerospace vehicles.

Restriction: Graduate students only.

ENGRMAE 275. Nonlinear Feedback Systems. 4 Units.
Advanced tools for feedback control system analysis and synthesis. Norms, operators, Lp spaces, contraction mapping theorem, Lyapunov techniques along with their extensions. Circle criterion positivity and passivity. Applications to nonlinear control methods, such as sliding mode or adaptive techniques.

Prerequisite: ENGRMAE 270B.

Restriction: Graduate students only.

ENGRMAE 276. Geometric Nonlinear Control. 4 Units.
Using the mathematics of differential geometry, a number of the concepts and results of linear systems theory have been extended to nonlinear systems. Describes these extensions and illustrate their use in nonlinear system analysis and design. Not offered every year.

Prerequisite: ENGRMAE 200A and ENGRMAE 270A.

Restriction: Graduate students only.

ENGRMAE 277. Introduction To Neural Control Systems. 4 Units.
Basic models and learning rules of artificial neural networks: perceptrons, multilayer neural networks and backpropagation, support vector machines, radial basis functions networks, CMAC networks. Introduction to Regularization and Statistical learning theory. Neural networks in system identification and control.

Restriction: Graduate students only.

ENGRMAE 278. Estimation Techniques for Tracking and Navigation. 4 Units.
Fixed bearing navigation, least squares, uncertainty modeling, minimum variance and maximum likelihood, covariance analysis and filter efficiency, GPS, orbit determination, Gauss-Markov models, inertial navigation, Kalman filters, Fokker-Planck and Kushner equations, nonlinear-filters.

Prerequisite: ENGRMAE 200A and ENGRMAE 270A.

Restriction: Graduate students only.

ENGRMAE 279. Special Topics in Mechanical Systems. 4 Units.
Selected topics of current interest in mechanical systems. Topics include robotics, kinematics, control, dynamics, and geometric modeling.

Prerequisite: ENGRMAE 270A and ENGRMAE 241.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ENGRMAE 284. Fundamentals of Experimental Design. 4 Units.
Fundamentals and principles of statistical experimental design and analysis. Emphasis addresses understanding and use of designed experiments, response surfaces, linear regression modeling, process optimization, and development of links between empirical and theoretical models. Not offered every year.

Restriction: Graduate students only.

ENGRMAE 294. Master of Science Thesis Project. 4 Units.
Tutorial in which masters-level students taking the comprehensive examination option undertake a masters-level research project.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ENGRMAE 295. Special Topics in Mechanical and Aerospace Engineering. 1-4 Units.
Special topics by individual faculty in major fields of interest.

Repeatability: Unlimited as topics vary.

ENGRMAE 296. Master of Science Thesis Research. 1-16 Units.
Individual research or investigation conducted in the pursuit of preparing and completing the thesis required for the M.S. in Engineering.

Repeatability: May be repeated for credit unlimited times.

ENGRMAE 297. Doctor of Philosophy Dissertation Research. 1-16 Units.
Individual research or investigation conducted in the pursuit of preparing and completing the dissertation required for the Ph.D. in Engineering.

Repeatability: May be repeated for credit unlimited times.

ENGRMAE 298. Seminars in Mechanical and Aerospace Engineering. 1 Unit.
Presentation of advanced topics and reports of current research efforts in mechanical engineering. Required of all graduate students in mechanical engineering.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

ENGRMAE 299. Individual Research. 1-16 Units.
Individual research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

Restriction: Consent of instructor to enroll

School of Humanities

Georges Van Den Abbeele**, Dean**

143 Humanities Instructional Building
Undergraduate Counseling: 949-824-5132
Graduate Counseling: 949-824-4303
http://www.humanities.uci.edu/

Overview

The School of Humanities is internationally recognized for its outstanding programs in the main areas of humanities inquiry: literature, history, film, languages, the arts, and philosophy. With a faculty whose distinctions include two Pulitzer Prizes and numerous other national and international awards, the School offers 21 majors and 30 minors that include those in traditional disciplines, languages other than English, and interdisciplinary areas of study.

The core educational mission of the humanities is imparting to students tools of analysis that will allow them to understand, describe, and explain the world around them. A liberal arts education in the humanities prepares students to analyze various written and visual forms and to communicate effectively. Students in Humanities majors are expected to communicate their ideas in written and sometimes oral forms. All Humanities students are introduced to philosophy, history, visual culture, literature, and a language other than English. In many courses, a topic of study, such as English literature or the history of slavery, provides an opportunity for students to consider the challenges of a world that changes rapidly. In the words of a “Manifesto for the Humanities,” prepared for the President of the University of California, it is humanities that provides “the ability to express oneself clearly and accurately; the skill of critical evaluation, both of ideas and actions; the courage to make choices based on shared values and priorities; the opportunity to conduct an intensive conversation with the traditions, present and past, that help make us who we are, and above all, who we will be; and as a result, the ability to understand and make sense of other people and their cultures.” Humanistic inquiry equips students to enter the world as critically thinking citizens.

Because language is the humanist’s essential tool and the traditional medium of historical record, philosophical speculation, and literary creation and criticism, the School of Humanities places special emphasis on language and training in composition. The campuswide Writing Program is housed in the School of Humanities, as are our distinguished programs in creative writing, literary journalism, and the Program in Academic English/English as a Second Language. Humanities Core integrates the multi-disciplinary study of the humanities along with lower-division writing for majors who enter as freshmen.

The School of Humanities also offers programs in more than a dozen languages other than English. The serious study of language other than English is crucial to fostering critical thinking, objective self-reflection, and international awareness. The School established the International Center for Writing and Translation, which sponsors research programs that address the importance of conversations across languages and cultures. The School also created the Humanities Language Learning Program as a central clearinghouse for instruction of less commonly taught languages.

Interdisciplinary study is an essential feature of the Humanities Honors Program as well as many of the School's undergraduate degree programs. Undergraduate majors in Global Cultures and Religious Studies, as well as the Department of Asian American Studies, the Department of Gender and Sexuality Studies, the Program in African American Studies, and the interdisciplinary program in Latin American Studies are also located in Humanities. With courses in the Social Sciences as well, these programs are excellent examples of how the Humanities reaches across boundaries of disciplinary knowledge.

Students majoring in the humanities are particularly well-prepared for careers in all fields that rely on analysis, judgment, and argument. Humanities students have moved into business, medicine, the law, education, politics, public policy, academia, and journalism. Employers in all sectors increasingly request college graduates who can write and think critically. Employers can provide a specific form of technical training, but the School of Humanities provides the thinking and writing skills that allow graduates to excel at a wide range of professions.

Degrees

African American Studies	B.A.
Art History	B.A.
Asian American Studies	B.A.
Chinese Studies	B.A.
Classics	B.A., M.A., Ph.D.
Comparative Literature	B.A., M.A., Ph.D.
Culture and Theory	M.A., Ph.D.
East Asian Cultures	B.A.
East Asian Languages and Literatures	M.A., Ph.D.
English	B.A., M.A., M.F.A., Ph.D.
European Studies	B.A.

Film and Media Studies	B.A.
French	B.A.
Gender and Sexuality Studies	B.A.
German	M.A., Ph.D.
German Studies	B.A.
Global Cultures	B.A.
History	B.A., M.A., Ph.D.
Japanese Language and Literature	B.A.
Korean Literature and Culture	B.A.
Literary Journalism	B.A.
Philosophy	B.A., M.A., Ph.D.
Religious Studies	B.A.
Spanish	B.A., M.A., Ph.D.
Visual Studies	M.A., Ph.D.

Honors at Graduation

Campus criteria for honors at graduation are described in the Division of Undergraduate Education section under Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext). In addition to campus criteria, the School of Humanities uses cumulative GPA as the criterion for the awarding of Honors at Graduation. The official designation of Honors on the diploma and transcript will be based upon the candidate's cumulative GPA and total units completed at the end of the final quarter.

Humanities Collective

1309 Humanities Gateway; (949) 824-3638
hctr@uci.edu; http://www.humanities.uci.edu/collective/
Julia R. Lupton**, Associate Dean for Research**

The primary mission of the UCI Humanities Collective is to support School of Humanities faculty and graduate student research. The Collective also seeks to connect that research to public life. Humanities scholarship creates connections between people, places, and times: it deepens our understanding of the world around us. By administering grants and organizing a wide range of public events, the Collective promotes individual and collaborative research across disciplines and research institutions. The Collective connects communities on campus and around the world. The Collective fosters dialogue and encourages reflection through a passionate commitment to communicative reason, critical thinking, and creative work. Part of the UCI Humanities Network, the UCI Humanities Collective promotes Humanities scholarship in a fast-changing world.

Humanities Instructional Resource Center and Computing Facility

The Humanities Instructional Resource Center (HIRC) and the Humanities Computing Facility (HCF) share space in Humanities Hall and provide comprehensive technology support for instruction, research, and faculty and staff development.

HIRC services and facilities include video and audio libraries and audiovisual equipment. HCF includes the computer labs, fee-based laser printing, support for wireless networking in the Humanities quad, and computing consultation. Both facilities provide technology-related research and development assistance for faculty, graduate, and undergraduate students. HCF houses two PC labs, one Macintosh lab, and one drop-in lab (with both Macs and PCs). The facility has more than 100 stations. HCF also provides a wide range of computer services (scanning, document conversion, workshops, and more).

Both HCF and HIRC labs provide a wide variety of instructional resources including, among others, multimedia applications and development stations, foreign language word processing, Web browsing (including support for non-Roman alphabets), and language learning materials. The labs are available to Humanities students, instructors, and staff for class instruction and drop-in purposes.

Additional information may be obtained from at the HIRC (http://www.humanities.uci.edu/hirc) website; or the HCF Computer Consulting Office, 4000 Humanities Gateway, (949) 824-7609; or the HIRC main offices, 269 Humanities Hall, (949) 824-6344.

Humanities Out There (H.O.T.) Program

200 Murray Krieger Hall; 949-824-6522

H.O.T. is an outreach program between UCI's School of Humanities and local cultural institutions, such as public libraries and museums. The program consists of a series of five-week workshops on selected topics in public humanities. Each workshop sends out a team of undergraduates to the quarter's chosen field site, supervised by faculty and advanced graduate students in the humanities.

Requirements for undergraduates include attending at least five training sessions at UCI; attending at least five workshops in the field; a number of electronic journal entries; and a three- to five-page paper with an academic focus. Undergraduates can earn two or four units of H.O.T. credit each quarter through HUMAN 195.

Dr. Samuel M. Jordan Center for Persian Studies and Culture

1110 Humanities Gateway; 949-824-1662
http://www.humanities.uci.edu/persianstudies/
Nasrin Rahimieh, **Director**

The Samuel Jordan Center for Persian Studies and Culture is a campus center devoted to the study of Iran and the Persianate world.

Courses, offered by the affiliated faculty, are the backbone of the Center's academic and pedagogical mission. These include courses on language, literature, history, music, and culture at undergraduate and graduate levels.

The academic courses are administered through different units. The Humanities Language Learning Program offers courses on Persian language. Courses in ancient, medieval, and modern Persian history are administered by the Department of History. Courses on modern Persian literature and the literature of Iranian diaspora are offered through the Department of Comparative Literature, and courses on Persian music are housed within the Department of Music.

Undergraduate Programs

- School Requirements (p. 627)
- Language Other Than English Placement and Progression (p. 626)

Humanities Undergraduate Study

143 Humanities Instructional Building; 949-824-5132
http://www.humanities.uci.edu/undergrad/
James D. Herbert, **Associate Dean for Curricular and Student Affairs**

The academic counselors in the Humanities Undergraduate Counseling Office, located in 143 Humanities Instructional Building, help all students in planning a program of study. Transfer students in particular need to consult an academic counselor to determine major requirements. Students who expect to pursue graduate study also should consult with appropriate faculty members to ensure proper preparation.

The academic counselors assist freshmen and sophomores who are interested in the humanities but who have not chosen a major in the School. They are especially knowledgeable about University regulations, requirements in and outside the School, course content, options to major, and other matters that may present difficulties. For the first two years, students in Humanities are encouraged to explore the various disciplines represented in the School. During that time the academic counselors are prepared to help the undeclared student keep options to a major open, plan a coherent program of humanistic study, and reach an eventual decision about the major.

Generally each major stipulates a one-year course that is both an introduction to the discipline and a prerequisite to the major itself. Students who plan wisely will construct programs that include a good number of such courses.

NOTE: In many undergraduate courses in the School of Humanities, additional meetings between individual students and the instructor may be required. Many courses are composed of both lectures and *required* discussion sessions.

Undergraduate students in the School of Humanities participate in the affairs of the School in a number of ways: by serving on committees in various departments, by sitting with the faculty in its meetings, by participating as mentors for new Humanities majors, and by working as peer academic advisors in the Undergraduate Counseling Office.

Humanities Peer Mentor Program

The Humanities Peer Mentor Program is designed to address some of the academic, cultural, and social needs of freshmen in the School of Humanities. The program features two-tiered mentoring, with successful upper-division students mentoring small groups of new students, and the student mentors in turn working with faculty and staff. Another focus of the program is to encourage and assist student mentors to go on to graduate school.

Participants attend workshops on topics such as study skills, library research, time management, and careers, as well as take part in a variety of social events. They also keep journals in which they express their ideas and raise issues for their mentors. Call 949-824-5132 for additional information.

Humanities Honors Program

143 Humanities Instructional Building; (949) 824-5132
Vinayak Chaturvedi, **Director**

The Honors Program of the School of Humanities is a two-year, upper-division program designed to challenge superior students from all majors by providing special opportunities for interdisciplinary work within an intellectually charged framework. Small seminars and the opportunity for independent research are some of the advantages offered by the program, which is open by invitation to Humanities students with excellent academic records.

Students in the program benefit from their involvement in the campus community of Humanities scholars. They enjoy a close relationship with the faculty and profit from intense interaction with their intellectual peers.

Humanities Honors students complete a two-part course of study. In their junior year, students take three quarters of an interdisciplinary Proseminar (HUMAN H120) organized about a single topic or problem, such as crime and punishment, state and civil society, the development of religion in the West, the self, nature, or the American dream. The sequence is designed to compare and contrast modes of analysis and critical thinking in several disciplines in the Humanities, such as history, literary studies, and philosophy. In a small seminar setting, students are encouraged to become reflective about their own chosen disciplines.

In their senior year, students take a sequence beginning in the fall with a Senior Honors Seminar (HUMAN H140), and continuing in the winter and spring with the Senior Honors Thesis (HUMAN H141) and the Senior Honors Colloquium (HUMAN H142W), prepared as an independent research project under the direction of a faculty member on a topic chosen by the student. A prize is awarded for the year's outstanding thesis.

In both sequences the Honors students benefit from their close association with exceptional scholars and the challenge and support of their intellectual peers.

Students interested in learning how the Humanities Honors Program will fit into their regular courses of study are encouraged to contact the Humanities Undergraduate Study Director; telephone (949) 824-5132.

Campuswide Honors Program

The Campuswide Honors Program is available to selected high-achieving students from all academic majors from their freshman through senior years. For more information contact the Campuswide Honors Program, 1200 Student Services II; (949) 824-5461; honors@uci.edu; or visit the Campuswide Honors Program (http://www.honors.uci.edu) website.

Study Abroad Center

The Study Abroad Center, which includes the UC Education Abroad Program (EAP) and the International Opportunities Program (IOP), assists students in taking advantage of the many worldwide opportunities that exist for study, work, internship, volunteering, and research. School of Humanities majors and minors can benefit from a broader perspective of their fields by studying for one year at a university in such countries as China, France, Germany, Italy, Japan, Russia, Spain, or the United Kingdom through UCEAP. Students can also augment their exposure to other cultures with programs sponsored through IOP. Visit the Study Abroad Program (http://www.studyabroad.uci.edu) website or an academic counselor for additional information.

Language Other than English Placement and Progression

The following policies apply to all UCI students taking language other than English courses.

Language Other Than English Progression. Within the beginning and intermediate language instructional sequences (1A-B-C and 2A-B-C, and for Latin and Greek 1A-B-C and 100) students must earn a grade of at least C (or Pass) in order to advance to the next level of instruction, unless an exception is permitted by the appropriate course director and the Associate Dean of Humanities for Undergraduate Study. A student may not go back and take a lower-level course for credit once a more advanced level has been completed with a passing grade. Nor may a student be enrolled in more than one level of the same language at the same time (for example, a student may not enroll in language 2B and 2C concurrently).

Language Other Than English Placement. Placement tests are required for the following languages: Arabic, Chinese, Hebrew, Japanese, Korean, Persian, Spanish (for students with no previous college course work), and Vietnamese. Contact the UCI Academic Testing Center for information; telephone (949) 824-6207; e-mail: testcenter@uci.edu (testoff@uci.edu); or visit the Testing Center (http://www.testingcenter.uci.edu) website. Placement tests are recommended but not required for French and German language courses. The purpose of placement testing is to ensure success in UCI language courses.

For languages other than English which are not listed above (and for French and German if the placement test is not taken), students entering UCI with previous high school language training are placed as follows: in general, one year of high school work is equated with one quarter of UCI work. Thus, students with one, two, three, or four years of high school language other than English will normally enroll in 1B-, 1C-, 2A-, or 2B-level language courses, respectively.

Students should enroll in language courses as specified above. Students who opt to "go back" one quarter will earn credit (i.e., a student with three years of high school language other than English may opt to take 1C instead of 2A). If it has been five or more years since the last high school course, the student may begin at 1A for credit. Exceptions must have the approval of the appropriate course director and the Associate Dean of Humanities for Undergraduate Study. Transfer students will not receive credit for repeating at UCI language other than English courses for which they received credit upon matriculation to UCI even if they are placed by testing into the equivalent of a previously taken course.

Language Other Than English Advanced Placement Credit. Students cannot earn units or grade points at UCI in courses from which they have been exempted on the basis of Advanced Placement credit. However, since Advanced Placement awards a maximum of 8 units for scores of 4 and 5, students may elect to take 2C or the equivalent for credit.

Native Speakers of Languages Other Than English. A native speaker of a language other than English, is defined by the University as someone who attended the equivalent of secondary school in another country where the language of instruction was other than English. Students with prior background in a language other than English should consult the UCI Academic Testing Center to see if a placement test is available to demonstrate competence in that language. If an appropriate means of evaluating competence in a non-English language of instruction does not exist, satisfactory completion, with a C average or better, or equivalent, of one year of formal schooling at the 10th-grade level or higher in an institution where the language of instruction is not English will meet the School of Humanities Language Other Than English requirement equal to second-year language. Appropriate documentation and translation, when necessary, must be presented to substantiate that the course work was completed. For some majors offered by the School of Humanities, students may be exempted from taking third-year language study in that language. In this case, the student must *substitute* appropriate upper-division courses in the major to replace the number of exempted courses. For example, if a native speaker of French is exempted from FRENCH 100A and FRENCH 100B, that student must replace those two courses with two other upper-division French courses offered by the Department of European Languages and Studies.

Repeating Deficient Foreign Language Other Than English Grades. First- and second-year language other than English courses and third-year language other than English composition courses are sequential and each is prerequisite to the next. This is generally true also of fourth-year Chinese, Japanese, and Korean. Students wishing to repeat a deficient grade in one of these courses must repeat it *prior* to continuing on to the next level of the language. A student may not go back and retake a lower-level course for credit once a more advanced level has been completed with a passing grade.

Requirements for the Bachelor's Degree

All students must meet the University Requirements (p. 71).

School Requirements

1. Satisfactory completion of HUMAN 1A-HUMAN 1AS-HUMAN 1B-HUMAN 1BS-HUMAN 1C-HUMAN 1CS taken for letter grades in the freshman year.
   Transfer students in all majors in the School of Humanities may substitute for the Humanities Core appropriate course work as described on the School of Humanities (http://www.humanities.uci.edu/undergrad/current/school_req1.php) website . No overlap is permitted between the Humanities Core substitution and a student's departmental/major requirements.
2. College-level course work equivalent to UCI's sixth quarter of study (2C level, *or* for Latin or Greek, two 103s or 104s) in a language other than English or equivalent competence. The final course must be taken for a letter grade and passed with a grade of C or better.

Unless otherwise specified, courses taken to satisfy major, minor, and school requirements must be a minimum of 4 units each. Unless otherwise specified, no more than one independent or directed group study course may be petitioned toward major or minor requirements. Unless otherwise specified, all courses taken to satisfy major and school requirements must be taken for a letter grade.

Quarterly consultation with a faculty advisor is recommended.

Maximum Overlap Between Major Requirements: In fulfilling degree requirements for multiple majors, a maximum of two courses may overlap between any two majors.

Maximum Overlap Between Major and Minor Requirements: In fulfilling minor requirements, a maximum of two courses may overlap between a major and a minor. No course overlap is permitted between minors.

Normal Progress in the Major: School of Humanities majors are expected to take at least one course required for their major program each quarter as well as make progress toward the completion of the School's language other than English requirement.

School Residence Requirement: At least five upper-division courses required for each major must be completed successfully at UCI. Completion of a minor program is optional; however, for certification in a minor, at least four upper-division courses required for the minor must be completed successfully at UCI. See individual major and minor requirements for specific courses and how participation in the Education Abroad Program (EAP) can affect the residence requirement. Exceptions are considered on a case-by-case basis and decided in consultation between the appropriate department or faculty member and the Associate Dean of Humanities for Undergraduate Study.

Internship Policy. In most cases, Humanities students are not allowed to earn credit for off-campus internships. However, if a department or program determines that the internship is academically appropriate and promotes the student's academic goals, the student may take the internship as Independent Study and unit credit will be given. The sponsoring department or program and the instructor will in all cases require a substantial academic product, such as a paper, growing out of the internship.

A student who wishes to seek approval for an off-campus internship and earn course credit must file an Independent Study form with the department/program of the sponsoring faculty. A student who wishes to apply approved credit toward degree requirements, other than elective units, must also petition for approval from the Humanities Undergraduate Study Office, prior to beginning the internship.

UCI approved internship courses are applied to major requirements as specified by individual major requirements.

Change of Major. Students who wish to change their major to one offered by the School of Humanities should contact the Humanities Undergraduate Counseling Office for information about change-of-major requirements, procedures, and policies. Information is also available at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Graduate Programs

Humanities Graduate Study and Research

179 Humanities Instructional Building; 949-824-4303
James D. Herbert, **Associate Dean for Curricular and Student Affairs**

The School of Humanities offers graduate degrees in a wide range of disciplines. Individual departments administer most of these, although there are two inter-departmental programs: Culture and Theory and Visual Studies (a joint program between the Departments of Art History and Film and Media Studies). The School's graduate programs are generally aimed at those pursuing a Ph.D. degree, with the Master's degree awarded en route. Exceptions include the Summer M.A. Program in the Department of English and the M.A. program in the Department of History. In addition, the Department of English administers the M.F.A. degree in English (Fiction/Poetry).

The School of Humanities houses four graduate emphases that may be pursued in conjunction with study toward a degree: Asian American Studies, Critical Theory, Feminist Studies, and Visual Studies. Several departments may also permit students to do part of their work for the Ph.D. in a related discipline.

A limited number of students are accepted annually to study for teaching credentials. This program is a cooperative effort between the School of Humanities and the School of Education.

Graduate students participate in the affairs of the School of Humanities by serving as representatives on various departmental, schoolwide, and campuswide committees.

Faculty

M. Ackbar Abbas, M.Phil. University of Hong Kong, *Professor of Comparative Literature; Culture and Theory; Film and Media Studies* (Hong Kong culture and postcolonialism, visual culture, architecture and cinema, cultural theory, globalization)

Kei Akagi, B.A. International Christian University, *UCI Chancellor's Professor of Music; Asian American Studies*

Susan W. Akhavan, M.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Jonathan Alexander, Ph.D. Louisiana State University, *Campus Writing Coordinator and Professor of English; Culture and Theory; Education; Gender and Sexuality Studies* (writing studies, sexuality studies, queer theory, new media studies)

Bobbie J. Allen, Ph.D. University of Washington, *Lecturer of English*

Elizabeth G. Allen, Ph.D. University of Michigan, *Associate Professor of English*

Ana Maria Amar Sanchez, Ph.D. University of Buenos Aires, *Professor of Spanish and Portuguese*

Eyal Amiran, Ph.D. University of Virginia, *Associate Professor of Comparative Literature; Film and Media Studies* (digital media theory, twentieth-century literature, narrative and textual theory, psychoanalysis, modern and postmodern intellectual history)

Michael Andreasen, M.F.A. University of California, Irvine, *Lecturer of English*

Luis Avilés, Ph.D. Brown University, *Associate Professor of Spanish and Portuguese; Comparative Literature; Culture and Theory; European Languages and Studies* (Golden Age literature and critical theory)

Christine Bacarez Balance, Ph.D. New York University, *Assistant Professor of Asian American Studies; Culture and Theory* (performance studies, critical race and ethnic studies, Filipino American studies, queer theory, popular culture)

Etienne Balibar, Ph.D. Catholic University of Nijmegen, *Professor Emeritus of French; Comparative Literature* (political philosophy, critical theory, epistemology of the social sciences, ethics)

Nina Bandelj, Ph.D. Princeton University, *Associate Professor of Sociology; European Languages and Studies* (economic sociology, culture, organizations, social networks, political economy, globalization, social change, central and eastern Europe)

Stephen A. Barney, Ph.D. Harvard University, *Professor Emeritus of English*

Jeffrey A. Barrett, Ph.D. Columbia University, *Professor of Logic and Philosophy of Science; Philosophy*

Jami Bartlett, Ph.D. University of California, Berkeley, *Assistant Professor of English*

George C. Bauer, Ph.D. Princeton University, *Professor Emeritus of Art History* (Renaissance and Baroque)

Linda F. Bauer, Ph.D. New York University, *Professor Emerita of Art History* (Renaissance and Baroque)

Emily L. Baum, Ph.D. University of California, San Diego, *Assistant Professor of History*

Catherine Benamou, Ph.D. New York University, *Associate Professor of Film and Media Studies; Culture and Theory* (Hispanophone and Lusophone cinema and television, transnational media flows and ethnic spectatorship, Orson Welles and post-war maverick cinema, transculturation, cinematic memory and cultures of preservation)

Ermanno Bencivenga, Ph.D. University of Toronto, *Professor of Philosophy; Humanities*

Alice C. Berghof, Ph.D. University of California, Irvine, *Lecturer of Humanities; English*

Oliver G. Berghof, Ph.D. University of California, Irvine, *Lecturer of Humanities*

Luci B. Berkowitz, Ph.D. Ohio State University, *Professor Emerita of Classics* (Greek literary history, computer applications to literature)

Victoria Bernal, Ph.D. Northwestern University, *Associate Professor of Anthropology; Culture and Theory*

Sven D. Bernecker, Ph.D. Stanford University, *Professor of Philosophy*

Roland Betancourt, Ph.D. Yale University, *Assistant Professor of Art History* (Byzantine and Medieval Art, Critical Theory)

Susan C. Bibler Coutin, Ph.D. Stanford University, *Associate Dean of the Graduate Division and Professor of Criminology, Law and Society; Anthropology; Culture and Theory* (law, culture, immigration, human rights, citizenship, political activism, Central America)

Anke Biendarra, Ph.D. University of Washington, *Associate Professor of German* (twentieth- and twenty-first-century German literature, culture, and film, cultural studies)

Sharon B. Block, Ph.D. Princeton University, *Associate Professor of History; Culture and Theory*

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Alan Nelson, Ph.D. University of Illinois at Chicago, *Professor Emeritus of Philosophy*

Keith L. Nelson, Ph.D. University of California, Berkeley, *UCI Endowed Chair* and *Professor Emeritus of History*

Jane O. Newman, Ph.D. Princeton University, *Department Chair and Professor of Comparative Literature; Culture and Theory; European Languages and Studies* (comparative Renaissance and early modern literature and culture [English, French, German, Italian, neo-Latin], Mediterranean Renaissance studies, Baroque, afterlives of antiquity, Walter Benjamin, Erich Auerbach, pre-modern lessons for the modern and post-modern)

Robert W. Newsom, Ph.D. Columbia University, *Professor Emeritus of English*

James P. Nisbet, Ph.D. Stanford University, *Assistant Professor of Art History* (modern and contemporary art)

Carrie J. Noland, Ph.D. Harvard University, *Professor of French; Comparative Literature* (twentieth-century poetry and poetics, avant-garde movements in art and literature, critical theory, performance studies)

Margot Norris, Ph.D. State University of New York College at Buffalo, *Professor Emerita of English; Comparative Literature* (modern Irish, British, American and continental modernism, literature and war)

Dayle S. Nunez, Ph.D. Stanford University, *Professor Emeritus of Spanish and Portuguese*

Genevieve Erin O'Brien, M.A. School of the Art Institute of Chicago, *Lecturer of Asian American Studies*

Laura B. O'Connor, Ph.D. Columbia University, *Associate Professor of English; Comparative Literature* (Irish literature, twentieth-century poetry, Anglo-American modernism)

Rachel S. O'Toole, Ph.D. University of North Carolina at Chapel Hill, *Associate Professor of History; Culture and Theory* (Colonial Latin America, African Diaspora, colonialisms, race, racism, indigenous histories, Atlantic worlds)

Spencer C. Olin, Ph.D. Claremont Graduate University, *Professor Emeritus of History*

Kevin E. Olson, Ph.D. Northwestern University, *Associate Professor of Political Science; Culture and Theory* (contemporary European political theory, cultural politics, politics of diversity, popular sovereignty, citizenship, nineteenth- and twentieth-century political theory)

Hector H. Orjuela, Ph.D. University of Kansas, *Professor Emeritus of Spanish and Portuguese*

Julian I. Palley, Ph.D. University of New Mexico, *Professor Emeritus of Spanish and Portuguese*

Tira A. Palmquist, M.F.A. University of California, Irvine, *Lecturer of English*

David T. Pan, Ph.D. Columbia University, *Professor of German* (eighteenth-, nineteenth-, and early twentieth-century German literature and intellectual history)

Maria C. Pantelia, Ph.D. Ohio State University, *Director, Thesaurus Linguae Graecae®* and *Professor of Classics; Classics* (Greek epic, Hellenistic poetry, digital technologies in the humanities)

Hyun Seon Park, Ph.D. University of California, Irvine, *Lecturer of East Asian Languages and Literature*

Joy L. Parker, M.F.A. New York University, *Lecturer of English*

Alka Patel, Ph.D. Harvard University, *Associate Professor of Art History* (Asian art, South Asian architecture, Islamic architecture, India-Iran-Central Asia connections)

Casey C. Perin, Ph.D. University of California, Berkeley, *Associate Professor of Philosophy*

Allison J. Perlman, Ph.D. University of Texas at Austin, *Assistant Professor of History; Film and Media Studies* (history of broadcasting, American social movements, media law and policy, media activism, popular memory)

Aaron M. Peters, M.F.A. University of California, Irvine, *Lecturer of English*

Robert L. Peters, Ph.D. University of Wisconsin-Madison, *Professor Emeritus of English*

Ying Y. Petersen, Ph.D. University of California, Berkeley, *Lecturer of Chinese*

Eric M. Peterson, Ph.D. University of California, Irvine, *Lecturer of English*

Kristin Peterson, Ph.D. William Marsh Rice University, *Associate Professor of Anthropology; Culture and Theory; European Languages and Studies*

Kavita S. Philip, Ph.D. Cornell University, *Associate Professor of History; Comparative Literature; Informatics* (science and technology studies, South Asian studies, political ecology, critical studies of race, gender, colonialism, new media, globalization)

Ines C. Poblet, M.A. , *Lecturer of Academic English/English as a Second Language*

James Porter, Ph.D. University of California, Berkeley, *Graduate Advisor and Professor of Classics; Comparative Literature; European Languages and Studies* (philosophy, literary and cultural criticism and aesthetics, history of the classical disciplines, reception of Homer)

Amy Powell, Ph.D. Harvard University, *Associate Professor of Art History; European Languages and Studies* (Northern European art and visual culture, 1300–1700)

Bradley A. Queen, Ph.D. Boston University, *Lecturer with Potential Security of Employment of English*

Aziz-Ul-Haq Qureshi, M.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Rajagopalan Radhakrishnan, Ph.D. Binghamton University, State University of New York, *UCI Chancellor's Professor of English; Comparative Literature; Culture and Theory* (critical theory, postcoloniality, nationalisms and diasporas, poststructuralism, postmodernism, democracy and minority discourse, cultural studies, globalization and transnationalism)

Kathryn Ragsdale, Ph.D. University of Chicago, *Lecturer of History*

Nasrin Rahimieh, Ph.D. University of Alberta, *Director of the Dr. Samuel M. Jordan Center for Persian Studies and Culture and Maseeh Chair in Persian Studies and Culture* and *Professor of Comparative Literature; Culture and Theory* (Persian literature and culture, diaspora studies, film and media, religious studies)

Renee J. Raphael, Ph.D. Princeton University, *Assistant Professor of History*

Barbara L. Reed, Ph.D. Indiana University, *Lecturer with Security of Employment Emerita of English*

Gary Richardson, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Economics; European Languages and Studies* (economic history, macroeconomics, Great Depression, Industrial Revolution, property rights and economic development)

Ryan C. Ridge, M.F.A. University of California, Irvine, *Lecturer of English*

Hidemi Riggs, Ph.D. University of California, Los Angeles, *Lecturer of Japanese*

Hugh J. Roberts, Ph.D. McGill University, *Associate Professor of English*

Belinda B. Robnett-Olsen, Ph.D. University of Michigan, *Professor of Sociology; African American Studies; Culture and Theory* (social movements, race and ethnicity, gender, social change, African Americans)

Jaime E. Rodriguez, Ph.D. University of Texas at Austin, *Professor Emeritus of History*

Fatimah Tobing Rony, Ph.D. Yale University, *Associate Professor of Film and Media Studies* (documentary and ethnographic film, race and representation, feminist film theory, postcolonial studies, film history and theory, film and media production, media theory and practice)

Ana Rosas, Ph.D. University of Southern California, *Associate Professor of Chicano/Latino Studies; History*

Emily S. Rosenberg, Ph.D. State University of New York at Stony Brook, *Professor of History*

John C. Rowe, Ph.D. State University of New York College at Buffalo, *Professor Emeritus of English; Comparative Literature*

Kelley M. Ruble, M.A. University of California, San Diego, *Lecturer of Academic English/English as a Second Language*

Gina A. Ruggiero, M.A. The New School, *Lecturer of Academic English/English as a Second Language*

Vicki L. Ruiz, Ph.D. Stanford University, *UCI Distinguished Professor of History; Chicano/Latino Studies; Culture and Theory* (Chicana/Latina history, U.S. labor, immigration, gender)

Vanessa L. Russell, M.A. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

Michael Ryan, Ph.D. University of Iowa, *Professor of English*

Sharon V. Salinger, Ph.D. University of California, Los Angeles, *Professor of History*

Kimberly D. Samaniego, M.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Constance J. Samaras, M.F.A. Eastern Michigan University, *Professor of Art; Culture and Theory* (photography, contemporary visual art, gender studies, culture and technology)

Catherine Z. Sameh, Ph.D. Rutgers, The State University of New Jersey, *Assistant Professor of Gender and Sexuality Studies*

Gerasimos X. Santas, Ph.D. Cornell University, *Professor Emeritus of Philosophy*

Tarah M. Scalzo, M.A. University of California, Irvine, *Lecturer of English*

Robin C. Scarcella, Ph.D. University of Southern California, *Professor of Academic English/English as a Second Language; Education*

Edgar T. Schell, Ph.D. University of California, Berkeley, *Professor Emeritus of English*

Jeanne Scheper, Ph.D. University of California, Santa Barbara, *Assistant Professor of Gender and Sexuality Studies; Culture and Theory* (feminist performance studies and visual culture, cultural studies, theories of race, gender and sexuality, trans-Atlantic modernism)

Annette M. Schlichter, Ph.D. Humboldt University of Berlin, *Associate Professor of Comparative Literature; Culture and Theory; European Languages and Studies* (feminist theory and criticism, queer theory, critiques of heterosexuality, contemporary American literature, gender and literature, voice studies)

Beryl F. Schlossman, Doctorate University of Paris 7, Ph.D. Johns Hopkins University, *Professor of Comparative Literature; European Languages and Studies*

Daniel J. Schroeter, Ph.D. University of Manchester, *UCI Endowed Chair* and *Professor Emeritus of History*

Gabriele J. Schwab, Ph.D. University of Konstanz, *Department Chair and UCI Chancellor's Professor of Comparative Literature; Anthropology; Culture and Theory; European Languages and Studies* (modern literature, critical theory, psychoanalysis, comparative literature)

Martin Schwab, Ph.D. Heidelberg University, *Professor Emeritus of Philosophy; Comparative Literature; European Languages and Studies* (philosophy and aesthetics)

Armin Schwegler, Ph.D. University of California, Berkeley, *Professor of Spanish and Portuguese; Linguistics*

Bert Scruggs, Ph.D. University of Pennsylvania, *Assistant Professor of Chinese* (contemporary fiction, film, ecocriticism)

Patricia Seed, Ph.D. University of Wisconsin-Madison, *Professor of History*

Jacobo Sefami, Ph.D. University of Texas at Austin, *Professor of Spanish and Portuguese*

Arnold K. Seong, M.F.A. University of Washington, *Lecturer of Academic English/English as a Second Language*

Jared Charles Sexton, Ph.D. University of California, Berkeley, *Program Director and Associate Professor of African American Studies; Culture and Theory; Film and Media Studies* (race and sexuality, policing and imprisonment, contemporary U.S. cinema and political culture, multiracial coalition, critical theory)

Gretchen K. Short, Ph.D. University of California, Irvine, *Lecturer of Humanities; English*

Beheroze F. Shroff, M.F.A. University of California, Los Angeles, *Lecturer of Asian American Studies; Gender and Sexuality Studies*

Barry E. Siegel, M.S. Columbia University, *Professor of English*

Victoria A. Silver, Ph.D. University of California, Los Angeles, *Associate Professor of English; European Languages and Studies* (early modern literature and culture, religious studies, history and theory of rhetoric, literature and philosophy)

Richard A. Sims, M.F.A. University of California, Irvine, *Lecturer of English*

Patrick J. Sinclair, Ph.D. Northwestern University, *Professor Emeritus of Classics* (rhetoric, Latin prose, lexicography)

Eiko Sithi-Amnuai, B.A. , *Lecturer of Japanese*

Brian Skyrms, Ph.D. University of Pittsburgh, *UCI Distinguished Professor of Logic and Philosophy of Science; Economics; Philosophy*

David W. Smith, Ph.D. Stanford University, *Professor of Philosophy*

John H. Smith, Ph.D. Princeton University, *Professor of Comparative Literature; German* (eighteenth- and nineteenth-century literature and intellectual history, literary theory)

Braxton Soderman, Ph.D. Brown University, *Assistant Professor of Film and Media Studies* (digital and new media theory, video games, electronic literature and digital aesthetics, media archaeology and history of technology, critical theory)

Paul J. Spencer, M.A. , *Lecturer of Academic English/English as a Second Language*

P. Kyle Stanford, Ph.D. University of California, San Diego, *Professor of Logic and Philosophy of Science; Philosophy*

Lauren M. Steimer, M.A. New York University, *Lecturer of Film and Media Studies*

Sally A. Stein, Ph.D. Yale University, *Professor Emerita of Art History* (American art, history of photography, feminist theory)

James Steintrager, Ph.D. Columbia University, *Professor of English; Comparative Literature; European Languages and Studies* (eighteenth-century comparative literature, ethical philosophy and literature, systems theory, amatory and erotic fiction)

Heather Stern, M.S. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

Robin S. Stewart, M.A. University of California, Irvine, *Lecturer of Academic English/English as a Second Language*

Anna K. Striedter, Ph.D. University of California, San Diego, *Lecturer of Academic English/English as a Second Language*

Serk Bae Suh, Ph.D. University of California, Los Angeles, *Associate Professor of East Asian Languages and Literature* (Modern Korean and Japanese literary studies and intellectual history)

Dana Sutton, Ph.D. University of Wisconsin-Madison, *Professor Emeritus of Classics* (Greek and Latin drama, Greek poetry, Anglo-Latin literature)

John D. Swain, Ph.D. University of California, Los Angeles, *Lecturer of East Asian Languages and Literature*

Michael F. Szalay, Ph.D. Johns Hopkins University, *Professor of English*

Timothy Tackett, Ph.D. Stanford University, *Professor Emeritus of History*

Dickran L. Tashjian, Ph.D. Brown University, *Professor Emeritus of Art History* (American art and literature, American and European avant-garde, art and technology)

Darryl G. Taylor, D.M.A. University of Michigan, *Professor of Music; African American Studies*

Rei Terada, Ph.D. Boston University, *Professor of Comparative Literature* (theory, poststructuralism, nineteenth- and twentieth-century poetry)

Jennifer Terry, Ph.D. University of California, Santa Cruz, *Associate Professor of Gender and Sexuality Studies; Comparative Literature; Culture and Theory; Gender and Sexuality Studies* (cultural studies, social theory; science and technology studies, formations of gender and sexuality, critical approaches to modernity, American studies in transnational perspective, processes of militarization)

Debra S. Thiercof, M.S. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

Ngugi Wa Thiong'O, B.A. Makerere University, *UCI Distinguished Professor of Comparative Literature; English* (African and Caribbean literatures, theater and film, performance studies, cultural and political theory)

Brook Thomas, Ph.D. University of California, Santa Barbara, *UCI Chancellor's Professor of English*

Emily Thuma, Ph.D. New York University, *Assistant Professor of Gender and Sexuality Studies*

Heidi E. Tinsman, Ph.D. Yale University, *Professor of History; Culture and Theory*

Harold E. Toliver, Ph.D. University of Washington, *Professor Emeritus of English*

Andrew T. Tonkovich, M.F.A. University of California, Irvine, *Lecturer of English*

Steven Topik, Ph.D. University of Texas at Austin, *Professor of History*

Keith Topper, Ph.D. University of California, Los Angeles, *Associate Professor of Political Science; Culture and Theory* (political theory, critical theory, poststructuralism, theories of power, language and politics, theory and politics of interpretation, politics of culture, philosophy of the social sciences)

Rudolfo D. Torres, Ph.D. Claremont Graduate University, *Professor of Planning, Policy, and Design; Culture and Theory*

Tri Chan Tran, Ph.D. University of California, Los Angeles, *Lecturer of Academic English/English as a Second Language; Language Learning Program*

Irene Tucker, Ph.D. University of California, Berkeley, *Professor of English*

Georges Y. Van Den Abbeele, Ph.D. Cornell University, *Dean of the School of Humanities* and *Professor of Comparative Literature; English; European Languages and Studies; Film and Media Studies*

Ann J. Van Sant, Ph.D. University of California, Berkeley, *Associate Professor of English*

Roxanne Varzi, Ph.D. Columbia University, *Associate Professor of Anthropology; Culture and Theory; Film and Media Studies* (Islam, visual anthropology, anthropology of war, media, youth culture, religion and public space, Iran)

Juan Villegas, Ph.D. University of Chile, *Professor Emeritus of Spanish and Portuguese*

Catherine Vimuttinan, M.A. University of Southern California, *Lecturer of Academic English/English as a Second Language*

Linda T. Võ, Ph.D. University of California, San Diego, *Associate Professor of Asian American Studies; Culture and Theory; Planning, Policy, and Design; Sociology* (race and ethnic relations, immigrants and refugees, gender relations, community and urban studies)

Katharine R. Walsh, Ph.D. University of California, Irvine, *Lecturer of Humanities*

Anne Walthall, Ph.D. University of Chicago, *Professor of History*

Andrzej J. Warminski, Ph.D. Yale University, *Professor of English; European Languages and Studies; Humanities* (romanticism, history of literary theory, contemporary theory, literature and philosophy)

Jeffrey N. Wasserstrom, Ph.D. University of California, Berkeley, *UCI Chancellor's Professor of History; History; School of Law*

Jacqueline Y. Way, Ph.D. University of California, Irvine, *Lecturer of English*

Zidia O. Webb, M.A. Michigan State University, *Lecturer with Security of Employment Emeritus of Spanish and Portuguese*

Kai Wehmeier, Ph.D. University of Münster, *Director, Center for the Advancement of Logic, its Philosophy, History, and Applications and Professor of Logic and Philosophy of Science; Philosophy*

Henry Weinstein, J.D. University of California, Berkeley, *Senior Lecturer of School of Law; English*

Christa I. Westaway, M.F.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Allison Benis White, M.F.A. University of California, Irvine, *Lecturer of English*

Nicholas P. White, Ph.D. Harvard University, *Professor Emeritus of Philosophy* (Greek philosophy, ethics, epistemology)

Cécile Marie Whiting, Ph.D. Stanford University, *UCI Chancellor's Professor of Art History* (American art and visual culture)

Jonathan M. Wiener, Ph.D. Harvard University, *Professor of History*

Frank B. Wilderson III, Ph.D. University of California, Berkeley, *Professor of African American Studies; Culture and Theory; Drama; Film and Media Studies* (film theory, Marxism, dramaturgy, black political theory)

Amy Wilentz, B.A. Harvard University, *Professor of English*

Tiffany Willoughby-Herard, Ph.D. University of California, Santa Barbara, *Assistant Professor of African American Studies; Culture and Theory* (South Africa, poor whites, race in foreign policy, diaspora, comparative racial politics, third world feminisms, feminist pedagogy, black political thought)

Bert Winther-Tamaki, Ph.D. New York University, *Professor of Art History; Asian American Studies* (Modern Japanese art and visual culture, Asian American art, art and globalization)

David Lee Wirthlin, M.F.A. The Art Institute of Chicago, *Lecturer of English*

Brandon S. Wolff, M.A. University of San Francisco, *Lecturer of Academic English/English as a Second Language*

Geoffrey Wolff, B.A. Princeton University, *Professor Emeritus of English*

Peter W. Woodruff, Ph.D. University of Pittsburgh, *Professor Emeritus of Philosophy*

Sheron C. Wray, M.A. Middlesex University, *Assistant Professor of Dance; African American Studies* (jazz, choreography, improvisation)

Roberta Wue, Ph.D. New York University, *Assistant Professor of Art History* (late imperial and modern Chinese art, photography, visual culture)

Mary Ellen Rice Wynn, M.A. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

Jessica L. Yant, M.F.A. University of Southern California, *Lecturer of Academic English/English as a Second Language*

Hu Ying, Ph.D. Princeton University, *Professor of Chinese; Comparative Literature* (narrative literature, translation theory, feminist theory)

Mei Zhan, Ph.D. Standford University, *Associate Professor of Anthropology; Culture and Theory* (medical anthropology, cultural and social studies of science, globalization, transnationalism, gender, China and United States)

Paul A. Zissos, Ph.D. Princeton University, *Associate Professor of Classics* (Latin epic, medieval Latin, Roman culture)

Academic English and ESL Courses

AC ENG 20A. Academic Writing. 5 Units.
Grammar, sentence structure, paragraph and essay organization of formal written English. Course may be offered online.

Prerequisite: Placement into AC ENG 20A.

Grading Option: Pass/no pass only.

AC ENG 20B. Academic Writing. 5 Units.
Grammar, sentence structure, paragraph and essay organization of formal written English. Course may be offered online.

Prerequisite: AC ENG 20A or placement into AC ENG 20B.

Grading Option: Pass/no pass only.

AC ENG 20C. Essentials of Academic Writing. 5 Units.
Grammar, sentence structure, paragraph and essay organization of formal written English. Course may be offered online.

Prerequisite: AC ENG 20B or placement into AC ENG 20C.

Grading Option: Pass/no pass only.

AC ENG 20D. Academic Writing. 5 Units.
Grammar, sentence structure, paragraph and essay organization of formal written English. Course may be offered online.

Prerequisite: AC ENG 20C.

Grading Option: Pass/no pass only.

AC ENG 22A. Academic English Reading and Vocabulary. 2 Units.
Intensive reading exercises with occasional practice in extensive reading, focusing on comprehension, development of vocabulary, syntax, rhetorical features, reading strategies, and study skills.

Prerequisite: Placement into AC ENG 22A.

Grading Option: Pass/no pass only.

AC ENG 22B. ESL Reading and Vocabulary. 2 Units.
Extensive reading and discussion with emphasis on journal articles, textbook chapters, notetaking, and the interpretation of charts, diagrams, tables, and figures.

Grading Option: Pass/no pass only.

AC ENG 23A. ESL Pronunciation I. 2 Units.
Designed for international graduate students. Provides an emphasis on pronunciation. Development of listening and speaking skills in five fundamental areas: pronunciation, intonation, word stress, listening comprehension, and informal campus communication. Presentations of personal experiences and reports on graphs.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 23B. ESL Conversation II. 2 Units.
Designed for international graduate students. Provides an emphasis on conversational fluency. Further development of listening and speaking skills: review of English sounds, sentence stress, and rhythm. Oral reports, debates, and reports on graphs and surveys.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 23C. ESL Advanced Communication III. 2 Units.
Designed for international graduate students with advanced communication skills. Further development of listening and speaking skills: review of minimal pairs, consonant blends, intonation, stress and rhythm. Oral presentations emphasized utilizing graphs, syllabi, academic terms, and video presentations on academic work.

Prerequisite: AC ENG 23A or AC ENG 23B.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 24. ESL International TA Workshop. 2 Units.
Designed for advanced-level international students preparing to be teaching assistants. Provides extensive practice in oral and written communication skills associated with teaching introductory-level college courses and participating in academic presentations and discussions. Review and analysis of language problems.

Prerequisite: AC ENG 23A or AC ENG 23B or AC ENG 23C.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 28. Grammar. 2-4 Units.
A full review of English grammar covering the following areas: grammar terms, verb tenses, verb forms, conditionals, passive and word forms, punctuation, sentence structure. The concepts are applied in targeted sentence and paragraph writing practice.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 29. Special Topics in ESL. 2 Units.
Directed and individualized work in English as a second language not covered in the AC ENG 20, 21, 22 sequence. Course may be offered online.

Grading Option: Pass/no pass only.

Repeatability: Unlimited as topics vary.

AC ENG 139W. Advanced Academic Writing Across the Curriculum. 4 Units.
Designed for transfer students who speak English as a second language. Focuses on developing academic reading and writing skills including essay content, organization, vocabulary, and grammar. Academic content also covered.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

African American Studies Courses

AFAM 40A. African American Studies I. 4 Units.
Discusses main contours of African American experience from the forced importation of Africans into the Americas in the late fifteenth century to the development of social movements in post-emancipation societies of the late nineteenth and twentieth centuries.

((III or IV) and VII).

AFAM 40B. African American Studies II. 4 Units.
Introduction to the history of modern racial thinking in Western society and its relationship to the material contexts of racial oppression, with emphasis on its development in British colonies and U.S.

((III or IV) and VII).

AFAM 40C. African American Studies III. 4 Units.
Introduction to theories of racial blackness in the modern world, with emphasis on developments in British colonies and U.S. Traces emergence of blackness as term of collective identity, social organization, and political mobilization.

((III or IV) and VII).

AFAM 50. Introductory Topics in African American Studies. 4 Units.
Introduction to a broad range of topics in African American studies, exploring history, literature, art, culture, politics, and contemporary social issues. Topical organization of courses addresses issues that have been of importance historically and are reshaping the African diaspora today.

Repeatability: Unlimited as topics vary.

AFAM 111A. Modern African American Art. 4 Units.
Investigates the history of modern African American art; emphasis on the politics of representation. Examines art in a variety of media from material culture and textiles to painting and photography. Issues of migration, nationalism, gender, sexuality, and hybridity are discussed.

Same as ART HIS 164A.

AFAM 111B. Contemporary African American Art. 4 Units.
Investigates the history of contemporary African American art; emphasis on the politics of representation. Explores art in a variety of media: painting, sculpture, photography, installation, and new media. Cultural politics, appropriation, identity, gender, sexuality, hybridity and civil rights issues discussed.

Same as ART HIS 164B.

AFAM 112A. Early African American Literature. 4 Units.
Examines the earliest forms of black literary practices, including the jeremiad, the slave narrative, the pamphlet, poetry, the short story, and how these literary forms are related to the historical experiences of enslavement and emancipation.

Repeatability: Unlimited as topics vary.

AFAM 112B. African American Literature 1900-Present. 4 Units.
Examines individual literary forms and/or authors, as well as movements such as the Harlem Renaissance and the Black Arts Movement. Explores how black literary practices represent the conditions of modern subjectivities and environments.

Repeatability: Unlimited as topics vary.

AFAM 113. African American Cinema and Media. 4 Units.
Explores the diversity of Black creative production and the historical, social, and economic forces that shaped their emergence. May include Black film, hip-hop culture, fine art, photography, and others.

Repeatability: Unlimited as topics vary.

AFAM 114. International Cultures. 4 Units.
Explores the various cultures of the African diaspora and their impacts on a global scale. Examines a diverse range of media, including music (reggae, hip-hop), literature, film, and others and the links between culture and social movements throughout the diaspora.

Repeatability: Unlimited as topics vary.

AFAM 115. Race and Visual Representation. 4 Units.
Examines film, documentary, fine art, photography, and other visual media to explore the multiple ways in which ideas about race are projected and woven through the visual landscape and the impacts this has on perpetuating social inequalities.

Repeatability: Unlimited as topics vary.

AFAM 116. African Literatures. 4 Units.
Examines literary figures, forms, and movements of African societies. Explores how these literatures represent indigenous cultural practices, the conditions of modernity, and the relations between both.

Repeatability: Unlimited as topics vary.

AFAM 117. Asian American and African American Relations. 4 Units.
Addresses relationships of Asian American and African American communities in the United States. Topics include race, class, gender, labor, economic systems, political mobilization, community, civil rights, activism, cultural expression.

Same as HISTORY 152B, ASIANAM 167.

AFAM 118. Topics in African American Humanities. 4 Units.
Provides students with an opportunity to pursue advanced work in African American studies from one or more humanities approaches (literature, film and media studies, art history, and others).

Repeatability: Unlimited as topics vary.

AFAM 123. African American Queer Theory. 4 Units.
Explores intersections of African American studies, women's studies, gay and lesbian studies, and queer theory to challenge dominant views of race, gender, and sexuality. Considers historical and social scientific approaches to topic as well as arts and humanities.

AFAM 124. Race and Gender. 4 Units.
Examines the social construction of the categories of race and gender in international and national contexts of African American communities. Texts address the intersection of economic, social, and scientific theories of difference that formed each category in various historical contexts.

Repeatability: Unlimited as topics vary.

AFAM 125. African American Women in Art. 4 Units.
Examines depictions of and by African American women in art and popular culture through a variety of media including textiles, painting, sculpture, photography, and installation. Focuses on African American women's experiences, perspectives, and strategies for contemporary representation.

Same as ART HIS 164D.

AFAM 128. Topics in Gender/Sexuality. 4 Units.
Expressions of genders and sexualities across the spectrum of African American experience and creativity.

Repeatability: Unlimited as topics vary.

AFAM 134A. Caribbean History: Colonization to Emancipation. 4 Units.
Exploration of the history of the archipelago from pre-Columbian times to the end of slavery; examining the impact of European colonization, decimation of the indigenous populations, African slavery, resistance, and emancipation; the unity and diversity of experience in region.

Same as HISTORY 164A.

AFAM 134B. Caribbean History: Emancipation to Independence. 4 Units.
Post-emancipation and anti-colonial struggles ending with political independence for most of the region. Examines social, political, economic, cultural dimensions of post-emancipation period, including large-scale migration to Central America, the U.S., and Britain; the region's global cultural and political contribution.

Same as HISTORY 164B.

AFAM 137. History of the African Diaspora. 4 Units.
Examines the causes and consequences of the multiple diasporas of African peoples since the sixteenth century in the Atlantic world, especially the Americas and Europe.

Same as HISTORY 134E.

AFAM 138. Topics in African American History. 4 Units.
Studies in selected areas of African American history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as HISTORY 150.

AFAM 142. Topics in African American Drama. 4 Units.
Considers African American theatrical performance and production, including acting, design and production, dramaturgy, criticism and theory, and stagecraft.

Repeatability: Unlimited as topics vary.

AFAM 143. Topics in African American Music. 4 Units.
Examines African American musical forms and traditions, such as blues, jazz, and reggae, in performance and/or critical and theoretical contexts.

Repeatability: Unlimited as topics vary.

AFAM 144. Topics in Expressive Forms. 4 Units.
Examines various forms of aesthetic expression in the African diaspora, including dance, music, and the plastic arts, as well as artistic visions of black cyberspace, digital activism, film, video, and aesthetic conceptions of the future.

Repeatability: Unlimited as topics vary.

AFAM 145. African Americans and Photography. 4 Units.
Explores depictions of and by African Americans through photography. Examines the history of photography in relationship to African American culture through a variety of media from early daguerreotype processes to digital imagery.

Same as ART HIS 164E.

AFAM 148. Advanced Studio Topics. 4 Units.
Provides an intensive and specialized working environment for practice of a variety of fine arts as practiced in African American traditions: painting, drawing, sculpture, photography, video, music, digital arts, and performance.

Repeatability: Unlimited as topics vary.

AFAM 151. Comparative Minority Politics. 4 Units.
Examines the political experiences of Blacks, Latinos, and Asian Americans in the United States from roughly 1950 to the present. Focuses on how each group has pursued political empowerment via both conventional political channels and social movements.

Same as ASIANAM 132, CHC/LAT 147, POL SCI 124C.

AFAM 152. African American Politics. 4 Units.
Examines politics of African Americans in order to gain a broader perspective of the American political process. Major developments in African American politics (including the civil rights movement, Black presidential bids), continuing problem of racism, responsiveness of key governing institutions.

Same as POL SCI 124E.

AFAM 153. African American Psychology. 4 Units.
Historical overview of the development of black psychology and the African American frame of reference. Topics include personality development, psychological assessment, issues in education, black mental health, and the role of the African American psychologist in the community.

Same as PSYCH 174E.

AFAM 154. African American Social Formations. 4 Units.
Topics which promote critical investigation into the historical, political, and social formations associated with the Black Diaspora.

Repeatability: Unlimited as topics vary.

AFAM 155. Intercultural Studies. 4 Units.
Studies relationships between various cultural formations within the Black Diaspora and the exchange, amalgamations, and tensions between Black Diasporic formations and non-Black formations. Examines expressions of racialization as representation, adaption, and resistance.

Repeatability: Unlimited as topics vary.

AFAM 156. African Societies and Politics. 4 Units.
Examines the violent incorporation of Africa within European modernity. Places the discourse of Pan-Africanism, African Nationalisms, Negritude, African Marxism, and/or African Socialism in juxtaposition to the forces of capitalism, colonialism, and imperialism that restructure African history.

Repeatability: Unlimited as topics vary.

AFAM 157. Critical Race Theory. 4 Units.
Introduction to Critical Race Theory and key American cases on racial inequality. Using this literature, examines the possibilities and pitfalls of legal claims of race, gender, and sexuality discrimination in the age of colorblindness.

Same as CRM/LAW C178.

Restriction: Upper-division students only.

AFAM 158. Topics in African American Social Sciences. 4 Units.
Provides students with an opportunity to pursue advanced work in African American studies from one or more social science approaches (psychology, sociology, anthropology, economics, and others).

Repeatability: Unlimited as topics vary.

AFAM 162W. The Black Protest Tradition. 4 Units.
History and discourses of the black protest tradition. Traces emergence of black protest against racial slavery and white supremacy from the early colonial period to present and the complex elaboration of identity politics within black communities in the twentieth century.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only.

(Ib)

AFAM 163. Seminar in African American Studies. 4 Units.
Explores theoretical and methodological issues in Black Studies via concentrated work on a specific ensemble of questions. Emphasis is on generating student responses to the material covered through oral and written reports.

Repeatability: Unlimited as topics vary.

AFAM 198. Directed Group Study. 1-4 Units.
Special topics through directed reading. Paper required.

Repeatability: May be taken for credit for 24 units.

AFAM 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading. Paper required.

Repeatability: May be repeated for credit unlimited times.

AFAM 399. University Teaching. 4 Units.
Limited to teaching assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Arabic Courses

ARABIC 1A. Fundamentals of Arabic. 5 Units.
Designed for students with little or no exposure to Arabic. Using real world texts, provides a firm foundation in the orthography, grammar, syntax, and vocabulary of Modern Standard Arabic. Introduces students to Arab world cultures. Course may be offered online.

Prerequisite: Placement into ARABIC 1A.

Overlaps with ARABIC S1AB.

Restriction: ARABIC 1A and ARABIC S1AB may not be taken for full credit.

ARABIC 1B. Fundamentals of Arabic. 5 Units.
Designed for students with little or no exposure to Arabic. Using real world texts, provides a firm foundation in the orthography, grammar, syntax, and vocabulary of Modern Standard Arabic. Introduces students to Arab world cultures. Course may be offered online.

Prerequisite: ARABIC 1A or placement into ARABIC 1B. ARABIC 1A with a grade of C or better.

Overlaps with ARABIC S1AB, ARABIC S1BC.

Restriction: ARABIC 1B and ARABIC S1AB and ARABIC S1BC may not be taken for full credit.

ARABIC 1C. Fundamentals of Arabic. 5 Units.
Designed for students with little or no exposure to Arabic. Using real world texts, provides a firm foundation in the orthography, grammar, syntax, and vocabulary of Modern Standard Arabic. Introduces students to Arab world cultures.

Prerequisite: ARABIC 1B or ARABIC S1AB or placement into ARABIC 1C. ARABIC 1B with a grade of C or better. ARABIC S1AB with a grade of C or better.

Overlaps with ARABIC S1BC.

Restriction: ARABIC 1C and ARABIC S1BC may not be taken for full credit.

(VI)

ARABIC S1AB. Introductory Arabic. 7.5 Units.
First half of first-year Arabic. Designed for students with little or no exposure to Arabic. Provides students with firm foundation in orthography, grammar, syntax, and vocabulary of written and spoken Modern Standard Arabic. Course may be offered online.

Prerequisite: Placement in ARABIC 1A or ARABIC S1AB.

Overlaps with ARABIC 1A, ARABIC 1B.

Restriction: ARABIC S1AB and ARABIC 1A and ARABIC 1B may not be taken for full credit.

ARABIC S1BC. Introductory Arabic. 7.5 Units.
Second half of first-year Arabic. Continuation of S1AB, or for students with limited exposure to Arabic. Provide firm foundation in orthography, grammar, syntax, and vocabulary of written and spoken Modern Standard Arabic. Course may be offered online.

Prerequisite: ARABIC 1B or ARABIC S1AB or placement into ARABIC 1B or ARABIC 1C. ARABIC 1B with a grade of C or better. ARABIC S1AB with a grade of C or better.

Overlaps with ARABIC 1B, ARABIC 1C.

Restriction: ARABIC S1BC and ARABIC 1B and ARABIC 1C may not be taken for full credit.

(VI)

ARABIC 2A. Intermediate Arabic Language and Culture. 4 Units.
Designed for students to advance their Arabic language skills to intermediate level. Students will develop their understanding of grammar and syntax to a more sophisticated level. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: ARABIC 1C or ARABIC S1BC or placement into ARABIC 2A. ARABIC 1C with a grade of C or better. ARABIC S1BC with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ARABIC 2B. Intermediate Arabic Language and Culture. 4 Units.
Designed for students to advance their Arabic language skills to intermediate level. Students will develop their understanding of grammar and syntax to a more sophisticated level. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: ARABIC 2A or placement into ARABIC 2B. ARABIC 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ARABIC 2C. Intermediate Arabic Language and Culture. 4 Units.
Designed for students to advance their Arabic language skills to intermediate level. Students will develop their understanding of grammar and syntax to a more sophisticated level. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: ARABIC 2B or placement into ARABIC 2C. ARABIC 2B with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ARABIC 10A. Arabic Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. ARABIC 10A is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

ARABIC 10B. Arabic Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. ARABIC 10B is for language mentees.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

ARABIC 150. Modern Arabic Literature in Translation. 4 Units.
In English. Major works in Arabic literature and culture in context.

Repeatability: Unlimited as topics vary.

ARABIC 199. Independent Study. 4 Units.
Research paper required.

Repeatability: May be repeated for credit unlimited times.

Art History Courses

ART HIS 40A. Ancient Egyptian, Greek, and Roman Art and Architecture. 4 Units.
An overview of Prehistoric, Egyptian, Greek, and Roman art. Considers how and why the peoples of antiquity created art and architecture, as well as the significance of these works within their social, religious, and historical contexts.

(IV, VIII)

ART HIS 40B. Arts of Europe: Medieval and Renaissance. 4 Units.
Focuses on the art of the Mediterranean area and Europe between ca. A.D. 350 and 1600. By means of movements and artists, examines the cultural identities of the Christian, Islamic, and Early Modern worlds.

(IV, VIII)

ART HIS 40C. Early Modern and Modern Art in Europe and America. 4 Units.
The visual arts from the seventeenth to the twenty-first centuries. Explores the purposes and meaning of painting, sculpture, and architecture in relation to artists, viewers, and historical events.

(IV, VIII)

ART HIS 42A. History of Asian Art: Arts of India. 4 Units.
Emphasizing Hindu, Buddhist, and Islamic art of greater India (Pakistan, Bangladesh, Sri Lanka) from proto-historic to modern times. Themes include art as a source of history, commercial and religious pan-Asian connections, nationalism, and modern versus historical identities.

(IV, VIII)

ART HIS 42B. History of Asian Art: Arts of China. 4 Units.
An introduction to the arts and visual culture of China from Neolithic to modern times. Themes includes the representation of power, death and the afterlife, popular culture and elite arts, landscape and women's painting, and concludes with contemporary China.

(IV, VIII)

ART HIS 42C. History of Asian Art: Arts of Japan. 4 Units.
Examines compelling images and objects of spirit and power created in Japan over many centuries. Themes include Buddhist icons, narative illustration, popular prints, architecture, manga, and the avant-garde. Japanese interactions with Korean, Chinese, and European culture are emphasized.

(IV, VIII)

ART HIS 42D. History of Asian Art: Arts of Islam. 4 Units.
Examines past and present Islamic art, spanning 1,500 years and extending from the Americas through Indonesia. Themes include Islam as a globalizing force, the definition of "Islamic," and the competing roles of religion and politics in making art.

(IV, VIII)

ART HIS 100. Studies in Ancient Art . 4 Units.
Topics in Egyptian, Prehistoric, and Etruscan art of the Mediterranean area treated with specific reference to relevant cultural and historical settings. Specialized courses in Greek and Roman art are also taught.

Repeatability: Unlimited as topics vary.

ART HIS 103. Studies in Greek Art. 4 Units.
Topics in Greek art, architecture, and topography from the Prehistoric period through the end of the fourth century B.C.E.

Repeatability: Unlimited as topics vary.

ART HIS 107. Studies in Roman Art. 4 Units.
Topics in Hellenistic and Roman art and architecture; stresses historical and political background.

Repeatability: Unlimited as topics vary.

ART HIS 110. Studies in Medieval Art. 4 Units.
Specialized topics in Medieval art and architecture in Europe, the Mediterranean area, and the Near East between the fourth and fifteenth centuries. Examples: the Art of the Migration Period, Medieval City.

Repeatability: Unlimited as topics vary.

ART HIS 111A. Later Roman and Byzantine Art: ca. 300-650. 4 Units.
Studies in the development of the art and architecture of the Late Roman and Byzantine Empires between ca. 300 and 650.

ART HIS 111B. Byzantine Art: 650-1450. 4 Units.
Studies in the development of the art and architecture of the Byzantine Empire between ca. 650 and 1450.

ART HIS 112. Studies in Early Christian and Byzantine Art. 4 Units.
Selected topics on the development of the art and architecture of the Later Roman and Byzantine Empires between ca. 300 and 1453. Examples: Early Christian architecture, Byzantine painting.

Repeatability: Unlimited as topics vary.

ART HIS 114. Studies in Western Medieval Art. 4 Units.
Selected topics on the development of art and architecture in Western Europe between ca. 700 and 1400. Examples: Romanesque painting, Gothic architecture.

Repeatability: Unlimited as topics vary.

ART HIS 120. Studies in Renaissance and Baroque Art. 4 Units.
Selected topics on the art and architecture of Europe between the fifteenth and eighteenth centuries. Examples: Renaissance and Baroque prints, Bruegel to Rubens.

Repeatability: Unlimited as topics vary.

ART HIS 121. Studies in Southern Renaissance Art. 4 Units.
Selected topics determined by individual faculty members exploring historical developments and individual artists of the fifteenth and sixteenth centuries in Italy and Spain. Examples: Renaissance Venice, Age of Michelangelo.

Repeatability: Unlimited as topics vary.

ART HIS 123. Studies in Northern Renaissance Art. 4 Units.
Selected topics determined by individual faculty members exploring historical developments and individual artists of the fifteenth and sixteenth centuries in Northern Europe. Examples: Late Medieval art, painting from Van Eyck to Bosch.

Repeatability: Unlimited as topics vary.

ART HIS 125. Studies in Southern Baroque Art. 4 Units.
Selected topics determined by individual faculty members exploring historical developments and individual artists of the seventeenth and eighteenth centuries in Italy and Spain. Example: Rome in the seventeenth century.

Repeatability: Unlimited as topics vary.

ART HIS 128. Studies in Northern Baroque Art. 4 Units.
Selected topics determined by individual faculty members exploring historical developments and individual artists of the seventeenth and eighteenth centuries in Northern Europe. Example: the Age of Rembrandt.

Repeatability: Unlimited as topics vary.

ART HIS 134A. Early Modern European Art: Age of Absolutism. 4 Units.
History of European painting, sculpture, and architecture from 1643 to 1789, during the emergence of nation states dominated by kings and court.

ART HIS 134B. Modern European Art: From Revolution to Realism. 4 Units.
History of European painting and other arts from 1789 to 1851, as the continent lurched through revolution, reaction, and the birth of modern societies and sensibilities.

ART HIS 134C. Modern European Art: From Impressionism to the Fauves. 4 Units.
History of European painting and urban transformation from 1851 to 1907, when Paris stood strong as the unquestioned cultural capital of the nineteenth century.

ART HIS 134D. Modern European Art: From Cubism to Surrealism. 4 Units.
History of European painting, sculpture, and design from 1907 to 1940, when Paris and painting lost their dominance as other cultural centers and other media claimed renewed importance.

ART HIS 134E. Topics in Modern European Art. 4 Units.
Selected topics within the period 1643 to 1940.

Repeatability: Unlimited as topics vary.

ART HIS 140A. History of Contemporary Art. 4 Units.
Selected topics exploring historical developments of contemporary art from 1945 to the present. Examples: American Art 1945-1989, European Art 1945-1989, Art After 1989. Works of art are studied as cultural, social, and political practices.

Repeatability: Unlimited as topics vary.

ART HIS 140B. Topics in Contemporary Art. 4 Units.
Selected topics exploring artistic movements, artists, and/or issues in contemporary art from 1945 to the present. Examples: Junk Art, Countercultures, Art and Politics Now. Works of art are studied as cultural, social, and political practices.

Repeatability: Unlimited as topics vary.

ART HIS 145A. Studies in Modern Architecture. 4 Units.
Architecture and related design practices from the late eighteenth century through 1945 are studied in relation to social, aesthetic, technological, and political questions.

Repeatability: Unlimited as topics vary.

ART HIS 145B. Studies in Architecture after 1945. 4 Units.
Architecture and related design practices from 1945 through present are studied in relation to social, aesthetic, technological, and political questions.

Repeatability: Unlimited as topics vary.

ART HIS 145C. Topics in the History of Modern and Contemporary Architecture. 4 Units.
Varying topics from the late eighteenth century to the present. Architecture and related design practices are studied in relation to social, aesthetic, technological, and political questions.

Repeatability: Unlimited as topics vary.

ART HIS 150. Studies in Asian Art. 4 Units.
Topics include visual studies in China, Japan, Korea and India.

Repeatability: Unlimited as topics vary.

ART HIS 151A. Ancient China. 4 Units.
Examines the early history of Chinese art, focusing on the development and uses of art and material culture to express political, social, and religious beliefs, particularly in art made for the court, tomb, and temple.

ART HIS 151B. Later Imperial China. 4 Units.
Investigates the uses, subjects, styles, and social contexts of art made in the later Imperial dynasties, whether court art, religious art, women's painting, scholar painting, or art for the market.

ART HIS 151C. Modern China. 4 Units.
Examines the evolution and media of Chinese art and visual culture in the context of modern China's sweeping historical, social, and political changes.

ART HIS 155A. Ancient India. 4 Units.
Examines the visual history of the region defined as "India" today, but necessarily encompassing modern Bangladesh and Pakistan. Culminates with the supposed Golden Age of the Gupta empire and its far-reaching legacies.

ART HIS 155B. Medieval India. 4 Units.
Begins with the Gupta Period's aesthetic legacies in South Asia's architecture, sculpture, and painting. Explores the dispersal of Islam throughout South Asia, including the Muslim communities of southern India.

ART HIS 155C. Modern India. 4 Units.
Examines the imperial patronage of the Mughal emperors, covering their territorial holdings extending from Afghanistan through western Bangladesh. Continues with the "aftermath" of the Mughal empire and the rise of British commercialism and colonialism.

ART HIS 155D. Topics in the Art and Architecture of India. 4 Units.
Studies in selected areas of Art and Architecture of India. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ART HIS 156. Art and Globalization, Modern. 4 Units.
Study of modern art as a cause and expression of increasing contacts between cultures. Focusing on regions in Asia and the Americas, adoption of European oil painting, indigenous art movements, and national capital architecture are explored.

ART HIS 162A. Early Modern Japan. 4 Units.
Focuses on the Edo Period (1615-1868), an enormously productive time in the early modern development of Japanese art in woodblock prints, painting, and crafts. Topics include the image of the beautiful woman, kabuki actor prints, and intoxicated ink painting.

ART HIS 162B. Modern Japan. 4 Units.
Explores artistic developments during the tumultuous modernization of Japan from 1868-1945, with a focus on painting, commercial art, and architecture. Topics include arts of the Japanese Empire, neo-traditional arts, responses to European modernism, and war propaganda.

ART HIS 162C. Contemporary Japan. 4 Units.
Study of various media of Japanese art from the time of war defeat in 1945 until the present. Topics include artists' responses to the nuclear bomb, the aesthetics of the "economic miracle," avant-garde groups, manga, and innovations in architecture.

ART HIS 163. Asian American Art, Contemporary. 4 Units.
Study of the Asian American experience in contemporary art and visual culture. Art by Asian Americans of diverse backgrounds as well as the history of visualization of Asian identities in American art/visual culture.

ART HIS 164A. Modern African American Art. 4 Units.
Investigates the history of modern African American art; emphasis on the politics of representation. Examines art in a variety of media from material culture and textiles to painting and photography. Issues of migration, nationalism, gender, sexuality, and hybridity are discussed.

Same as AFAM 111A.

ART HIS 164B. Contemporary African American Art. 4 Units.
Investigates the history of contemporary African American art; emphasis on the politics of representation. Explores art in a variety of media: painting, sculpture, photography, installation, and new media. Cultural politics, appropriation, identity, gender, sexuality, hybridity and civil rights issues discussed.

Same as AFAM 111B.

ART HIS 164C. Topics in African American Art. 4 Units.
Studies in selected areas of African American Art. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ART HIS 164D. African American Women in Art. 4 Units.
Examines depictions of and by African American women in art and popular culture through a variety of media including textiles, painting, sculpture, photography, and installation. Focuses on African American women's experiences, perspectives, and strategies for contemporary representation.

Same as AFAM 125.

ART HIS 164E. African Americans and Photography. 4 Units.
Explores depictions of and by African Americans through photography. Examines the history of photography in relationship to African American culture through a variety of media from early daguerreotype processes to digital imagery.

Same as AFAM 145.

ART HIS 165A. Early American Art. 4 Units.
An examination of American visual culture from 1620 to 1860 from the era of European exploration and colonization of the New World to the beginning of the Civil War.

ART HIS 165B. Nineteenth Century American Art. 4 Units.
An exploration of American visual culture from 1860 to 1900, including paintings, sculpture, and photographs produced during the Civil War and during the decades of prosperity that followed.

ART HIS 165C. Modern American Art. 4 Units.
Focusing on the period from 1900 until 1965, this course considers the emergence and institutionalization of modern art in the United States.

ART HIS 165D. Topics in American Art. 4 Units.
Varying topics within the period 1620 to 1970. Works of art are studied in their cultural, social, and political contexts.

Repeatability: Unlimited as topics vary.

ART HIS 167. Latin American Art History. 4 Units.
Historical periods vary with each offering and may range from pre-Columbian societies, through the colonial era, to developments in modern and contemporary art.

Repeatability: Unlimited as topics vary.

ART HIS 175. Studies in Native and Tribal Art. 4 Units.
Varying topics on the art and culture of native and tribal societies. For example, North American Indians.

Repeatability: Unlimited as topics vary.

ART HIS 180. Topics in the Criticism of Art. 4 Units.
Selected topics discussed on the theoretical and/or practical dimensions of art historical criticism.

Repeatability: Unlimited as topics vary.

ART HIS 181. Topics in Museum Studies. 4 Units.
Addresses the historical and contemporary function of the museum as an instructional device. The function of exhibitions in the public sphere, and the roles of curators, educators, and the public are analyzed.

Repeatability: Unlimited as topics vary.

ART HIS 183B. Twentieth-Century Photographic History. 4 Units.
Varying topics within the history of photography in the twentieth century. Photographic practice studied in relation to art history, cultural history, and social history.

Repeatability: Unlimited as topics vary.

ART HIS 183C. Selected Topics in Photographic History. 4 Units.
Varying topics within the history of photography from the early nineteenth century to the present. Photographic practice studied in relation to art history, cultural history, and social history. Examples: documentary; pictorialism and art photography; photomontage, photographic books.

Repeatability: Unlimited as topics vary.

ART HIS 185. Topics in Visual Studies. 4 Units.
Interdisciplinary topics on the cultural analysis of visual artifacts and practices.

Repeatability: Unlimited as topics vary.

ART HIS 190W. Practicum for Majors. 4 Units.
Theory and practice of art history with emphasis on formal and social models of analyzing and writing about art.

Prerequisite: Satisfactory completion of the Lower-division Writing requirement.

Restriction: Art History majors only. Upper-division students only.

(Ib)

ART HIS 198. Advanced Seminar: Topics in Art History. 4 Units.
Discussion and report-oriented seminar with emphasis on reading, writing, and thinking about problems in art history. Topics vary according to the faculty/instructor. Examples: Gothic Cathedral, Portraiture East and West.

Prerequisite: Recommended: ART HIS 190W.

Repeatability: Unlimited as topics vary.

Restriction: Art History majors have first consideration for enrollment. Upper-division students only.

ART HIS 199. Independent Study in Art History. 1-4 Units.
Supervised, but independent reading or research on art historical topics.

Repeatability: May be taken for credit 4 times.

Restriction: Art History majors only.

ART HIS 399. University Teaching. 4 Units.
Limited to teaching assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Asian American Studies Courses

ASIANAM 50. Asian American Histories. 4 Units.
Examines and compares diverse experiences of major Asian American groups since the mid-nineteenth century. Topics include origins of emigration; the formation and transformation of community; gender and family life; changing roles of Asian Americans in American society. Formerly ASIANAM 60A.

Same as SOC SCI 78A, HISTORY 15C.

((III or IV) and VII).

ASIANAM 51. The U.S. and Asia. 4 Units.
Explores the historical and contemporary transnational linkages between the U.S. and regions in Asia and their resultant flows of people, goods, and ideas. Attention given to the role of militarism and processes of globalization, and the histories of cultural contact/conflict.

((III or IV) and VIII).

ASIANAM 52. Asian American Communities. 4 Units.
Examines the renewal of Asian immigration following World War II. Explores contemporary Asian American populations and communities in the U.S., and the impact of contemporary Asian immigration on the U.S. political economy and social order.

Same as SOC SCI 78B.

(III, VII)

ASIANAM 53. Asian Americans and Comparative Race Relations. 4 Units.
Analyzes the Asian American experience in comparative perspective, which includes comparisons of different ethnic and racial groups, and across gender and class. Possible topics include labor, economy, politics, migration, nation, popular culture, gender, family, sexuality, and multiraciality.

Same as SOC SCI 78C.

(III, VII)

ASIANAM 54. Asian American Stories. 4 Units.
Examines stories from Asian American communities through literary texts and other media. Selected themes may include the following: dislocation/relocation, finding/inventing a usable past, poetics/politics in language, identities/ethnicities.

(IV, VII)

ASIANAM 55. Asian Americans and the Media. 4 Units.
Investigates popular representations of and cultural productions by Asian Pacific Americans and Asians in the Americas from the late-nineteenth century to the present. Cultural media may include political cartoons, film/television, popular music, visual art, blogs/Web sites, and performance.

(IV, VII)

ASIANAM 100W. Research Methodologies for Asian American Studies. 4 Units.
Explores various research methodologies for Asian American Studies combining theoretical knowledge with field research. Goals: conduct field research about immigrants and refugees from Asia. Topics vary: migration and labor, assimilation and cultural preservation, cultural expressions in the diaspora.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

ASIANAM 110. Asian American Writers. 4 Units.
Literary analysis of Asian American writers' representations of issues of identity, class, history among others. Variety of literary forms—novel, poem, drama, essay—included in a study of a variety of Asian American ethnic groups.

Repeatability: Unlimited as topics vary.

ASIANAM 111. Asian American History. 4 Units.
Introduction to important themes in the history of people of Asian ancestry in the United States from the nineteenth century to the present.

Repeatability: Unlimited as topics vary.

ASIANAM 112. Asian American Art History. 4 Units.
Investigation of Asian American experience expressed by art and visual culture throughout the twentieth century. Art by Asian Americans of diverse backgrounds as well as the history of cultural visualization of Asian identities in American art/visual culture.

Repeatability: Unlimited as topics vary.

ASIANAM 114. Asian American Film and Video. 4 Units.
Topics include histories of Asian American film and video, including documentaries, experimental, short subjects, feature-length independent film, and other forms of cinematic expression. Explores issues of identity (national, racial, gendered, among others).

Repeatability: Unlimited as topics vary.

ASIANAM 115. Asian American Media and Arts. 4 Units.
Includes the study of Asian American history and society through the analysis of a variety of media forms such as painting, music, cinema, video, and other artistic representations.

Repeatability: Unlimited as topics vary.

ASIANAM 116. Asian Americans and Popular Culture. 4 Units.
Focuses on Asian Americans' relationship to popular culture as both producers and consumers. Topics include consumer cultures and subcultures, cyberspace and public space, popular music, indy comics and other print media.

Repeatability: Unlimited as topics vary.

ASIANAM 117. Sexuality in Asian and Asian American Film and Video. 4 Units.
Analyzes sexuality and gender roles in specific social, historical, and political contexts represented in selected Asian and Asian American films and videos, in terms of feminine/masculine constructions, the body, family roles.

ASIANAM 118. Asian American Performance and Writing. 4 Units.
Intensive performing workshop producing work inspired by community, personal experience, international issues. Focuses on new ways of understanding ethnicity, class, and gender issues through performance.

ASIANAM 131. Asian American Politics. 4 Units.
Provides various overviews of politics within Asian American communities. May compare with African American and/or Latino politics.

Repeatability: Unlimited as topics vary.

ASIANAM 132. Comparative Minority Politics. 4 Units.
Examines the political experiences of Blacks, Latinos, and Asian Americans in the United States from roughly 1950 to the present. Focuses on how each group has pursued political empowerment via both conventional political channels and social movements.

Same as AFAM 151, CHC/LAT 147, POL SCI 124C.

ASIANAM 134. Asian American Community Public Health. 4 Units.
Focuses on major issues and concepts of community health and their application to public health programs for Asian American populations. Analyzes individual, institutional, community, and policy factors that influence a person's health status within a larger environmental context.

Same as PUBHLTH 134.

ASIANAM 135. Special Topics in Asian American Social Sciences and Social Ecology. 4 Units.
Explores a broad range of issues in Asian American social sciences and social ecology.

Repeatability: Unlimited as topics vary.

ASIANAM 137. Asian American Labor. 4 Units.
Explores history of Asian Americans and work from the nineteenth century to the present. Areas of study include migration, colonialism, family, social organization, and work culture.

Same as HISTORY 152A.

ASIANAM 138. Race and Urban Space. 4 Units.
Examines how ethnic and racial processes shape and structure interactions in urban settings, such as schools, housing, employment, and public spaces, with attention to the international impact of globalization and postcolonial forces.

ASIANAM 139. Asian Americans and Education. 4 Units.
Introduces students to the major issues facing Asian Americans in K-16 education and schooling experiences through scientific, historical, and interdisciplinary approaches, in both mainstream and minority education.

ASIANAM 141. Asian American Psychology. 4 Units.
Examines the social and psychological concerns of Asian Americans; e.g., coping with racial prejudice, maintaining bicultural identities, dealing with cross-cultural conflicts in interracial relationships, and trying to reconcile generational differences between immigrant parents and their American-born children.

Same as PSYCH 174A.

ASIANAM 142. Muslim Identities in North America. 4 Units.
Explores multiple identities of Muslims in North America, including indigenous Muslims and immigrants of many national origins. Explores religious, political, cultural, ethnic, class differences among American Muslims, turning to Islamic institutions or events near UCI to conduct fieldwork projects.

Same as ANTHRO 125Z.

ASIANAM 143. Religious Traditions of Asian Americans. 4 Units.
Studies the religious traditions of Asian Americans, focusing on the transplantation of religious institutions, establishment of sacred spaces, celebration of religious holidays, socialization of children, as well as birth, marriage, gender relations, death, family.

Same as SOCIOL 136.

ASIANAM 144. The Politics of Protest. 4 Units.
Examines the Civil Rights, Black Power, and women’s movements in relationship to the Asian American movement. Uses social movement theories to illuminate the cases, and the cases to critique and revise the theories.

Same as POL SCI 124A.

(VII)

ASIANAM 150. Special Topics in Asian American Studies. 4 Units.
Analyzes a variety of themes in Asian American Studies—identity, history, culture—from various interdisciplinary perspectives in humanities, arts, social sciences.

Repeatability: Unlimited as topics vary.

ASIANAM 151. Asian American Ethnic Groups. 4 Units.
Topics include study of the history, culture, and social formations of diverse Asian American subgroups such as Pacific Islanders, Hmong, Thai, Indonesian, Indian subcontinental, among others.

Repeatability: Unlimited as topics vary.

ASIANAM 151C. The Korean American Experience. 4 Units.
Explores the factors that have distinctly shaped the Korean American experience, including patterns of racial domination, the profile of immigrant flow, immigrant roles in the urban political economy, politics in Korea, and the role of the church.

Same as SOC SCI 178C.

ASIANAM 151D. The Vietnamese American Experience. 4 Units.
Studies the resettlement of Vietnamese in the United States following their exodus from Southeast Asia. Topics discussed include the Vietnam War, the 1975 evacuation, boat and land refugees, the shaping of Vietnamese communities, and Vietnamese American literature.

Same as SOC SCI 178D.

ASIANAM 151E. The Japanese American Experience. 4 Units.
Studies the settlement of Japanese in Hawaii and the continental United States since the late nineteenth century. Topics covered include sugar plantations, development of rural Japanese America, World War II internment, post-War community development, and persistence of Japanese American identity.

Same as SOC SCI 178E.

ASIANAM 151F. South Asian American Experience. 4 Units.
Examines and compares the experiences of South Asian immigrants in the U.S. over time. Looks at the economic, political, and social positions of the immigrants, with special emphasis on religious changes and the changes in the second and later generations.

Same as SOC SCI 178F.

Restriction: Asian American Studies and Social Policy and Public Service majors have first consideration for enrollment.

ASIANAM 151H. Southeast Asian American Experience. 4 Units.
Analyzes experiences of refugees and immigrants from Southeast Asia, which may include those from Cambodia, Laos, Vietnam, and the Philippines. Examines political and economic factors for their exodus and how they reconstruct their identities, histories, and communities.

Same as SOC SCI 178H.

ASIANAM 151J. Chinese American Experience. 4 Units.
Analyzes the experiences of Chinese in the United States. Immigration, Chinese exclusion, racial and gender identity. Historical overview and contemporary issues covered.

Same as SOC SCI 178J.

ASIANAM 151K. Filipina/Filipino American Experience. 4 Units.
Explores the experience of Filipina/Filipino Americans from the era of Spanish colonization of the Philippines to present-day community formations in the United States, with special emphasis on the twentieth century. Topics include colonialism, nation, migration, gender, and culture.

Same as SOC SCI 178K.

ASIANAM 161. Ethnic and Racial Communities. 4 Units.
Examines various theoretical analyses of race and ethnicity, particularly as they apply to Asian Americans. Also explores the relationship of Asian Americans to other racialized minorities in the U.S.

Same as SOC SCI 175B.

ASIANAM 162. Asian American Women. 4 Units.
Examines the representations and experiences of Asian American women from diverse perspectives. Explores the commonalities and differences among various groups of Asian American women, with particular focus on history, culture, values, and family roles.

Same as SOC SCI 177B.

ASIANAM 163. Asian American Women's Film. 4 Units.
Explores the significance of film and video made by Asian American women in relation to race, representation, and social change. These film and video makers use media to raise complex issues of class, politics, and race interacting with gender.

Repeatability: Unlimited as topics vary.

ASIANAM 164. Special Topics in Ethnicity, Gender, and Race. 4 Units.
Topics include analysis and comparison of various themes related to ethnicity, gender, and race within Asian American communities.

Repeatability: Unlimited as topics vary.

ASIANAM 166. Asian Americans and Race Relations. 4 Units.
Analyzes Asian American race relations and racialized interconnections, as well as Asian Americans in racial hierarchy. Topics include racial categorization, citizenship, immigration, equity.

ASIANAM 167. Asian American and African American Relations. 4 Units.
Addresses relationships of Asian American and African American communities in the United States. Topics include race, class, gender, labor, economic systems, political mobilization, community, civil rights, activism, cultural expression.

Same as AFAM 117, HISTORY 152B.

ASIANAM 168. Politics of Animal Rights. 4 Units.
Examines animal rights/welfare movement’s efforts to transform moral, practical, and legal standing of nonhuman animals in contemporary U.S. Explores intersection of racism, sexism, and speciesism informed by theories of race and ethnicity, including Asian American Studies.

Same as POL SCI 126F.

Restriction: Political Science majors and Asian American Studies majors have first consideration for enrollment.

ASIANAM 171A. Migration Destinations. 4 Units.
Examines the migration patterns to the three largest nations that receive immigrants (i.e., permanent settlers): Australia, Canada, and the United States.

Same as SOCIOL 175D, INTL ST 117B.

ASIANAM 199. Independent Study. 1-4 Units.
Directed reading and research in consultation with a faculty member. Substantial written work required.

Repeatability: May be repeated for credit unlimited times.

ASIANAM 200A. Theory and Methods in Asian American Studies. 4 Units.
Introduction to the intersection of the social sciences, humanities, and other fields that constitute the theory and methodology of Asian American Studies. Focuses on the interventions and contestations within Asian American Studies that have transformed the discipline in recent years.

Restriction: Graduate students only.

ASIANAM 200B. Contemporary Issues in Asian American Studies. 4 Units.
Examines the interrelations between history, theory, and race in the aftermath of the twentieth-century decolonial movements, offering an account of race through postcolonial and postnationalist approaches in comparative contexts. Considers the interventions made by transnational feminist and racialized queer critiques.

Restriction: Graduate students only.

ASIANAM 201. Graduate Topics in Asian American Studies. 4 Units.
Seminars on various topics in Asian American Studies.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ASIANAM 250. Advanced Topics in Asian American Studies. 4 Units.
Seminar covering various areas of research within Asian American Studies as an interdisciplinary field. Recommended for advanced graduate students.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ASIANAM 290. Directed Research. 4-12 Units.
Directed graduate study/research in Asian American Studies.

Repeatability: May be taken for credit for 24 units.

Restriction: Graduate students only.

ASIANAM 291. Directed Reading. 4 Units.
Readings focused on specialized topics in consultation with, and with the consent of, a faculty member.

Repeatability: May be taken for credit for 12 units.

Restriction: Graduate students only.

ASIANAM 399. University Teaching. 4 Units.
Limited to teaching assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Emphasis in Asian American Studies graduate students only.

Chinese Courses

CHINESE 1A. Fundamental Mandarin Chinese. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with no previous experience in any dialect of Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: Placement into CHINESE 1A.

Overlaps with CHINESE S1AB, CHINESE 1MA, CHINESE 1DA.

Restriction: CHINESE 1A and CHINESE 1DA and CHINESE 1MA and CHINESE S1AB may not be taken for full credit.

CHINESE 1B. Fundamental Mandarin Chinese. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with no previous experience in any dialect of Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1A or placement into CHINESE 1B. CHINESE 1A with a grade of C or better.

Overlaps with CHINESE S1AB, CHINESE S1BC, CHINESE 1MB, CHINESE 1DB.

Restriction: CHINESE 1B and CHINESE 1DB and CHINESE 1MB and CHINESE S1AB and CHINESE S1BC may not be taken for full credit.

CHINESE 1C. Fundamental Mandarin Chinese. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with no previous experience in any dialect of Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1B or CHINESE S1AB or placement in CHINESE 1C. CHINESE 1B with a grade of C or better. CHINESE S1AB with a grade of C or better.

Overlaps with CHINESE 1DC, CHINESE 1MC, CHINESE S1BC.

Restriction: CHINESE 1C and CHINESE 1DC and CHINESE 1MC and CHINESE S1BC may not be taken for full credit.

(VI)

CHINESE 1DA. Fundamentals of Mandarin Chinese - Dialect Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in a Chinese dialect other than Mandarin. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: Placement into CHINESE 1DA.

Overlaps with CHINESE 1A, CHINESE S1AB, CHINESE 1MA.

Restriction: CHINESE 1DA and CHINESE 1MA and CHINESE 1A and CHINESE S1AB may not be taken for full credit.

CHINESE 1DB. Fundamentals of Mandarin Chinese - Dialect Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in a Chinese dialect other than Mandarin. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1DA or placement into CHINESE 1DB. CHINESE 1DA with a grade of C or better.

Overlaps with CHINESE 1B, CHINESE S1AB, CHINESE S1BC, CHINESE 1MB.

Restriction: CHINESE 1DB and CHINESE 1MB and CHINESE 1B and CHINESE S1AB and CHINESE S1BC may not be taken for full credit.

CHINESE 1DC. Fundamentals of Mandarin Chinese - Dialect Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in a Chinese dialect other than Mandarin. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1DB or placement into CHINESE 1DC. CHINESE 1DB with a grade of C or better.

Overlaps with CHINESE S1BC, CHINESE 1MC, CHINESE 1C.

Restriction: CHINESE 1DC and CHINESE 1MC and CHINESE 1C and CHINESE S1BC may not be taken for full credit.

(VI)

CHINESE 1MA. Fundamentals of Mandarin Chinese - Mandarin Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in Mandarin Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: Placement into CHINESE 1MA.

Overlaps with CHINESE 1DA, CHINESE 1A, CHINESE S1AB.

Restriction: CHINESE 1MA and CHINESE 1DA and CHINESE 1A and CHINESE S1AB may not be taken for full credit.

CHINESE 1MB. Fundamentals of Mandarin Chinese - Mandarin Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in Mandarin Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1MA or placement into CHINESE 1MB. CHINESE 1MA with a grade of C or better.

Overlaps with CHINESE 1B, CHINESE 1DB, CHINESE S1AB, CHINESE S1BC.

Restriction: CHINESE 1MB and CHINESE 1DB and CHINESE 1B and CHINESE S1AB and CHINESE S1BC may not be taken for full credit.

CHINESE 1MC. Fundamentals of Mandarin Chinese - Mandarin Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in Mandarin Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1MB or placement into CHINESE 1MC. CHINESE 1MB with a grade of C or better.

Overlaps with CHINESE 1C, CHINESE 1DC, CHINESE S1BC.

Restriction: CHINESE 1MC and CHINESE 1DC and CHINESE 1C and CHINESE S1BC may not be taken for full credit.

(VI)

CHINESE S1AB. Fundamentals of Mandarin Chinese. 7.5 Units.
First half of first-year Mandarin Chinese in an intensive setting using natural approach with emphasis on listening, speaking, reading, and writing.

Prerequisite: Placement into CHINESE 1A or CHINESE 1B or CHINESE 1MA or CHINESE 1MB or CHINESE 1DA or CHINESE 1DB.

Overlaps with CHINESE 1A, CHINESE 1B, CHINESE 1MA, CHINESE 1DA, CHINESE 1DB, CHINESE 1MB.

Restriction: CHINESE S1AB and CHINESE 1A and CHINESE 1B and CHINESE 1DA and CHINESE 1DB and CHINESE 1MA and CHINESE 1MB may not be taken for full credit.

CHINESE S1BC. Fundamentals of Mandarin Chinese. 7.5 Units.
Second half of first-year Mandarin Chinese in an intensive setting using natural approach with emphasis on listening, speaking, reading, and writing.

Prerequisite: CHINESE S1AB or CHINESE 1B or CHINESE 1DB or CHINESE 1MB or placement into CHINESE 1C or CHINESE 1DC or CHINESE 1MC. CHINESE S1AB with a grade of C or better. CHINESE 1B with a grade of C or better. CHINESE 1DB with a grade of C or better. CHINESE 1MB with a grade of C or better.

Overlaps with CHINESE 1C, CHINESE 1B, CHINESE 1DB, CHINESE 1DC, CHINESE 1MB, CHINESE 1MC.

Restriction: CHINESE S1BC, CHINESE 1B, CHINESE 1C, CHINESE 1DB or CHINESE 1DC, CHINESE 1MB or CHINESE 1MC and may not be taken for full credit.

(VI)

CHINESE 2A. Intermediate Mandarin Chinese. 5 Units.
Both authentic and pedagogically-prepared materials are used to further develop students' ability to communicate in culturally, socially, and linguistically appropriate manners. Taught in Chinese using Pinyin romanization system and both traditional and simplified forms of Chinese.

Prerequisite: CHINESE 1C or CHINESE S1BC or placement into CHINESE 2A. CHINESE 1C with a grade of C or better. CHINESE S1BC with a grade of C or better.

Overlaps with CHINESE 2DA, CHINESE 2MA.

Restriction: CHINESE 2A and CHINESE 2DA and CHINESE 2MA may not be taken for full credit.

(VIII)

CHINESE 2B. Intermediate Mandarin Chinese. 5 Units.
Both authentic and pedagogically-prepared materials are used to further develop students' ability to communicate in culturally, socially, and linguistically appropriate manners. Taught in Chinese using Pinyin romanization system and both traditional and simplified forms of Chinese.

Prerequisite: CHINESE 2A or placement into CHINESE 2B. CHINESE 2A with a grade of C or better.

Overlaps with CHINESE 2DB, CHINESE 2MB.

Restriction: CHINESE 2B and CHINESE 2DB and CHINESE 2MB may not be taken for full credit.

(VIII)

CHINESE 2C. Intermediate Mandarin Chinese. 5 Units.
Both authentic and pedagogically-prepared materials are used to further develop students' ability to communicate in culturally, socially, and linguistically appropriate manners. Taught in Chinese using Pinyin romanization system and both traditional and simplified forms of Chinese.

Prerequisite: CHINESE 2B or placement into CHINESE 2C. CHINESE 2B with a grade of C or better.

Overlaps with CHINESE 2DC, CHINESE 2MC.

Restriction: CHINESE 2C and CHINESE 2DC and CHINESE 2MC may not be taken for full credit.

(VIII)

CHINESE 2DA. Intermediate Mandarin Chinese - Dialect Background Track. 5 Units.
Authentic and pedagogically prepared materials used to further develop communication in culturally, socially, and linguistically appropriate manners for students with experience in a dialect other than Mandarin. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1DC or CHINESE S1BC or placement into CHINESE 2DA. CHINESE 1DC with a grade of C or better. CHINESE S1BC with a grade of C or better.

Overlaps with CHINESE 2A, CHINESE 2MA.

Restriction: CHINESE 2DA and CHINESE 2MA and CHINESE 2A may not be taken for full credit.

(VIII)

CHINESE 2DB. Intermediate Mandarin Chinese - Dialect Background Track. 5 Units.
Authentic and pedagogically prepared materials used to further develop communication in culturally, socially, and linguistically appropriate manners for students with experience in a dialect other than Mandarin. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 2DA or placement into CHINESE 2DB. CHINESE 2DA with a grade of C or better.

Overlaps with CHINESE 2B, CHINESE 2MB.

Restriction: CHINESE 2DB and CHINESE 2MB and CHINESE 2B may not be taken for full credit.

(VIII)

CHINESE 2DC. Intermediate Mandarin Chinese - Dialect Background Track . 5 Units.
Authentic and pedagogically prepared materials used to further develop communication in culturally, socially, and linguistically appropriate manners for students with experience in a dialect other than Mandarin. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 2DB or placement into CHINESE 2DC. CHINESE 2DB with a grade of C or better.

Overlaps with CHINESE 2MC, CHINESE 2C.

Restriction: CHINESE 2DC and CHINESE 2MC and CHINESE 2C may not be taken for full credit.

(VIII)

CHINESE 2MA. Intermediate Mandarin Chinese - Mandarin Background Track. 5 Units.
Authentic and pedagogically prepared materials are used to further develop communication in culturally, socially, and linguistically appropriate manners for students with initial experience in Mandarin Chinese. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1MC or CHINESE S1BC or placement into CHINESE 2MA. CHINESE 1MC with a grade of C or better. CHINESE S1BC with a grade of C or better.

Overlaps with CHINESE 2A, CHINESE 2DA.

Restriction: CHINESE 2MA and CHINESE 2DA and CHINESE 2A may not be taken for full credit.

(VIII)

CHINESE 2MB. Intermediate Mandarin Chinese - Mandarin Background Track . 5 Units.
Authentic and pedagogically prepared materials are used to further develop communication in culturally, socially, and linguistically appropriate manners for students with initial experience in Mandarin Chinese. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 2MA or placement into CHINESE 2MB. CHINESE 2MA with a grade of C or better.

Overlaps with CHINESE 2B, CHINESE 2DB.

Restriction: CHINESE 2MB and CHINESE 2DB and CHINESE 2B may not be taken for full credit.

(VIII)

CHINESE 2MC. Intermediate Mandarin Chinese - Mandarin Background Track . 5 Units.
Authentic and pedagogically prepared materials are used to further develop communication in culturally, socially, and linguistically appropriate manners for students with initial experience in Mandarin Chinese. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 2MB or placement into CHINESE 2MC. CHINESE 2MB with a grade of C or better.

Overlaps with CHINESE 2C, CHINESE 2DC.

Restriction: CHINESE 2MC and CHINESE 2DC and CHINESE 2C may not be taken for full credit.

(VIII)

CHINESE 3A. Advanced Mandarin Chinese. 4 Units.
A continuation of CHINESE 2A-CHINESE 2B-CHINESE 2C emphasizing conceptualization, self-expression and academic skills in Chinese. Authentic texts from modern Chinese prose and newspapers are used. Taught in Mandarin Chinese using both traditional and simplified forms of Chinese characters.

Prerequisite: CHINESE 2C or CHINESE 2DC or CHINESE 2MC or placement into CHINESE 3A. CHINESE 2C with a grade of C better. CHINESE 2DC with a grade of C better. CHINESE 2MC with a grade of C better.

(VIII)

CHINESE 3B. Advanced Mandarin Chinese. 4 Units.
A continuation of CHINESE 2A-CHINESE 2B-CHINESE 2C emphasizing conceptualization, self-expression, and academic skills in Chinese. Authentic texts from modern Chinese prose and newspapers are used. Taught in Mandarin Chinese using both traditional and simplified forms of Chinese characters.

Prerequisite: CHINESE 3A. CHINESE 3A with a grade of C or better.

(VIII)

CHINESE 3C. Advanced Mandarin Chinese. 4 Units.
A continuation of CHINESE 2A-CHINESE 2B-CHINESE 2C emphasizing conceptualization, self-expression, and academic skills in Chinese. Authentic texts from modern Chinese prose and newspapers are used. Taught in Mandarin Chinese using both traditional and simplified forms of Chinese characters.

Prerequisite: CHINESE 3B. CHINESE 3B with a grade of C or better.

(VIII)

CHINESE 100A. Classical Chinese. 4 Units.
Introduction to classical Chinese grammar and vocabulary with emphasis on reading basic texts.

Prerequisite: CHINESE 3C or JAPANSE 3C or KOREAN 3C.

CHINESE 100B. Classical Chinese. 4 Units.
Introduction to classical Chinese grammar and vocabulary with emphasis on reading basic texts.

Prerequisite: CHINESE 3C or JAPANSE 3C or KOREAN 3C.

CHINESE 100C. Classical Chinese. 4 Units.
Introduction to classical Chinese grammar and vocabulary with emphasis on reading basic texts.

Prerequisite: CHINESE 3C or JAPANSE 3C or KOREAN 3C.

CHINESE 101A. Fourth-Year Mandarin Chinese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of specific literary texts.

Prerequisite: CHINESE 3C.

CHINESE 101B. Fourth-Year Mandarin Chinese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of specific literary texts.

Prerequisite: CHINESE 3C.

CHINESE 101C. Fourth-Year Mandarin Chinese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of specific literary texts.

Prerequisite: CHINESE 3C.

CHINESE 115. Chinese Literature: Advanced Texts. 4 Units.
Designed for students with near-fluency in reading Chinese. Readings may include both literary and philosophical work by important writers, but the emphasis is on literary texts and writings that interpret those texts.

Prerequisite: CHINESE 101A or CHINESE 101B or CHINESE 101C.

Repeatability: Unlimited as topics vary.

CHINESE 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading in Chinese. Paper required.

Repeatability: May be taken for credit for 12 units.

CHINESE 201. Readings in Traditional Chinese Narrative and Prose. 4 Units.
Close reading of selected premodern prose texts such as historical narratives, novels, short stories, and essays.

Prerequisite: CHINESE 101C.

Repeatability: Unlimited as topics vary.

CHINESE 202. Readings in Traditional Chinese Poetry. 4 Units.
Close readings of selected premodern poetic texts.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 203. Readings in Modern Chinese Literature. 4 Units.
Close readings of selected modern literary texts.

Prerequisite: CHINESE 101C.

Repeatability: Unlimited as topics vary.

CHINESE 204. Readings in Chinese Literary and Cultural Theory. 4 Units.
Close readings of selected texts in premodern criticism and theory.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 211A. Studies in Traditional Chinese Narrative and Prose. 4 Units.
Two-quarter seminar in traditional Chinese narrative and prose, with topics varying from year to year.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 211B. Studies in Traditional Chinese Narrative and Prose. 4 Units.
Two-quarter seminar in traditional Chinese narrative and prose, with topics varying from year to year.

Prerequisite: CHINESE 211A.

Repeatability: Unlimited as topics vary.

CHINESE 212A. Studies in Traditional Chinese Poetry. 4 Units.
Two-quarter seminar in traditional Chinese poetry, with topics varying from year to year.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 212B. Studies in Traditional Chinese Poetry. 4 Units.
Two-quarter seminar in traditional Chinese poetry, with topics varying from year to year.

Prerequisite: CHINESE 212A.

Repeatability: Unlimited as topics vary.

CHINESE 213A. Studies in Modern Chinese Literature. 4 Units.
Two-quarter seminar in modern Chinese literature, with topics varying from year to year. Research paper required.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 213B. Studies in Modern Chinese Literature. 4 Units.
Two-quarter seminar in modern Chinese literature, with topics varying from year to year. Research paper required.

Prerequisite: CHINESE 213A.

Repeatability: Unlimited as topics vary.

CHINESE 214. Studies in Chinese Literature and Cultural Theory. 4 Units.
Seminar in Chinese literature and cultural theory, with topics varying from year to year. Research paper required.

Prerequisite: CHINESE 100C or CHINESE 101C.

Repeatability: Unlimited as topics vary.

CHINESE 230. Topics in Chinese Literature and Culture. 4 Units.
Seminar in Chinese literature and culture, with topics varying from year to year. Research paper required.

Prerequisite: CHINESE 101.

Repeatability: Unlimited as topics vary.

CHINESE 290. Independent Study. 4 Units.
Directed research on topic determined in consultation with faculty member. A term paper or project is required.

Repeatability: May be repeated for credit unlimited times.

CHINESE 299. Dissertation Research. 4-12 Units.
Dissertation research with Chinese faculty.

Prerequisite: Advancement to Ph.D. candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Classics Courses

CLASSIC 5. Building English Vocabulary through Greek and Latin Roots. 4 Units.
Formation and use of English words from Greek and Latin derivatives. Particularly useful for first-year students who wish to augment their vocabulary systematically.

CLASSIC 10. Scientific and Specialized Terminology. 4 Units.
A study of English terms derived from Greek and Latin and important to contemporary medicine, science, and other professions, with emphasis on development of word-building skills. No prior knowledge of Greek or Latin required.

CLASSIC 36A. The Formation of Ancient Greek Society: Early Greece. 4 Units.
A survey of ancient Greek civilization from its origins in the Bronze Age to the mid-Archaic period. Examines political and social history, as well as literature, art, religion, and archaeological remains.

Same as HISTORY 36A.

(IV)

CLASSIC 36B. The Formation of Ancient Greek Society: Late Archaic and Classical Greece. 4 Units.
A survey of ancient Greek civilization from the Late Archaic period to the Classical period. Focuses on major institutions and cultural phenomena as seen through the study of ancient Greek literature, history, archaeology, and religion.

Same as HISTORY 36B.

(IV)

CLASSIC 36C. The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece. 4 Units.
A survey of ancient Greek civilization from the fourth century BCE through to the Hellenistic period. Focuses on major institutions and cultural phenomena as seen through the study of ancient Greek literature, history, archaeology, and religion.

Same as HISTORY 36C.

(IV)

CLASSIC 37A. The Formation of Ancient Roman Society: Origins to Roman Republic. 4 Units.
A survey of the development of Roman civilization from its eighth century BCE beginnings to the civil wars of the first century BCE. Examines political and social history, as well as literature, art, architecture, and religion.

Same as HISTORY 37A.

(IV)

CLASSIC 37B. The Formation of Ancient Roman Society: Roman Empire. 4 Units.
A survey of Roman civilization from Augustus's consolidation of power following the civil wars of the first century BCE to the crisis of the third century CE. Includes social history, literature, art, architecture, and religion.

Same as HISTORY 37B.

(IV)

CLASSIC 37C. The Formation of Ancient Roman Society: The Fall of Rome. 4 Units.
A survey of Roman civilization from the crisis of the third century CE to the so-called "fall of Rome" in 476 CE. Examines political and social history, as well as literature, art, architecture, and religion.

Same as HISTORY 37C.

(IV)

CLASSIC 45A. Classical Mythology: The Gods. 4 Units.
An overview of the main myths of the gods of the ancient Greeks and Romans and their influence in contemporary and later literature and art. Includes readings from both ancient and modern sources. Course may be offered online.

(IV)

CLASSIC 45B. Classical Mythology: The Heroes. 4 Units.
An overview of the main myths of the heroes of the ancient Greeks and Romans and their influence in contemporary and later literature and art. Includes readings from both ancient and modern sources.

(IV)

CLASSIC 45C. Classical Mythology: Ancient and Modern Perspectives of Classical Mythology. 4 Units.
Detailed examination of key Greek and Roman myths, their interpretations, and the influence they have exerted on literature, art, and popular culture in subsequent periods.

(IV)

CLASSIC 99. Special Studies in Classics. 1-4 Units.
Lower-division level independent research with Classics faculty.

Repeatability: May be repeated for credit unlimited times.

CLASSIC 140. Classics and History: The Ancient World. 4 Units.
Selected topics in society and culture of the Graeco-Roman world. Readings in translation.

Repeatability: Unlimited as topics vary.

CLASSIC 150. Classical Mythology. 4 Units.
Selected myths and legends as used in Classical literature, and their modern interpretations.

CLASSIC 151. The Olympians. 4 Units.
Examination of the origins and development of the Greek Olympian divinities with emphasis upon those who became central figures in pre-Christian religious cults.

CLASSIC 160. Topics in Classical Literature in English Translation. 4 Units.
Studies in selected areas of Classical literature. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

CLASSIC 160W. Topics in Classical Literature in English Translation. 4 Units.
Studies in selected areas of Classical literature. Topics addressed vary each quarter.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

(Ib)

CLASSIC 170. Topics in Classical Civilization. 4 Units.
Studies in selected areas of Classical civilization. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

CLASSIC 176. International Studies and the Classics. 4 Units.
Develops a broader understanding of the formation of different cultures and countries of Classical times and their impact on the modern world.

Repeatability: Unlimited as topics vary.

CLASSIC 192A. Senior Capstone. 2 Units.
Under the guidance of a faculty mentor, majors design and execute a senior project. This project may be a research paper, dramatic production, school curriculum, etc. All projects must be approved by the faculty mentor.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Grading Option: In progress only.

CLASSIC 192B. Senior Capstone. 4 Units.
Under the guidance of a faculty mentor, majors design and execute a senior project. This project may be a research paper, dramatic production, school curriculum, etc. All projects must be approved by the faculty mentor.

Prerequisite: CLASSIC 192A. Satisfactory completion of the Lower-Division Writing requirement.

CLASSIC 198. Directed Group Study. 4 Units.
Special topics in Classical studies through directed reading and research.

Repeatability: May be repeated for credit unlimited times.

CLASSIC 199. Independent Study in Classics. 1-4 Units.
Independent research with Classics faculty.

Repeatability: May be repeated for credit unlimited times.

CLASSIC 200A. Contemporary Literary Theory and the Classics. 4 Units.
An introduction to contemporary literary theory focusing on important critical approaches; topics vary from year to year.

Repeatability: Unlimited as topics vary.

CLASSIC 200B. Diachronic Perspectives on Classical Antiquity. 4 Units.
Examines ways in which Classical texts and ideas have been received and appropriated for the diverse purposes of ancient and subsequent cultures.

Repeatability: Unlimited as topics vary.

CLASSIC 200C. Greece and Rome in Their Contemporary Cultural Contexts. 4 Units.
An introduction to the methods and perspectives of social scientific theory which can be used to study the material and social dimensions of the ancient cultures of Greece and Rome.

Repeatability: Unlimited as topics vary.

CLASSIC 201. Research and Pedagogical Tools for Classicists. 4 Units.
Covers various technical skills essential for successful research and pedagogy in Classics, including use of digital resources (e.g., bibliographical databases). Introduction to important disciplinary subfields, such as textual criticism and epigraphy. Selection of topics will be at instructor's discretion.

CLASSIC 205. CONCURRENT READING. 2 Units.
Special Instance.

Repeatability: May be repeated for credit unlimited times.

Restriction: Grad students only

CLASSIC 220. Classics Graduate Seminar. 4 Units.
Subject matter variable; mainly but not exclusively major literary topics.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

CLASSIC 280. Independent Study. 4-12 Units.
Supervised independent research. Subject varies.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate only.

CLASSIC 290. Research in Classics. 4-12 Units.
Research under Classics faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CLASSIC 299. Dissertation Research. 4-12 Units.
Dissertation research with Classics faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CLASSIC 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Comparative Literature Courses

COM LIT 8. Travels in Comparative Literature. 4 Units.
Readings in English and in English translation on such topics as love, war, cities, travel writing, politics, fantasy and science fiction, violence.

Repeatability: Unlimited as topics vary.

(IV)

COM LIT 9. Introduction to Multiculturalism. 4 Units.
Various themes and forms of literary and cultural production within a multicultural framework, including African American, Asian American, Chicano/Latino, and Native American literatures and cultures.

Repeatability: Unlimited as topics vary.

(IV, VII)

COM LIT 10. Topics in World Literature. 4 Units.
Introduction to texts from across the globe and from different historical periods. Readings in English and English translation.

Repeatability: Unlimited as topics vary.

(IV, VIII)

COM LIT 40B. Development of Drama. 4 Units.
No description.

Prerequisite: COM LIT 40A

Same as DRAMA 40B.

Restriction: Prerequisite required

(IV, VIII)

COM LIT 40C. Development of Drama. 4 Units.
No description.

Prerequisite: COM LIT 40B

Same as DRAMA 40C.

Restriction: Prerequisite required

(IV, VIII)

COM LIT 60A. World Literature. 4 Units.
An introduction to the comparative study of literatures and cultures in a global context. Studies literary texts and other media across the borders of various cultures, historical periods, and traditions. All texts are read in English translation.

(IV, VIII)

COM LIT 60B. Reading with Theory. 4 Units.
Introduction to theory and methods of literary and cultural criticism in a global context. Students read theoretical approaches to literature, culture, and ideas. Marx and Freud, e.g., may be studied alongside readings in narrative poetry, film, song lyrics, novel.

(IV, VIII)

COM LIT 60C. Cultural Studies. 4 Units.
Introduces students to a variety of cultural practices (literature, blogs, films, radio, comics) from across the globe. Focuses on the ways that context, genre, and medium (e.g., written, visual, oral) affect how these practices are produced, circulated, and received.

(IV, VIII)

COM LIT 100A. Nations, Regions, and Beyond. 4 Units.
Intensive study of national and regional cultural and literary traditions from across the globe, among them the literary and cultural production of the Middle East, Africa, Europe, the Americas, and Asia.

Repeatability: Unlimited as topics vary.

COM LIT 102. Comparative Studies in Literature and Theory. 4 Units.
In-depth discussion of special topics.

Repeatability: Unlimited as topics vary.

COM LIT 102W. Comparative Studies in Literature and Theory. 4 Units.
In-depth discussion of special topics.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

(Ib)

COM LIT 105. Comparative Multiculturalism. 4 Units.
Treats the literatures and cultures of one or more minority groups in California and the United States, including African Americans, Asian Americans, Chicano/Latinos, and Native Americans, and their relations to other national literatures.

Repeatability: Unlimited as topics vary.

COM LIT 107. Colonialisms and Postcolonialisms. 4 Units.
Explores topics such as colonialism and race, decolonization, pre- and postcoloniality, globalization, and the cultural dynamics of colonization and subjectivity.

Repeatability: Unlimited as topics vary.

COM LIT 108. Diasporic Literatures and Cultures. 4 Units.
Literatures, cultures, and histories of diasporic groups, e.g., literature of the Persian diaspora; cinema of the African diaspora.

Repeatability: Unlimited as topics vary.

COM LIT 120. Philosophy, Culture, and Literature. 4 Units.
Discusses contemporary and historical philosophical questions and figures--for example, existentialism or debates about artificial intelligence--in interaction with culture and literature.

Repeatability: Unlimited as topics vary.

COM LIT 121. Narrative, Pattern, and Text. 4 Units.
Explores textual patterns, structures, and effects. May include topics such as novel, hypertext, genre, reader responses, intertextuality.

Repeatability: Unlimited as topics vary.

COM LIT 122. Rhetorical Approaches to Literature. 4 Units.
Studies the art and politics of rhetoric and persuasion in connection with cultural works from various times and places, for example, classical political speeches, Internet journalism.

Repeatability: Unlimited as topics vary.

COM LIT 123. Literatures in Dialogue. 4 Units.
Studies how texts interact across time and space in a global context. Uses concepts of influence, imitation, and parody, to ask, for example, how the Homeric epics can help us understand Caribbean novels and U.S. movies such as Troy.

Repeatability: Unlimited as topics vary.

COM LIT 130. Gender, Sexuality, Race, Class. 4 Units.
Discusses the roles of differences such as race, class, gender, and sexuality in society, culture, and literature across the globe, covering topics such as theoretical and literary representations of queer sexuality, gender performance, critical race theory.

Repeatability: Unlimited as topics vary.

COM LIT 131. Psychoanalysis and Culture. 4 Units.
Discusses major psychoanalytic writings of Freud and others in connection with questions of culture.

Repeatability: Unlimited as topics vary.

COM LIT 132. Discourse, Ideologies, and Politics. 4 Units.
Compares ideologies and systems, e.g., nationalism and fundamentalism, as they affect literature and culture in a global context.

Repeatability: Unlimited as topics vary.

COM LIT 140. Critical Cultural Studies. 4 Units.
Introduces a variety of ways of understanding cultural phenomena in relation to different power structures. These cultural phenomena may include comics, film, literature, sports, music, festivals, telling stories, or eating out.

Repeatability: Unlimited as topics vary.

COM LIT 141. Popular Culture . 4 Units.
Critical analyses of popular culture such as comics, oral narratives, films, TV, music, in an internationl framework.

Repeatability: Unlimited as topics vary.

COM LIT 142. The Metropolis and Other Cultural Geographies. 4 Units.
Examines the relationship between space and culture; cultural production in the city, suburb, and/or countryside; spaces in texts and artifacts (film, literature, comics, photographs) in a global context.

Repeatability: Unlimited as topics vary.

COM LIT 143. Literature, Arts, and Media. 4 Units.
Explores literature and other arts and media in a global context. May include film and electronic media, fine arts, oral cultures, architecture, in an international framework.

Repeatability: Unlimited as topics vary.

COM LIT 144. Literature, History, and Society. 4 Units.
Explores the relationship between literary texts and their historical and social contexts in an international framework. Courses may address, for example, literary and cultural expressions in social revolutions or the way literary texts talk back to medicine, religion, and anthropology.

Repeatability: Unlimited as topics vary.

COM LIT 150. Literature in Translation. 4 Units.
The study of literary works in one or more genres in English translation. May be a comparative study of works from several different original languages or a concentration on works from a single cultural/linguistic tradition.

Repeatability: Unlimited as topics vary.

COM LIT 160. World Cinema . 4 Units.
Comparative analysis of contemporary film in languages other than English.

Repeatability: May be taken for credit 2 times as topics vary.

COM LIT 190W. Advanced Seminar in Comparative Literature and Theory. 4 Units.
Capstone seminar for the Comparative Literature major. Deepens understanding of the field through investigation of a special topic and a substantial research and writing project.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Comparative Literature majors have first consideration for enrollment.

(Ib)

COM LIT 198. Special Topics. 1-4 Units.
Directed group study of selected topics.

Repeatability: May be repeated for credit unlimited times.

COM LIT 199. Independent Study in Comparative Literature. 1-4 Units.
To be taken only when the materials to be studied lie outside the normal run of departmental offerings.

Repeatability: May be repeated for credit unlimited times.

COM LIT 200A. History of Comparative Literature and Introduction to Methods and Theories of CL. 4 Units.
Seminar designed to introduce graduate students in Comparative Literature to the discipline of Comparative Literature. Issues and theories of comparative literary and cultural study are covered. Strongly recommended for first and second year students before the M.A. exam and review.

Restriction: Graduate students only.

COM LIT 200B. Theories of Translation. 4 Units.
The reproduction, translation, and transfer of literary and cultural, ideological and political, and symbolic codes and texts have long been the object of study in Comparative Literature. Addresses the diverse ways in which expressive systems interact and intersect.

Repeatability: Unlimited as topics vary.

COM LIT 200C. Theories of Globalization, Inter-Nationalism, and Postcolonialism. 4 Units.
Addresses both theories and the complex history of literary and cultural expression in a national, trans-, inter-, and post-national, global frame. Topics may include: globalism and nationhood, theories of citizenship and political subjecthood, postcolonial literature and theory.

Repeatability: Unlimited as topics vary.

COM LIT 200D. Cultural Rhetoric and Rhetorical Theory. 4 Units.
Surveys contemporary theories of cultural rhetoric and the cultural rhetoric of contemporary theory, and interrogates the intersection of rhetoric, critical theory, and cultural studies. Both historical and contemporary theories of rhetoric and cultural rhetorics are studied.

Repeatability: Unlimited as topics vary.

COM LIT 210. Comparative Studies . 4 Units.
Studies in selected areas of Comparative Literature. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

COM LIT 220. Translation Workshop. 2-4 Units.
Trains students in the methodologies and practice of translation. Students focus on the translating process in a series of case studies and individual projects.

Repeatability: May be taken for credit for 8 units.

COM LIT 290. Reading and Conference. 4-12 Units.
Studies in selected areas. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

COM LIT 291. Guided Reading Course. 4 Units.
Studies in selected areas. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

COM LIT 299. Dissertation Research. 4-12 Units.
A units-only course for students in the dissertation phase.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

COM LIT 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Criticism Courses

CRITISM 220A. Studies in Literary Theory and Its History. 4 Units.
Introduction to criticism and aesthetics for beginning graduate students. Readings from continental, English, and American theorists.

Same as HUMAN 220A.

Restriction: Graduate students only.

CRITISM 220B. Studies in Literary Theory and Its History. 4 Units.
Introduction to criticism and aesthetics for beginning graduate students. Readings from continental, English, and American theorists.

Same as HUMAN 220B.

Restriction: Graduate students only.

CRITISM 240. Advanced Theory Seminar. 4 Units.
Studies in selected areas of Criticism Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Culture & Theory Courses

CLT&THY 200A. Identity and Difference. 4 Units.
Introduction to scholarship on social movements, institutions, and theories relating to the rise of identities based on race, gender, ethnicity, class, and sexuality.

CLT&THY 200B. Power and Resistance. 4 Units.
Focusing on questions of power and resistance, examines theorists, mostly from the middle twentieth century to the twenty-first century, whose work has led to the study of revolutions and resistance movements and their centrality in cultural theory.

CLT&THY 200C. Movement and Displacement. 4 Units.
Focusing on epistemologies of contemporary cultural theory, probes the genealogies of ideas of movement and settlement. Examines ways in which epistemologies of movement and displacement produce texts and contexts of knowledge formation.

CLT&THY 280. Independent Study. 4 Units.
Limited to students who have not yet received the M.A. degree.

Repeatability: May be repeated for credit unlimited times.

CLT&THY 289. Topics in Culture and Theory. 4 Units.
Seminars on various topics in Culture and Theory.

Repeatability: Unlimited as topics vary.

CLT&THY 290. Research and Prospectus Seminar. 2 Units.
Bi-weekly seminar required for third- and/or fourth-year students. Students make presentations of dissertation prospectus for discussion. All graduate students welcome to attend and participate. Meant especially for students preparing for formal presentation of prospectus.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

CLT&THY 298. Directed Reading. 4-12 Units.
Directed readings on a specific topic agreed upon by students and their instructors. Limited to students who have completed their M.A. degree and are preparing for their qualifying exam.

Prerequisite: Completion of the M.A. degree.

Repeatability: May be repeated for credit unlimited times.

CLT&THY 299. Dissertation Research. 4-12 Units.
Dissertation research in Culture and Theory.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

East Asian Languages and Literatures Courses

E ASIAN 10. Introductory Topics in Chinese Literature and Society. 4 Units.
Introductory studies in Chinese texts in their social and cultural context(s). Conducted in English.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 20. Asian Religions . 4 Units.
An introduction to Asian religions (Hinduism, Buddhism, Confucianism, Taoism, Shamanism) including both elite doctrinal aspects and forms of more popular religiosity.

Repeatability: May be taken for credit 3 times as topics vary.

(VIII)

E ASIAN 25. Introductory Topics in East Asian Philosophy. 4 Units.
Selected introductory topics in the philosophies of East Asia, e.g., Yoga, Buddhism, Vedanta, Confucianism, Taoism, and Shinto.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 40. Topics in East Asian Popular Culture. 4 Units.
Selected topics in the popular cultural traditions of East Asia designed to introduce students both to problems in situating culture in a specific time and place and to contemporary theories of popular culture and their application to East Asian contexts.

Repeatability: Unlimited as topics vary.

(IV, VIII)

E ASIAN 55. Introduction to East Asian Cultures . 4 Units.
Interdisciplinary courses organized each year around a broad theme designed to introduce students to the cultures of East Asia. Topical organization of courses addresses issues that have been of importance historically and are reshaping East Asia today.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

E ASIAN 110. Topics in Chinese Literature and Society. 4 Units.
Studies in Chinese texts in their social and cultural context(s). Conducted in English.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 116. Topics in East Asian Religions. 4 Units.
Selected topics in the religions of East Asia, e.g., Buddhism, Daoism, Shintô, Christianity, popular religions.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 117. Topics in East Asian Philosophy. 4 Units.
Selected topics in the philosophies of East Asia, e.g., Yoga, Buddhism, Vedanta, Confucianism, Taoism, and Shinto.

Repeatability: Unlimited as topics vary.

E ASIAN 120. Topics in Japanese Literature and Society. 4 Units.
Studies in Japanese texts in their social and cultural context(s). Conducted in English.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 125. Topics in East Asian Applied Linguistics. 4 Units.
In-depth examination of selected topics in applied linguistics, with a particular emphasis on language acquisition and language pedagogy.

Repeatability: May be taken for credit 3 times as topics vary.

Concurrent with E ASIAN 225.

E ASIAN 130. Topics in Korean Society and Culture. 4 Units.
Studies of the social and cultural forces that affect the lives of the Koreans, including those in the United States. Considers traditional values and contemporary issues within a historical framework.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 140. Topics in Korean Literature and Society. 4 Units.
Studies in Korean texts in their social and cultural context(s). Conducted in English.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 150. Topics in East Asian Literature in Translation. 4 Units.
East Asian literary works in translation. Taught in English.

Repeatability: Unlimited as topics vary.

E ASIAN 155. Topics in Cultural Studies in East Asia. 4 Units.
Interdisciplinary and theoretical introduction to issues in cultural studies that are pertinent to the study of East Asia. All readings in English.

Repeatability: Unlimited as topics vary.

E ASIAN 160. East Asian Cinema. 4 Units.
Study of East Asian cinema from historical, theoretical, and comparative perspectives. Taught in English.

Repeatability: Unlimited as topics vary.

E ASIAN 170. Gender in East Asia . 4 Units.
Explores the construction of gender in East Asian cultures and literatures. Pays close attention to the specificity of historical, cultural, and literary contexts of East Asia as it investigates various theoretical and critical perspectives on gender and sexuality.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 190. Junior-Senior Colloquium. 4 Units.
Specialized courses dealing with primary sources; required reports and papers. Each colloquium reflects the instructor's intellectual interest and is conducted as a discussion group. Limited to 15 students.

Repeatability: May be taken for credit 3 times as topics vary.

Restriction: Upper-division students only. East Asian Cultures, Chinese Studies, Japanese Language and Literature, Korean Literature and Culture majors only.

E ASIAN 192W. Junior-Senior Seminar. 4 Units.
Analysis of a literary or cultural topic or problem through research and writing of two short and one long original research paper for a total of 4,000 words minimum. Seminar follows E ASIAN 190; related to the colloquium's subject.

Prerequisite: E ASIAN 190. Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 198. Directed Group Study. 1-4 Units.
Directed group study on special topics.

Repeatability: May be repeated for credit unlimited times.

E ASIAN 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading in translation. Paper required.

Repeatability: May be taken for credit for 12 units.

E ASIAN 216. Topics in East Asian Religions . 4 Units.
Selected topics in the religions of East Asia, e.g., Buddhism, Daoism, Shintô, Islam, shamanism.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 220. Topics in East Asian Cultural Studies. 4 Units.
Seminar, with topics varying from year to year. Research paper required.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

E ASIAN 225. Topics in East Asian Applied Linguistics. 4 Units.
In-depth examination of selected topics in applied linguistics, with a particular emphasis on language acquisition and language pedagogy.

Repeatability: May be taken for credit 3 times as topics vary.

Concurrent with E ASIAN 125.

E ASIAN 260. Topics in East Asian Cinema. 4 Units.
An examination of the possibilities of East Asian cinematic narrative. Possible topics: cinematic history; cinema in popular culture; comparisons with literary texts; major auteurs. Emphasis on technical as well as on thematic aspects. Includes readings in film theory.

Prerequisite: E ASIAN 160.

Repeatability: Unlimited as topics vary.

E ASIAN 290. Independent Study. 2-4 Units.
Directed research on topic determined in consultation with faculty member. A term paper or project is required.

Repeatability: May be repeated for credit unlimited times.

E ASIAN 299. Dissertation Research. 4-12 Units.
Dissertation research for students who are advanced to doctoral candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Advancement to Ph.D. candidacy.

E ASIAN 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

English Courses

ENGLISH 8. Multicultural American Literature. 4 Units.
Writings from at least two historically underrepresented groups in California and the United States with particular attention to historical conditions of literary production. Considers in-depth how literary works relate to racial constructions, economic conditions, and/or social movements.

(IV, VII)

ENGLISH 10. Topics in English and American Literature. 4 Units.
Explores the diversity of human expression manifested in selected works of literature. By engaging with substantial literary texts, students will think critically about how meaning is created and how experience is interpreted in literary language.

Repeatability: May be taken for credit 3 times as topics vary.

(IV)

ENGLISH 11. Society, Law, and Literature. 4 Units.
How works of literature represent and influence the relation between law and society. The primary readings will be works of literature, but selections of works of law, politics, and sociology may also be assigned.

(III or IV).

ENGLISH 12. Young Adult Fiction . 4 Units.
Young adult fiction studied in historical context, including the publishing industry and mass marketing as well as education and literacy. Primary readings will focus on young adult fiction, but works of history, advertising, and film will also be included.

(IV)

ENGLISH 28A. The Poetic Imagination. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 28B. Comic and Tragic Vision. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 28C. Realism and Romance. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 28D. The Craft of Poetry. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers. Requires creative writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 28E. The Craft of Fiction. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers. Requires creative writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 100. Introduction to Literary Theory. 4 Units.
Using Plato and Aristotle as points of departure, addresses a range of perspectives and problems in literary theory. To be taken by English majors in the junior year.

Prerequisite: (ENGLISH 28A and ENGLISH 28B and ENGLISH 28C) or (ENGLISH 28D and ENGLISH 28B and ENGLISH 28C) or (ENGLISH 28A and ENGLISH 28B and ENGLISH 28E) or (ENGLISH 28A and ENGLISH 28B and ENGLISH 28C) or (ENGLISH 28D and ENGLISH 28B and ENGLISH 28E), or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28A) or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28B) or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28C) or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28D) or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28E).

ENGLISH 101W. Undergraduate Seminar in Critical Writing: Topics in Literary History. 4 Units.
Each instructor identifies a topic within literary history; special attention will be given to mastering the conventions of academic argument and expression. To be taken as early as possible in the junior year.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)). Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

(Ib)

ENGLISH 102A. Topics in Medieval and Renaissance Literature. 4 Units.
Studies of works representative of Medieval and Renaissance literature in English, with attention to literary history, treating at a minimum more than one author and more than one genre.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)).

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

ENGLISH 102B. Topics in Restoration and Eighteenth-Century Literature . 4 Units.
Studies of works representative of Restoration and eighteenth-century literature in English, with attention to literary history, treating at a minimum more than one author and more than one genre.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)).

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

ENGLISH 102C. Topics in Romantic and Nineteenth-Century Literature. 4 Units.
Studies of works representative of Romantic and nineteenth-century literature in English, with attention to literary history, treating at a minimum more than one author and more than one genre.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)).

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

ENGLISH 102D. Topics in Twentieth-Century Literature. 4 Units.
Studies of works representative of twentieth-century literature in English, with attention to literary history, treating at a minimum more than one author and more than one genre.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)).

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

ENGLISH 103. Topics in Literature, Theory, and Criticism. 4 Units.
A series of lectures on and discussions of announced topics in literary criticism, theory, history, genres, modes, major authors.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

ENGLISH 105. Multicultural Topics in Literatures in English. 4 Units.
Focuses on ethnic or minority literatures, or treats issues related to race and cultural identity.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

ENGLISH 106. Advanced Seminar: Topics in English Literature . 4 Units.
Capstone course. Provides intensive work on a topic within the area of literatures in English with particular attention to the theoretical, critical, or conceptual issues it raises, with the goal of producing a substantive research paper.

Prerequisite: (ENGLISH 101W or WRITING 101W) and (ENGLISH 100 and 102A) or (ENGLISH 100 and 102B) or (ENGLISH 100 and 102C) or (ENGLISH 100 and 102D) or (ENGLISH 102A and 102B) or (ENGLISH 102A and 102C) or (ENGLISH 102A and 102D) or (ENGLISH 102B and 102C) or (ENGLISH 102C and 102D) or (ENGLISH 103 and 102A) or (ENGLISH 103 and 102B) or (ENGLISH 103 and 102C) or (ENGLISH 103 and 102D) or (ENGLISH 105 and 102A) or (ENGLISH 105 and 102B) or (ENGLISH 105 and 102C) or (ENGLISH 105 and 102D) or (ENGLISH 100 and 103) or (ENGLISH 103 and 105) or (ENGLISH 100 and 105).

Repeatability: Unlimited as topics vary.

Restriction: English majors have first consideration for enrollment. Seniors only.

ENGLISH 150. Topics in Literature for Nonmajors . 4 Units.
Major texts in English, American, and Comparative Literature explored for basic humanistic issues and themes, on announced topics. Primarily for upper-division students, but not requiring previous training in literature.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

ENGLISH 160. English Language Cinema. 4 Units.
Focuses on any one of the different cinematic traditions in the English-speaking world, from a historical theoretical, or comparative perspective.

Repeatability: May be taken for credit 2 times as topics vary.

ENGLISH 198. Special Topics. 4 Units.
Directed group study of selected topics as arranged by instructor.

Repeatability: May be repeated for credit unlimited times.

ENGLISH 199. Independent Study. 1-4 Units.
To be taken only when the materials to be studied lie outside the normal run of departmental offerings, and when the student will have no formal chance to pursue the subject. Research paper required.

Repeatability: May be repeated for credit unlimited times.

ENGLISH 210. Studies in Literary History. 4 Units.
Studies in selected areas of literary history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ENGLISH 215. Prospectus Workshop. 2 Units.
Workshop for the writing of the graduate student prospectus for those who have completed their qualifying examinations. Topics covered and assignments completed culminate in a presentation of a draft of the prospectus in class. Biweekly discussions.

ENGLISH 225. Studies in Literary Genres. 4 Units.
Studies in selected areas of literary genres. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ENGLISH 230. Studies in Major Writers. 4 Units.
Studies in selected areas of major writers. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ENGLISH 255. Graduate Workshop in Academic Publishing. 4 Units.
Reading and critique of student-authored essays with the goal of producing a publishable essay. Instructor leads discussion, meets with students individually, and provides an introduction to appropriate venues for publication and the process of submission, peer review, and revision.

Grading Option: Satisfactory/unsatisfactory only.

ENGLISH 290. Reading and Conference. 4-12 Units.
Studies in selected areas. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

ENGLISH 291. Guided Reading Course. 4 Units.
Studies in selected areas. Topics addressed vary each quarter.

ENGLISH 299. Dissertation Research. 4-12 Units.
A units-only course for students in the dissertation phase.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

ENGLISH 398. Rhetoric/Teaching of Composition. 4 Units.
Readings, lectures, and internship designed to prepare graduate students to teach composition. Formal instruction in rhetoric and practical work in teaching methods and grading.

ENGLISH 399. University Teaching. 4 Units.
A units-only course for students appointed as teaching assistants or associates.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

European Studies Courses

EURO ST 10. Historical Foundations. 4 Units.
Offers an overview of the European experience from its social, political, and cultural foundations to modern European issues and institutions in a globalized world. Topics covered include social, political, and cultural history up to the founding of the European Union.

Repeatability: Unlimited as topics vary.

((III or IV) and VIII).

EURO ST 11. Contemporary Issues and Institutions. 4 Units.
Offers an overview of contemporary European societies in social, political, and cultural terms. Topics include shifting geopolitical borders, social movements, and various forms of cultural expression (film, art, literature) as they intersect with and shape contemporary issues and events.

Repeatability: Unlimited as topics vary.

((III or IV) and VIII).

EURO ST 101A. European Studies Core I - Early Europe (Pre-1789). 4 Units.
Introduction to multidisciplinary approaches to important themes in European society, culture, art, literature, and politics; encourages students to explore intersections among disciplines. Possible themes: Concept of Europe in Renaissance, Self and Other: Europe and Islam, Hybrid Cultures in Medieval Europe.

Repeatability: Unlimited as topics vary.

EURO ST 101B. EUROPEAN STUDIES CORE II: MODERN EUROPE (1789-PRESENT). 4 Units.
Multidisciplinary approaches to important themes in modern European society, culture, art, literature, and politics, encouraging students to see points of intersection among disciplines. Possible themes: Subjects, Citizens, and Representation; Europe in the World; European Revolutions in Art and Society.

Repeatability: Unlimited as topics vary.

EURO ST 102. Topics in Early European History and Culture: Pre-1789. 4 Units.
Addresses historical and cultural events, issues, and texts (art, literature, music, political theory) from the pre-1789 period in more than one European country.

Repeatability: Unlimited as topics vary.

EURO ST 103. Topics in Modern European History and Culture: Post-1789. 4 Units.
Addresses historical and cultural events, issues, and texts (art, literature, music, political theory) from 1789 to present in more than one European country.

Repeatability: Unlimited as topics vary.

EURO ST 190W. Senior Seminar in European Studies. 4 Units.
Capstone research seminar. Students engage in rigorous, in-depth, interdisciplinary exploration of specific topics, periods, or themes, investigating and analyzing the intersection of material and discursive culture in different historical periods and geographical locations.

Restriction: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

EURO ST 199. Independent Study. 1-4 Units.
Directed reading and research in consultation with a faculty advisor. Substantial written work required.

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

Film and Media Studies (see FLM&MDA) Courses

FILMSTD 101. History of Film. 4 Units.
Umbrella.

Restriction: Fee required

FILMSTD 117A. Introduction to Screenwriting.
Introduction to the history and technique of the screenplay, with a particular focus on its different aesthetic forms as well as on the various roles it has assumed within the evolution of the film industry.

FILMSTD 117B. Basic Scriptwriting.
Exercises in the development of screenplays with emphasis on formal and structural considerations as well as on film industry praxis. The course is conducted in an intimate workshop setting with frequent group discussions of students scripts-in-progress.

Prerequisite: FILMSTD 117A

Restriction: Prerequisite required

FILMSTD 117C. Scriptwriting Workshop.
Continuation and intensification of work initiated in 117B. Students complete a full-length screenplay. Concentrates on both practical and technical concerns, addressing pragmatic and aesthetic questions in intensive small groups discussions.

Prerequisite: FILMSTD 117B

Restriction: Prerequisite required

FILMSTD 210. CONTEM ASIAN CINEMA. 4 Units.
No Description.

Repeatability: May be repeated for credit unlimited times.

Restriction: Grad students only

Film and Media Studies Courses

FLM&MDA 85A. Introduction to Film and Visual Analysis. 4 Units.
Introduces the language and techniques of visual and film analysis. Teaches students to analyze the moving image, emphasizing the ways framing, camera movement, sound, and editing produce meaning, reproduce historical ideologies, foster or disrupt narrative, and cue spectators.

(IV)

FLM&MDA 85B. Broadcast Media History and Analysis. 4 Units.
History of broadcast media from the radio era to the present day, including social, political, institutional, and audience analysis as well as methods of visual and aural analysis of these media.

(IV)

FLM&MDA 85C. New Media and Digital Technologies. 4 Units.
The study of digital media, computer-mediated communication, and Internet cultures, from historical and theoretical perspectives.

(IV)

FLM&MDA 101A. History of Film: The Silent Era I. 4 Units.
An investigation of the technological, economic, social, and aesthetic determinants of the cinema in its first 30 years. The formal strategies and historical importance of films by Méliès, the Lumières, Porter, Griffith, Murnau, Lang, Eisenstein, Pudovkin, and others.

Prerequisite: FLM&MDA 85A.

FLM&MDA 101B. History of Film: The Sound Era I. 4 Units.
Explores the formal strategies and socio-historical dynamics of films made between 1930 and 1960, concentrating on representative cinemas and works by Lang, Riefenstahl, Renoir, Welles, De Sica, Ophüls, Kurosawa, and others.

Prerequisite: FLM&MDA 85A.

FLM&MDA 101C. History of Film: The Sound Era II. 4 Units.
Studies narrative strategies and formal possibilities in films made since 1960, framing aesthetic questions in political, social, and economic terms, using selected features from Western and non-Western countries.

Prerequisite: FLM&MDA 85A.

FLM&MDA 110. Film and Media Theory. 4 Units.
Survey of major directions in film and media theory. Various theories of mass culture, realism, auteurism, semiotics, feminism, cultural studies, and theories of other media, with an emphasis on developing the student’s ability to analyze and articulate a theoretical argument.

Prerequisite: FLM&MDA 85A and FLM&MDA 85B and FLM&MDA 85C and FLM&MDA 101A and FLM&MDA 101B and FLM&MDA 101C and FLM&MDA 139W. Satisfactory completion of the Upper-Division Writing requirement.

FLM&MDA 111. Film and Media Theory and Practice. 4 Units.
Seminar focusing on issues in film and media production and editing. Reading and exercises to understand aspects of film and media production (montage, sound, film movement, directing, and mise en scène), and how ideology works in tandem with style.

Prerequisite: FLM&MDA 101C and FLM&MDA 120A and FLM&MDA 139W. Satisfactory completion of the Upper-Division Writing requirement.

FLM&MDA 112. Genre Study . 4 Units.
Critical approaches to the serial productions we call "genre" films such as westerns, weepies, musicals, horror films, and others; televisual genres, such as sitcoms, drama, comedy, news, docudrama, police; Internet categories, such as chat-rooms, listservs, Web pages.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 113. Narrative/Image . 4 Units.
What relations do sound, image, and story assume in film, television, video, and Internet narratives? In what ways do these media interact with and borrow from each other and traditional story-telling media? How have the new media explored non-narrative strategies.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 114. Film, Media, and the Arts. 4 Units.
A synthetic entity, film draws on both established and popular arts. Looks at visual media's exchanges with "high" and "low" culture, exploring its relation to areas such as photography, music, painting, and architecture.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 115. Authorship . 4 Units.
Theoretical and analytical discussions of visual media authorship, focusing on case studies of directors, producers, scriptwriters, and film, video, and digital artists.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 117A. Introduction to Screenwriting. 4 Units.
Introduction to the technique and format of the screenplay, with a particular focus on its three act structural elements: coverage, treatment, and 60 beat outline.

Prerequisite: FLM&MDA 85A.

FLM&MDA 117B. Intermediate Screenwriting. 4 Units.
Exercises in the development of screenplays, with emphasis on formal and structural considerations of character development. Students work with the hero structure and other character development methodologies, such as method acting.

Prerequisite: FLM&MDA 117A.

FLM&MDA 117C. Screenwriting Workshop. 4 Units.
Continuation and intensification of work initiated in 117B. Students complete a full-length screenplay. Concentrates on both practical and technical concerns, addressing pragmatic and aesthetic questions in intensive small-group discussions.

Prerequisite: FLM&MDA 117B.

FLM&MDA 120A. Basic Production. 4 Units.
Introduction to the basic apparatus of video/film production. The elementary essentials of production, including the use of camera and lenses, lighting, editing, and sound.

Prerequisite: FLM&MDA 85A.

FLM&MDA 120B. Intermediate Production. 4 Units.
Students work on individual and group projects, utilizing skills and insights introduced in Film and Media Studies 120A.

Prerequisite: FLM&MDA 120A.

FLM&MDA 120C. Production Workshop. 4 Units.
As film and video are collaborative media, students form production groups and ultimately produce final 10-15 minute film/video projects.

Prerequisite: FLM&MDA 120B.

FLM&MDA 130. Multicultural Topics in the Media. 4 Units.
Investigation of media representations of gender, race, and sexuality in the United States. Topics include media images of and by one or more minority groups in the United States, including African Americans, Asian Americans, Chicano/Latinos, Native Americans, gays and lesbians.

Repeatability: Unlimited as topics vary.

FLM&MDA 139W. Writing on Film and Media. 4 Units.
Practical exercises in film, TV, and other media criticism as a form of cultural analysis. Requires at least 4,000 words of assigned composition.

Prerequisite: FLM&MDA 85A and FLM&MDA 101A. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

FLM&MDA 143. Critical Theory of Television. 4 Units.
Introduction to critical, theoretical, scholarly understandings and analyses of television, which offer in-depth analyses of television programming, audience reception practices, and industry strategies of address.

Prerequisite: FLM&MDA 85B.

FLM&MDA 144. Studies in New Media. 4 Units.
Advanced analysis of the technologies, texts, theories, and cultures of computers, videogames, networks, or platforms.

Prerequisite: FLM&MDA 85C.

Repeatability: Unlimited as topics vary.

FLM&MDA 145. Popular Culture and Media. 4 Units.
Considers the forms, ideologies, consumption, and marketing of popular entertainment and technologies. May focus on cultural studies methods, transnational approaches, and synergy between media.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 146. Sound Studies. 4 Units.
Focuses on the production, theories, and meanings of sound recordings, music, and/or audio technologies. Topics may include the cultures of popular music and audio devices, music television, and theories of film sound.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 150. Audiences and Reception. 4 Units.
Explores the dynamics of address, interpretation, and appropriation between film and media texts and their viewers. Topics may include reception studies, fandom, audience-defined modes of production, demographics, spectatorial pleasure, and historical approaches to audiences.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 151. Documentary and Experimental Film and Media. 4 Units.
Examines nonfiction and/or experimental cinemas and media, such as documentary, the historical avant-garde, video art, and activist media. Students consider the specific aesthetics and ideologies of forms distinct from narrative feature films.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 160. National/Regional Cinemas and Media. 4 Units.
National schools, period styles, or cultural movements beyond U.S. cinema, as defined by national borders or by geographic regions, such as Latin America. May be approached from a comparative perspective.

Repeatability: Unlimited as topics vary.

FLM&MDA 161. Global/Transnational Cinemas and Media. 4 Units.
Analyzes the multinational production, circulation, and reception of film and media texts beyond singular national borders or specific geographic regions. Topics may include transnational co-productions, exports, and diasporic reception.

Repeatability: Unlimited as topics vary.

FLM&MDA 162. U.S. Cinema . 4 Units.
Explores the modes of production and distribution, aesthetics, and contexts that have shaped cinema in the United States. Topics may include Classical Hollywood, American Independent Cinema, or periods such as 1970s Cinema.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 185. Television and New Media. 4 Units.
Advanced seminar focusing on special topics in television and new media. Past examples have included courses on Media Marketing and Brand Identity; Television and Sound; Game Theory; and other issues related to popular culture, broadcast media, and new media technologies.

Prerequisite: FLM&MDA 85B or FLM&MDA 85C.

Repeatability: Unlimited as topics vary.

FLM&MDA 190. Special Topics in Film and Modern Media. 4 Units.
Special issues concerned with film and media history, theory, and criticism.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 191. Special Topics in Critical Practice. 4 Units.
Integrates critical analysis, historical, and theoretical methods with creative projects to illuminate film and media production and industries. May include courses in adaptation, writing television, media activism, writing the short film, performance studies, and movie title sequences.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 197. Professional Internship. 2-4 Units.
Professional internship in the film, broadcast, and/or digital media industries designed to provide students with closely supervised professional experience to enhance their understanding of media from industrial, historical, and critical perspectives. Journal and final report required.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Restriction: Upper-division students only.

FLM&MDA 198. Creative Project. 2-4 Units.
Creative project in screenwriting, filmmaking, videomaking, or Web or Internet design intended to provide advanced production and creative writing training beyond the Film and Media Studies 117A-B-C or 120A-B-C series. Final project required.

Prerequisite: (FLM&MDA 85A and FLM&MDA 117A and FLM&MDA 117B and FLM&MDA 117C) or (FLM&MDA 120A and FLM&MDA 120B and FLM&MDA 120C). Recommended: FLM&MDA 101A.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Upper-division students only.

FLM&MDA 199. Directed Research. 4 Units.
Directed reading and research under supervision of a faculty member in topic areas not covered by regular course offerings. Final research paper required.

Restriction: Upper-division students only.

FLM&MDA 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

French Courses

FRENCH 1A. Fundamentals of French. 5 Units.
Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French and meet daily. Language laboratory attendance is required.

Overlaps with FRENCH S1AB.

Restriction: FRENCH 1A and FRENCH S1AB may not be taken for full credit.

FRENCH 1B. Fundamentals of French. 5 Units.
Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French and meet daily. Language Laboratory attendance is required.

Prerequisite: FRENCH 1A. FRENCH 1A with a grade of C or better.

Overlaps with FRENCH S1AB, FRENCH S1BC.

Restriction: FRENCH 1B and FRENCH S1AB and FRENCH S1BC may not be taken for full credit

FRENCH 1C. Fundamentals of French. 5 Units.
Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French and meet daily. Language Laboratory attendance is required.

Prerequisite: FRENCH 1B or FRENCH S1AB. FRENCH 1B with a grade of C or better. FRENCH S1AB with a grade of C or better.

Overlaps with FRENCH S1BC.

Restriction: FRENCH 1C and FRENCH S1BC may not be taken for full credit.

(VI)

FRENCH S1. Fundamentals of French. 7.5 Units.
First-year French in an intensified form.

Overlaps with FRENCH 1A, FRENCH 1B, FRENCH 1C.

FRENCH S1AB. Fundamentals of French. 7.5 Units.
First half of first-year French in an intensified form. Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French.

Overlaps with FRENCH 1A, FRENCH 1B.

Restriction: FRENCH S1AB and FRENCH 1A and FRENCH 1B may not be taken for full credit.

FRENCH S1BC. Fundamentals of French. 7.5 Units.
First half of first-year French in an intensified form. Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French.

Prerequisite: FRENCH S1AB or FRENCH 1B. FRENCH S1AB with a grade of C or better. FRENCH 1B with a grade of C or better.

Overlaps with FRENCH 1B, FRENCH 1C.

Restriction: FRENCH S1BC and FRENCH 1B and FRENCH 1C may not be taken for full credit.

(VI)

FRENCH 2A. Intermediate French. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French.

Prerequisite: FRENCH 1C or FRENCH S1BC or placement into FRENCH 2A. FRENCH 1C with a grade of C or better. FRENCH S1BC with a grade of C or better.

Overlaps with FRENCH S2AB.

Restriction: FRENCH 2A and FRENCH S2AB may not be taken for full credit. School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

FRENCH 2B. Intermediate French. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French.

Prerequisite: FRENCH 2A. FRENCH 2A with a grade of C or better.

Overlaps with FRENCH S2AB, FRENCH S2BC.

Restriction: FRENCH 2B and FRENCH S2AB and FRENCH S2BC may not be taken for full credit. School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

FRENCH 2C. Intermediate French. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French.

Prerequisite: FRENCH 2B or FRENCH S2AB. FRENCH 2B with a grade of C or better. FRENCH S2AB with a grade of C or better.

Overlaps with FRENCH S2BC.

Restriction: FRENCH 2C and FRENCH S2BC may not be taken for full credit. School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

FRENCH S2AB. Intermediate French. 6 Units.
First half of second-year French in an intensified form. Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French. Prior high school or college French recommended.

Overlaps with FRENCH 2A, FRENCH 2B.

Restriction: FRENCH S2AB and FRENCH 2A and FRENCH 2B may not be taken for full credit.

(VIII)

FRENCH S2BC. Intermediate French. 6 Units.
Second half of second-year French in an intensified form. Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French. Prior high school or college French recommended.

Prerequisite: FRENCH S2AB or FRENCH 2B. FRENCH S2AB with a grade of C or better. FRENCH 2B with a grade of C or better.

Overlaps with FRENCH 2C, FRENCH 2B.

Restriction: FRENCH S2BC and FRENCH 2B and FRENCH 2C may not be taken for full credit.

(VIII)

FRENCH 13. Conversation. 4 Units.
Helps students increase their fluency and enrich their vocabulary. Taught in French.

Prerequisite: Prerequisite or Corequisite: FRENCH 2C or FRENCH S2BC.

FRENCH 50. French Culture and the Modern World. 4 Units.
Introductory course for non-majors. Focuses on France's role in the modern world and its cultural connections to Asia, the Middle East, Africa, Europe, and the Americas. Taught in English.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

FRENCH 97. Fundamentals of French (with Emphasis on Reading). 4 Units.
Designed primarily for students interested in acquiring a solid reading knowledge of French, and to facilitate the understanding and translating of French texts dealing with a variety of disciplines.

Restriction: Non-French majors only.

FRENCH 100A. Advanced French Writing: Reading and Telling Stories. 4 Units.
Study and practice of various forms of writing including,description and narration. Students build vocabulary and increase reading comprehension while developing the ability to communicate ideas, tell stories, and articulate questions. Readings from texts of literary, historical, and social interest.

Prerequisite: FRENCH 2C or FRENCH S2BC.

FRENCH 100B. Advanced French Essay Writing: Argument and Evidence. 4 Units.
Introduction to essay writing with an emphasis on strategies for identifying a problem, developing an original argument, and,organizing evidence. Introduces idioms and vocabulary to prepare students for advanced courses on French and Francophone literature, culture, and cinema.

Prerequisite: FRENCH 100A.

FRENCH 101A. Introduction to Nineteeth-Century French Literature. 4 Units.
Fiction, nonfiction, drama, and poetry of the nineteeth- century studied in relationship to a specific literary or historical problem.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 100A and FRENCH 100B.

FRENCH 101B. Introduction to Eighteenth-Century French Literature. 4 Units.
Literature and philosophy of the eighteenth century studied in relationship to a specific literary or historical problem.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 100A and FRENCH 100B.

FRENCH 101C. Introduction to Twentieth-Century French Literature. 4 Units.
Literatures of the French-speaking world studied in relationship to a specific literary or historical problem.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 100A and FRENCH 100B.

FRENCH 110. Problems in French Culture. 4 Units.
Examines a controversial or critical issue in French culture of different ages through a variety of genres and media.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 116. Sixteenth-Century French Literature. 4 Units.
Examines the diverse literature of the Renaissance and the Age of Exploration.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 117. Seventeenth-Century French Literature. 4 Units.
Examines the age of drama and other vibrant forms in French literature of the period.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 118. Eighteenth-Century French Literature. 4 Units.
Examines the literature and philosophy of the Enlightenment, the Ancient Régime, Classicism, and/or Revolution.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 119. Nineteenth-Century French Literature. 4 Units.
Focuses on the literature of an era that experienced many modernist transformations.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 120. Twentieth-Century French and Francophone Literature. 4 Units.
A study of modern and contemporary literature and culture.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 125. African Literature of French Expression. 4 Units.
Introduction to the principal African and Caribbean works written in French. Offers opportunity to study literature and culture in French in a non-European context. Lectures and papers in French.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 127. Francophone Literature and Culture. 4 Units.
Literature and cultures of the francophone world.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 139W. Literature and Society. 4 Units.
In English. Readings of masterpieces of French literature in their social, political, and historical contexts. Requires at least 4,000 words of assigned composition based on French works. Several essays required.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. French majors have first consideration for enrollment.

(Ib)

FRENCH 140. Studies in French Literary Genre. 4 Units.
Examines the development and transformation of a single genre, such as the poem or the novel.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 150. Topics in French Literature and Culture. 4 Units.
Study of a theme, movement, or problem crucial to understanding French Literature and Culture.

Repeatability: Unlimited as topics vary.

FRENCH 160. French Cinema. 4 Units.
Study of a period, movement, or theme in French or Francophone cinema.

Repeatability: May be taken for credit 2 times as topics vary.

FRENCH 170. History and Literature. 4 Units.
Examines the dialogue between historical events and literary texts.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 171. Politics and Literature. 4 Units.
Examines the role played by politics and ethics in French literature, film, and culture.

Repeatability: Unlimited as topics vary.

FRENCH 180. Junior/Senior Seminar in Theory and Criticism. 4 Units.
Advanced study of theoretical and critical texts.

Prerequisite: FRENCH 2C. Recommended prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: May be taken for credit 1 times as topics vary.

FRENCH 185. Junior/Senior Seminar in French Literature and Culture. 4 Units.
Required intensive writing course for French majors to explore in depth selected topic in French literature and culture. Students complete major independent research project on topic studied, making use of literary and critical materials in their capstone essay. In French.

Prerequisite: FRENCH 100A and FRENCH 100B. Prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C. Only one course in the French 101A-101B-101C series may be taken as a corequisite.

FRENCH 199. Special Studies in French. 1-4 Units.
A project proposal is prepared by the student and approved by the faculty member who directs the project. Procedure must be completed by the end of the first week of classes.

Repeatability: Unlimited as topics vary.

Restriction: Repeatability: once for M.A. candidates; twice for Ph.D. candidates.

FRENCH 216. Studies in Renaissance Literature. 4 Units.
Advanced study of a topic in the Renaissance period.

Repeatability: Unlimited as topics vary.

FRENCH 217. Studies in Seventeenth-Century Literature. 4 Units.
Advanced study of a topic in the 17th century.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 218. Studies in Eighteenth-Century Literature. 4 Units.
Advanced study of a topic in the 18th century.

Repeatability: Unlimited as topics vary.

FRENCH 219. Studies in Nineteenth-Century Literature. 4 Units.
Advanced study of a topic in the 19th century.

Repeatability: Unlimited as topics vary.

FRENCH 220. Studies in Twentieth-Century Literature. 4 Units.
Advanced study of a topic in the 20th and 21st century.

Repeatability: May be taken for credit 9 times as topics vary.

Restriction: Graduate students only.

FRENCH 225. Francophone Literature and Culture. 4 Units.
Studies in different francophone literatures and cultures (of Canada, the Caribbean, West and North Africa, and Southeast Asia).

Repeatability: Unlimited as topics vary.

FRENCH 231. Studies in Fiction . 4 Units.
Examines the art of fiction.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 232. Studies in Nonfictional Prose. 4 Units.
Examines non-fictional genres such as the essay and the memoir.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 233. Studies in Poetry and Poetics. 4 Units.
Examines the genre of poetry and theories of poetry.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 240. Studies on a Major Writer. 4 Units.
Focused study of one author.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 250. Studies in Theory and Criticism. 4 Units.
Advanced study of a topic in theory and/or criticism.

Repeatability: Unlimited as topics vary.

FRENCH 254. History and Literature. 4 Units.
Advanced study of literary works in their historical context.

Repeatability: Unlimited as topics vary.

FRENCH 272. Cultural Studies . 4 Units.
Examines the theoretical paradigm of cultural studies.

Repeatability: Unlimited as topics vary.

FRENCH 280. Directed Study in French Literature. 4 Units.
For graduate students taking the Master's examination the same quarter.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

FRENCH 290. Research in French Language and Literature. 4 Units.
A project proposal is prepared by the student and approved by the faculty member who directs the project. Procedure must be completed by the end of the first week of classes. Limit: Once for M.A. candidates; twice for Ph.D. candidates.

Repeatability: May be taken for credit 2 times.

Restriction: Graduate students only. French major only.

FRENCH 299. Dissertation Research. 4-12 Units.
For graduate students writing a dissertation with a faculty member in French.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

FRENCH 399. University Teaching. 4 Units.
For graduate students completing a course on foreign language pedagogy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

Gender and Sexuality Studies Courses

GEN&SEX 20. Queer Studies. 4 Units.
Study of sexuality from the perspective of lesbian, gay, queer, transgender scholarship spanning humanities, social sciences, arts.

(IV, VII)

GEN&SEX 50A. Gender and Feminism in Everyday Life. 4 Units.
What is gender? Why does studying it matter? Explores how feminism has understood not only gender as a category of social analysis, but how gender structures personal identities, family, citizenship, work and leisure, social policy, sexuality, and language.

(IV, VII)

GEN&SEX 50B. Gender and Power. 4 Units.
From workplace to home to schools to prisons, how are societal institutions and politics “gendered”? Examines power and inequalities around gender, race, class, and sexuality in national and transnational contexts.

(IV, VII)

GEN&SEX 50C. Gender and Popular Culture. 4 Units.
An investigation of gender, race, and sexuality in film, TV, video, music, and advertising, with attention to the ways that popular culture shapes understandings of technology, national identities, leisure and work, historical memory, international communication, and multicultural representation.

(IV, VII)

GEN&SEX 60A. Gender and Science. 4 Units.
Examines science from a variety of feminist viewpoints in order to explore how science influences everyday life. Special attention is given to the ways science shapes our understanding of gender, race, and sexuality.

(III)

GEN&SEX 60B. Gender and Law. 4 Units.
Introduction to the relationship between gender, race, sexuality, and the law. Critical thinking about how law defines citizenship, political representation, and democracy, focusing on the history of legal reform undertaken in the name of women as a social group.

(III)

GEN&SEX 70. Special Topics in Gender. 4 Units.
Topics cover issues which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 100A. Knowledge and Social Change. 4 Units.
Explores alternative ways that feminist scholars frame research questions, conduct research or creative activity. Examines challenges that feminist scholarship poses to the academy and the challenges the academy poses to feminist scholars.

GEN&SEX 100B. Feminist Theory. 4 Units.
Introduction to historical traditions in theory and various conceptual frameworks informing scholarship in gender studies, sexuality studies, and women's studies as a field of critical inquiry.

GEN&SEX 100C. Feminist Cultural Studies. 4 Units.
Investigation of the theories and methods that inform the feminist study of culture. Focuses on the interpretation of the visual arts and literature created by, and predominately for, women.

GEN&SEX 110A. Gender, State, and Nation. 4 Units.
Examination of gender and sexuality in relation to the production of identities created through participation in state and nation. Examines complexity of relationship between feminism and nationalism, feminism and the state.

GEN&SEX 110B. Money, Sex, and Power. 4 Units.
Examination of gender and sexuality in relation to the emergence of the modern world, modernity, and capitalism; commodification, circulation, and transnational exchanges relating to race, gender, class, sexuality, religion, and nationality.

GEN&SEX 110C. Producing Gender Transnationally. 4 Units.
Examination of how ideas and formations of gender cross national and international boundaries; encounters between feminist and sexual identity movements; how terms such as "sex" and "gender" change meanings according to time and place.

GEN&SEX 120A. Modern Pleasures. 4 Units.
Examination of the theory and history of pleasure within academic disciplines as well as in social and cultural processes and networks.

GEN&SEX 120B. Image Problems. 4 Units.
Examination of scholarly approaches to gender stereotypes and politics of representation as they present possibilities for critical analysis and produce problems and limitations; how powerful ideas of gender intersect with other forms of social differentiation such as race and class.

GEN&SEX 120C. Practices of Embodiment. 4 Units.
Explores how science, medicine, and law have shaped the understanding of differentiated bodies; examines shifting norms and ideals about producing, shaping, adorning, and dressing gendered bodies across diverse historical, cultural, social, economic, and spatial contexts.

GEN&SEX 139. Topics in Gender Studies. 4 Units.
Various topics in gender studies. Encompasses issues of gender, culture, race and class, including issues of sexualities and social justice.

Repeatability: Unlimited as topics vary.

GEN&SEX 139W. Topics in Gender Studies. 4 Units.
Various topics in gender studies. Encompasses issues of gender, culture, race and class, including issues of sexualities and social justice.

Prerequisite: Satisfactory completion of the Lower-Division writing requirement.

Repeatability: Unlimited as topics vary.

(Ib)

GEN&SEX 155. Topics in Gender and Sexuality Studies. 4 Units.
Designed to provide students with an opportunity to conduct advanced work in Gender and Sexuality Studies.

Repeatability: Unlimited as topics vary.

GEN&SEX 157A. Topics in Queer Studies. 4 Units.
Explores issues in queer studies from one or more of the following perspectives: theoretical, historical, legal, economic, political, sociological, and representation in the arts.

Repeatability: Unlimited as topics vary.

GEN&SEX 157B. Topics in Queer Lives and Knowledge. 4 Units.
Explores the emergence of historical elaboration of non-normative sexual identities, practices, and communities; focuses on medical, legal, literary, aesthetic, scientific, and religious notions about homosexuality and appropriations and subversions of these notions by queer people.

Repeatability: Unlimited as topics vary.

GEN&SEX 165B. Sexuality, Health and Medicine. 4 Units.
Focuses on cultural and political-economic analysis and representations of disease both within the U.S. and globally.

GEN&SEX 165F. Gender and Technology. 4 Units.
Using a variety of disciplinary methods, examines how various technological processes and products produce culturally complex meanings associated with gender and technology.

GEN&SEX 167A. Militarism and Gender. 4 Units.
Examination of feminist approaches to militarism, war, and political violence drawing on representations of women as both victims of and participants in military violence; effects of militarism on formations of gender; effects of military industrial complex on nationalism and identity.

GEN&SEX 168B. The Politics of Style. 4 Units.
Examination of the emergence of style and lifestyle in relation to gender and sexuality; analysis of subcultures, politics, and representation of style in relation to formation of social identities.

GEN&SEX 170. Topics in Gender, Feminism, Literature, and Language. 4 Units.
Topics cover issues in language and literature which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 171. Topics in Gender, Feminism, and History. 4 Units.
Topics cover issues in history which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 171A. Sex and Conquest in Latin America. 4 Units.
Competing ideas of masculinity and femininity, sexual violence, sexual identities, and gendered hierarchies informed how the Spanish engaged in military and religious domination of Mexican and Andean communities, as well as the forms of native resistance throughout colonial Latin America.

Same as HISTORY 160.

GEN&SEX 172. Gender, Race, and Nation in Latin America. 4 Units.
Addresses the importance of gender and race to nation-making in Latin America during the 19th and 20th centuries (1810-1945). Considers how hierarchies between men and women shaped ideas about family, the state, and modernity.

Same as HISTORY 166A, INTL ST 177H.

GEN&SEX 174. Topics in Gender, Feminism, and the Arts. 4 Units.
Topics cover issues in the arts which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 175. Topics in Gender, Feminism, and the Media. 4 Units.
Topics cover issues in the media which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 180. Topics in Gender, Feminism, and Anthropology. 4 Units.
Topics cover issues in Anthropology which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 181. Topics in Gender, Feminism, and Cognitive Psychology. 4 Units.
Topics cover issues in cognitive psychology which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 182. Topics in Gender, Feminism and Economics. 4 Units.
Topics cover issues in economics which relate to women and gender or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 183. Topics in Gender, Feminism, and Sociology. 4 Units.
Topics cover issues in sociology which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 184. Topics in Gender, Feminism, and Political Science. 4 Units.
Topics cover issues in political science which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 185. Topics in Gender, Feminism, and Social Sciences. 4 Units.
Topics cover issues in social sciences which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 187. Topics in Gender, Feminism, and Social Ecology. 4 Units.
Topics cover issues in social ecology which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 188. Topics in Gender, Feminism, and Science. 4 Units.
Topics cover issues in science which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 188A. Race, Gender, and Science. 4 Units.
Perfect for pre-health, science and social science majors wanting to appreciate how science and society interact. Race and gender as biological and socio-cultural constructs are examined. Questions explored: What is disease? What is science? What are social and biological differences.

Same as ANTHRO 128B, CHC/LAT 176.

(VII)

GEN&SEX 189. Topics in Gender, Feminism, and Interdisciplinary Studies. 4 Units.
Topics cover issues in interdisciplinary studies which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 190. Topics in Sexualities Studies. 4 Units.
Topics cover issues in the humanities, social sciences, sciences, and arts that relate to critical inquiry of sexualities.

Repeatability: Unlimited as topics vary.

GEN&SEX 197. Senior Seminar in Gender and Sexuality Studies. 4 Units.
Students read advanced scholarship in Gender and Sexuality Studies and complete a major seminar paper.

Prerequisite: Satisfactory completion of the Upper-Division Writing requirement.

Restriction: Gender and Sexuality Studies majors only.

GEN&SEX 198. Directed Group Study. 4 Units.
Special topics through directed reading. Paper required.

Repeatability: Unlimited as topics vary.

GEN&SEX 199. Independent Study . 1-4 Units.
Directed reading and research in consultation with a faculty member. Substantial written work required. Includes independent study, involving 3-12 hours a week.

Repeatability: May be repeated for credit unlimited times.

GEN&SEX 200A. Feminist Knowledge and Social Change. 4 Units.
Provides a broad and introductory overview of Women’s Studies and feminist knowledge, including key concepts, theoretical frameworks, disciplinary approaches and methods, and critical debates that have shaped the field.

Repeatability: May be taken for credit 2 times.

GEN&SEX 200B. Problems in Feminist Research. 4 Units.
Colloquium on analytic approaches to interdisciplinary feminist research in Women's Studies and exploration of how feminist knowledges are produced in different academic disciplines.

Prerequisite: GEN&SEX 200A.

Repeatability: May be taken for credit 2 times.

GEN&SEX 201. Special Topics in Feminist Studies. 4 Units.
Seminars on various topics in feminist studies.

Repeatability: Unlimited as topics vary.

GEN&SEX 210A. Graduate Feminist Theory. 4 Units.
In-depth introduction to various theoretical frameworks that have and continue to inform scholarship in Women's Studies including (but not limited to) identity, representation, and political economy.

Repeatability: Unlimited as topics vary.

GEN&SEX 260A. Advanced Seminar in Feminist Studies. 4 Units.
Graduate seminar covering various areas of research within Gender and Sexuality Studies as an interdisciplinary field. Recommended for advanced graduate students.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

GEN&SEX 290. Directed Research. 2-12 Units.
Directed graduate study/research in Gender and Sexuality Studies.

Repeatability: May be taken for credit for 24 units.

Restriction: Graduate students only.

GEN&SEX 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

German Courses

GERMAN 1A. Fundamentals of German. 5 Units.
Emphasizes the development of meaningful communicative skills in German for the purposes of interaction with German speakers and beginning study of German. With a learner-centered approach, the courses help students develop speaking, listening, reading, writing, and cultural skills and knowledge.

Overlaps with GERMAN S1AB.

Restriction: GERMAN 1A and GERMAN S1AB may not be taken for full credit.

GERMAN 1AB. Intensive German Fundamentals . 7.5 Units.
First half of first-year German in a time-intensive form. Development of meaningful communicative skills for the purposes of interaction with German speakers and beginning study of German. Learner-centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge. Course may be offered online. Materials fee.

Prerequisite: Placement into GERMAN 1AB.

Overlaps with GERMAN S1AB, GERMAN 1A, GERMAN 1B.

Restriction: GERMAN 1AB and GERMAN 1A and GERMAN 1B and GERMAN S1AB may not be taken for full credit.

GERMAN 1B. Fundamentals of German. 5 Units.
Emphasizes the development of meaningful communicative skills in German for the purposes of interaction with German speakers and beginning study of German. With a learner-centered approach, the courses help students develop speaking, listening, reading, writing, and cultural skills and knowledge.

Prerequisite: GERMAN 1A or one to two years of high school German. GERMAN 1A with a grade of C or better.

Overlaps with GERMAN S1AB, GERMAN S1BC.

Restriction: GERMAN 1B and GERMAN S1AB and GERMAN S1BC may not be taken for full credit.

GERMAN 1BC. Intensive German Fundamentals. 7.5 Units.
Second half of first-year German in a time-intensive form. Development of meaningful communicative skills for the purposes of interaction with German speakers and beginning study of German. Learner-centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge. Course may be offered online. Materials fee.

Prerequisite: Placement into GERMAN 1BC. GERMAN 1AB or GERMAN 1B or GERMAN S1AB. GERMAN 1AB with a grade of C or better. GERMAN S1AB with a grade of C or better. GERMAN 1B with a grade of C or better.

Overlaps with GERMAN 1B, GERMAN 1C, GERMAN S1BC.

Restriction: GERMAN 1BC and GERMAN 1B and GERMAN 1C and GERMAN S1AB may not be taken for full credit.

(VI)

GERMAN 1C. Fundamentals of German. 5 Units.
Emphasizes the development of meaningful communicative skills in German for the purposes of interaction with German speakers and beginning study of German. With a learner-centered approach, the courses help students develop speaking, listening, reading, writing, and cultural skills and knowledge.

Prerequisite: GERMAN 1B or GERMAN S1AB or two to three years of high school German. GERMAN 1B with a grade of C or better. GERMAN S1AB with a grade of C or better.

Overlaps with GERMAN S1AB.

Restriction: GERMAN 1C and GERMAN S1BC may not be taken for full credit.

(VI)

GERMAN S1AB. Fundamentals of German. 7.5 Units.
First half of first-year German in a time-intensive form. Development of meaningful communicative skills for the purposes of interaction with German speakers and beginning study of German. Learner-centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge.

Overlaps with GERMAN 1A, GERMAN 1B.

Restriction: GERMAN S1AB and GERMAN 1A and GERMAN 1B may not be taken for full credit.

GERMAN S1BC. Fundamentals of German. 7.5 Units.
Second half of first-year German in a time-intensive form. Development of meaningful communicative skills for the purposes of interaction with German speakers and beginning study of German. Learner-centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge.

Prerequisite: GERMAN 1B or GERMAN S1AB. GERMAN 1B with a grade of C or better. GERMAN S1AB with a grade of C or better.

Overlaps with GERMAN 1B, GERMAN 1C.

Restriction: GERMAN S1BC and GERMAN 1B and GERMAN 1C may not be taken for full credit.

(VI)

GERMAN 2A. Intermediate German. 4 Units.
Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. With a learner-centered approach, helps students develop reading, writing, speaking, listening, grammatical, and cultural skills and knowledge. First-year grammar is reviewed and expanded.

Prerequisite: GERMAN 1C or GERMAN S1BC, three or four years of high school German. GERMAN 1C with a grade of C or better. GERMAN S1BC with a grade of C or better.

Overlaps with GERMAN S2BC.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment. GERMAN 2A and GERMAN S2AB may not be taken for full credit.

(VIII)

GERMAN 2B. Intermediate German. 4 Units.
Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. With a learner-centered approach, helps students develop reading, writing, speaking, listening, grammatical, and cultural skills and knowledge. First-year grammar is reviewed and expanded.

Prerequisite: GERMAN 2A. GERMAN 2A with a grade of C or better.

Overlaps with GERMAN S2AB, GERMAN S2BC.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment. GERMAN 2B and GERMAN S2AB and GERMAN S2BC may not be taken for full credit.

(VIII)

GERMAN 2C. Intermediate German. 4 Units.
Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. With a learner-centered approach, helps students develop reading, writing, speaking, listening, grammatical, and cultural skills and knowledge. First-year grammar is reviewed and expanded.

Prerequisite: GERMAN 2B or GERMAN S2AB. GERMAN 2B with a grade of C or better. GERMAN S2AB with a grade of C or better.

Overlaps with GERMAN S2BC.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment. GERMAN 2C and GERMAN S2BC may not be taken for full credit.

(VIII)

GERMAN S2AB. Intermediate German. 6 Units.
First half of second-year German in a time-intensive form. Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. Learner-centered approach develops reading, writing, speaking, listening, grammatical, and cultural skills and knowledge.

Prerequisite: GERMAN 1C or GERMAN S1BC.

Overlaps with GERMAN 2A, GERMAN 2B.

Restriction: GERMAN S2AB and GERMAN 2A and GERMAN 2B may not be taken for full credit.

(VIII)

GERMAN S2BC. Intermediate German. 6 Units.
Second half of second-year German in a time-intensive form. Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. Learner-centered approach develops reading, writing, speaking, listening, grammatical, and cultural skills and knowledge.

Prerequisite: GERMAN 2B or GERMAN S2AB. GERMAN 2B with a grade of C or better. GERMAN S2AB with a grade of C or better.

Overlaps with GERMAN 2B, GERMAN 2C.

Restriction: GERMAN S2BC and GERMAN 2B and GERMAN 2C may not be taken for full credit.

(VIII)

GERMAN 50. Science, Society, and Mind. 4 Units.
Historical, philosophical, and literary reflections by German writers on the rise of the modern sciences. In English. Designed primarily for nonmajors.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

GERMAN 53. Advanced Conversation. 2 Units.
Includes reading of political and cultural material. Conducted in German.

Prerequisite: Prerequisite or corequisite: GERMAN 2C.

Repeatability: May be repeated for credit unlimited times.

GERMAN 97. Fundamentals of German (with Emphasis on Reading). 4 Units.
Primarily for students interested in acquiring a solid reading knowledge of German. Facilitates comprehension and translation of texts in various disciplines. Does not serve as prerequisite for any higher-level German courses or fulfill any undergraduate foreign language requirement.

Repeatability: May be taken for credit 3 times.

Restriction: Non-German majors only.

GERMAN 101. Introduction to German Literature and Culture. 4 Units.
Sample interpretations of texts in their cultural and historical contexts. Introduction to critical language in German.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GERMAN 102. German Culture and Society. 4 Units.
Interdisciplinary introduction to German culture from the perspective of its aesthetic, social, and political aspects. Methodological problems arising from an analysis of culture in its historical context.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GERMAN 103. German Film. 4 Units.
Introduction to the history and interpretation of German film within its cultural and social contexts. Enhances German grammar knowledge and vocabulary and develops sophisticated speaking, writing, and reading skills.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GERMAN 104. Introduction to Germanic Linguistics. 4 Units.
Introduces German or other Germanic-language linguistic, sociolinguistic, or ethnography-of-communication topics. Taught in German.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GERMAN 105. German for Business and Economics. 4 Units.
Explores the structure of the German economy and business practices while developing verbal and written skills important for professional life in Germany. Taught in German.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

GERMAN 115. Advanced German for Business and Economics. 4 Units.
Explores the structure of the German economy and business practices while developing advanced verbal and written skills important for professional life in Germany. Taught in German.

Prerequisite: GERMAN 105.

Repeatability: Unlimited as topics vary.

GERMAN 117. Topics in German Literature and Culture 750-1750. 4 Units.
Specific course content determined by individual faculty members. Example: Luther and the European Renaissance.

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 118. Studies in the Age of Goethe. 4 Units.
Individual authors such as Lessing, Goethe, Schiller, Kleist, and Hölderlin, or the drama of the "angry young men" of the German 1770s.

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 119. Studies in Nineteenth-Century German Literature and Culture. 4 Units.
Individual authors such as Büchner, Grillparzer, Keller, and Nietzsche, or broader social-literary phenomena.

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 120. Studies in Twentieth Century German Literature and Culture. 4 Units.
Individual authors such as Thomas Mann, Brecht, and Kafka, or topics addressing questions of genre and/or social-literary problems.

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 130. Topics in German Literature and Culture. 4 Units.
Literary and cultural topics not fully contained within the periods listed above, such as "German Comedy" and "Turn-of-the-Century Vienna.".

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 140. Topics in Literary Theory and Criticism. 4 Units.
In English. Theoretical dimensions of literary criticism and the German philosophical tradition. Topics have included Marxism, Freudian thought, German Idealist aesthetics, Historicism, twentieth-century hermeneutics, Frankfurt School, and Rezeptionsästhetik.

Repeatability: Unlimited as topics vary.

GERMAN 140W. Topics in Literary Theory and Criticism. 4 Units.
In English. Theoretical dimensions of literary criticism and the German philosophical tradition. Topics have included Marxism, Freudian thought, German Idealist aesthetics, Historicism, twentieth-century hermeneutics, Frankfurt School, and Rezeptionsaesthetik.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

(Ib)

GERMAN 150. German Literature and Culture in Translation. 4 Units.
In English. Major works in Germanic literature and culture in context.

Repeatability: Unlimited as topics vary.

GERMAN 150W. German Literature and Culture in Translation. 4 Units.
In English. Major works in Germanic literature and culture in context.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

(Ib)

GERMAN 160. German Cinema.
Historical, theoretical, and comparative perspectives on German cinema.

Repeatability: Unlimited as topics vary.

GERMAN 160W. German Cinema. 4 Units.
Historical, theoretical, and comparative perspectives on German cinema.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

(Ib)

GERMAN 170. Topics in German Linguistics. 4 Units.
Explores linguistic, sociolinguistic, or ethnography-of-communication topics of German or other Germanic languages (Swedish, Icelandic, Yiddish, and others). Taught in English.

Repeatability: Unlimited as topics vary.

GERMAN 170W. Topics in German Linguistics. 4 Units.
Explores linguistic, sociolinguistic, or ethnography-of-communication topics of German or other Germanic languages (Swedish, Icelandic, Yiddish, and others). Taught in English.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

(Ib)

GERMAN 197. German Internship . 4 Units.
In this internship course, students will engage in professional practice (e.g., Engineering, Business Administration, government) in a German setting and thereby increase their knowledge of German language and culture in a setting beyond the academic classroom.

Prerequisite: German 2C.

Grading Option: Pass/no pass only.

GERMAN 199. Independent Study. 1-4 Units.
Independent research with German faculty.

Repeatability: May be repeated for credit unlimited times.

GERMAN 200. Literary Criticism . 4 Units.
Topics in literary criticism.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

GERMAN 210. Literary Theory . 4 Units.
Topics in literary theory.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

GERMAN 220. Selected Topics in German Linguistics . 4 Units.
Topics in German linguistics.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

GERMAN 230. Literary and Cultural History. 4 Units.
Topics in literary and cultural history.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

GERMAN 290. Independent Study. 4 Units.
Counted toward course requirements for the M.A. or Ph.D. A term paper or project is required.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

GERMAN 298. Independent Directed Reading. 4-12 Units.
For students preparing for doctoral examination.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

GERMAN 299. Dissertation Research. 4-12 Units.
For students who have been admitted to doctoral candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

GERMAN 398A. The Teaching of German. 2 Units.
Required of all Teaching Assistants in the German Department. Also open to present and prospective teachers of German who are not Teaching Assistants.

Restriction: Graduate students only. School of Humanities majors only.

GERMAN 398B. The Teaching of German. 2 Units.
Required of all Teaching Assistants in the German Department. Also open to present and prospective teachers of German who are not Teaching Assistants.

Prerequisite: GERMAN 398A.

Restriction: Graduate students only. School of Humanities majors only.

GERMAN 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Global Cultures Courses

GLBLCLT 103A. Global Cultures I . 4 Units.
Introduction to the processes by which economies, cultural practices, national entities, groups, individuals, and personal identities have undergone globalization. General background and methodological tools for understanding problems and processes of globalization.

Repeatability: Unlimited as topics vary.

GLBLCLT 103B. Global Cultures II . 4 Units.
Introduction to the processes by which economies, cultural practices, national entities, groups, individuals, and personal identities have undergone globalization. Explores how globalization has manifested itself in specific topics, periods, or societies.

Repeatability: Unlimited as topics vary.

GLBLCLT 105. Language Origins: Evolution, Genetics, and the Brain. 4 Units.
Examines how human language(s) may have originated. Studies pertinent techniques (reconstruction) and addresses related questions, including Is our language faculty inborn (i.e., genetically encoded)? Can brain imaging and population genetics research help to unlock this mystery of human evolution?.

Same as HISTORY 135G, ANTHRO 152A, LINGUIS 175.

GLBLCLT 191. Global Cultures Senior Seminar. 4 Units.
Students explore a topic(s) concerning processes and/or problems of globalization from an interdisciplinary perspective and build on their critical and analytical skills when investigating cultural and other phenomena that cut across national borders. Research assignments, class presentations, final seminar paper.

Prerequisite: GLBLCLT 103A and GLBLCLT 103B.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

GLBLCLT 199. Independent Study. 1-4 Units.
Directed reading and research in consultation with a faculty advisor. Substantial written work required.

Repeatability: May be repeated for credit unlimited times.

Greek Courses

GREEK 1A. Fundamentals of Greek. 5 Units.
Elements of Classical Greek grammar, syntax, and vocabulary.

Overlaps with GREEK S1AB.

Restriction: GREEK 1A and GREEK S1AB may not be taken for full credit.

GREEK 1B. Fundamentals of Greek. 5 Units.
Elements of Classical Greek grammar, syntax, and vocabulary.

Prerequisite: GREEK 1A. GREEK 1A with a grade of C or better.

Overlaps with GREEK S1AB, GREEK S1BC.

Restriction: GREEK 1B and GREEK S1AB and GREEK S1BC may not be taken for full credit.

GREEK 1C. Fundamentals of Greek. 5 Units.
Introduction to reading texts.

Prerequisite: GREEK 1B. GREEK 1B with a grade of C or better.

Overlaps with GREEK S1BC.

Restriction: GREEK 1C and GREEK S1BC may not be taken for full credit.

(VI)

GREEK S1AB. Fundamentals of Greek. 7.5 Units.
First half of first- year Greek in an intensified form.

Overlaps with GREEK 1A, GREEK 1B.

Restriction: GREEK S1AB and GREEK 1A and GREEK 1B may not be taken for full credit.

GREEK S1BC. Fundamentals of Greek. 7.5 Units.
Second half of first- year Greek in an intensified form.

Prerequisite: GREEK S1AB or GREEK 1B. GREEK S1AB with a grade of C or better. GREEK 1B with a grade of C or better.

Overlaps with GREEK 1C, GREEK 1B.

Restriction: GREEK S1BC and GREEK 1B and GREEK 1C may not be taken for full credit.

(VI)

GREEK 2. Introduction to Biblical Greek. 4 Units.
An inductive approach to learning to read Biblical Greek texts. Basic grammar, syntax, morphology, and vocabulary presented within the context of reading. Course is not a substitute for GREEK 1A, GREEK 1B, and GREEK 1C series.

GREEK 99. Special Studies in Greek. 1-4 Units.
Lower-division level independent research with Greek faculty.

Repeatability: May be repeated for credit unlimited times.

GREEK 100. Topics in Attic Greek. 4 Units.
Selected readings in Attic Greek prose and poetry. Authors may include Xenophon, Lysias, Antiphon, Euripides, and others. Selections from prose and poetry will be read each quarter. Grammar and syntax review included.

Prerequisite: GREEK 1C or placement into GREEK 100. GREEK 1C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GREEK 103. Seminar in Greek Prose. 4 Units.
Specialized and focused study of a particular Greek prose author or topic.

Prerequisite: GREEK 100.

Repeatability: Unlimited as topics vary.

GREEK 104. Seminar in Greek Poetry. 4 Units.
Specialized and focused study of a particular topic or author of Greek poetry.

Prerequisite: GREEK 100.

Repeatability: Unlimited as topics vary.

GREEK 120. Reading of Selected Portions of the New Testament. 4 Units.
Studies in selected areas of the New Testament. Topics addressed vary each quarter.

Prerequisite: GREEK 1C or GREEK S1BC.

Repeatability: Unlimited as topics vary.

GREEK 198. Directed Group Study. 4 Units.
Special topics in Greek culture and civilization through directed reading and research.

Repeatability: May be repeated for credit unlimited times.

GREEK 199. Independent Studies in Greek. 1-4 Units.
Independent research with Greek faculty.

Repeatability: May be repeated for credit unlimited times.

Hebrew Courses

HEBREW 1A. Fundamentals of Hebrew. 5 Units.
Designed for students with little or no exposure to Hebrew. Introduction to modern Israeli Hebrew. Students learn the writing system and basics of grammar via latest pedagogical materials and real-world texts. Topics in Jewish culture and Biblical Hebrew are included.

Prerequisite: Placement into HEBREW 1A.

HEBREW 1B. Fundamentals of Hebrew. 5 Units.
Designed for students with little or no exposure to Hebrew. Introduction to modern Israeli Hebrew. Students learn the writing system and basics of grammar via latest pedagogical materials and real-world texts. Topics in Jewish culture and Biblical Hebrew are included.

Prerequisite: HEBREW 1A or placement into HEBREW 1B. HEBREW 1A with a grade of C or better.

HEBREW 1C. Fundamentals of Hebrew. 5 Units.
Designed for students with little or no exposure to Hebrew. Introduction to modern Israeli Hebrew. Students learn the writing system and basics of grammar via latest pedagogical materials and real-world texts. Topics in Jewish culture and Biblical Hebrew are included.

Prerequisite: HEBREW 1B or placement into HEBREW 1C. HEBREW 1B with a grade of C or better.

(VI)

HEBREW 2A. Intermediate Hebrew. 4 Units.
Designed for students to advance their Hebrew language skills from introductory to intermediate level. Emphasizes development of meaningful communicative skills and critical study of Hebrew culture. Students develop reading, writing, speaking, listening, grammatical, and cultural skills.

Prerequisite: HEBREW 1C. HEBREW 1C with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

HEBREW 2B. Intermediate Hebrew. 4 Units.
Designed for students to advance their Hebrew language skills from introductory to intermediate level. Emphasizes development of meaningful communicative skills and critical study of Hebrew culture. Students develop reading, writing, speaking, listening, grammatical, and cultural skills.

Prerequisite: HEBREW 2A. HEBREW 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

HEBREW 2C. Intermediate Hebrew. 4 Units.
Designed for students to advance their Hebrew language skills from introductory to intermediate level. Emphasizes development of meaningful communicative skills and critical study of Hebrew culture. Students develop reading, writing, speaking, listening, grammatical, and cultural skills.

Prerequisite: HEBREW 2B. HEBREW 2B with a grade or C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

HEBREW 10A. Hebrew Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. HEBREW 10A is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

HEBREW 10B. Hebrew Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. HEBREW 10B is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

HEBREW 50. Hebrew and Israeli Culture. 4 Units.
Examination of subjects relevant to the culture of Israel and Judaism in their historical and modern day contexts through the study of film, literature, religious texts, artistic representations, etc.

(IV, VIII)

HEBREW 199. Independent Study. 4 Units.
Research paper required.

Repeatability: May be repeated for credit unlimited times.

History Courses

HISTORY 10. The Holocaust. 4 Units.
Introduction to the history of European Jewish communities before the Holocaust; the origins of Nazi antisemitism; the implementation of the "Final Solution"; Jewish resistance to the Nazis; and attempts in film and literature to represent the Holocaust since 1945.

(IV, VIII)

HISTORY 12. Introductory Topics in History . 4 Units.
Introduces methods and premises of historical study. Topics include introductions to cultural, political, economic, social, and religious history.

Repeatability: Unlimited as topics vary.

(IV)

HISTORY 15A. Native American History. 4 Units.
Introduction to multiple topics: indigenous religious beliefs and sociopolitical organization, stereotypic "images," intermarriage, the fur trade, Native leaders, warfare, and contemporary issues.

(IV, VII)

HISTORY 15C. Asian American Histories. 4 Units.
Examines and compares diverse experiences of major Asian American groups since the mid-nineteenth century. Topics include origins of emigration; the formation and transformation of community; gender and family life; changing roles of Asian Americans in American society. Formerly ASIANAM 60A.

Same as SOC SCI 78A, ASIANAM 50.

((III or IV) and VII).

HISTORY 15D. History of Sexuality in the US . 4 Units.
Explores intertwined histories of sexuality, race, and gender in the US. By examining how different cultures and times viewed sexuality, race and gender, it analyzes relationships between regulation of bodies/behaviors and construction of cultural, economic, and political norms.

(IV, VII)

HISTORY 15E. Memory and Migration: American Families on the Move. 4 Units.
Examines family migration stories as a tool for understanding the intertwined histories of international and domestic migration that have shaped the lives of the diverse peoples of the United States.

(IV, VII)

HISTORY 15F. What to Eat? Immigrants and the Development of American Cuisines. 4 Units.
Relationship between immigration and changing American foodways; impact of several major culinary traditions of immigrants and racial minorities, such as African Americans, Asian Americans, Mexican Americans, Italian Americans, Irish Americans, and Jewish Americans, on America’s gastronomical and socioeconomic landscape.

((III or IV) and VII).

HISTORY 16A. World Religions I. 4 Units.
An introduction to the history, doctrine, culture, and writing of the three "religions of Abraham": Judaism, Christianity, and Islam.

Same as REL STD 5A.

(IV, VIII)

HISTORY 16B. World Religions II. 4 Units.
An introduction to various religious traditions in selected areas of the world—including India and South Asia, East Asia, Africa, and the Americas.

Same as REL STD 5B.

(IV, VIII)

HISTORY 16C. Religious Dialogue. 4 Units.
Lectures and discussion on controversial topics in religion: sexual morality; religious violence; science; treatment of women and girls; religious truth, American Constitutional matters; secularization; the future of religion, and other topics.

Same as REL STD 5C.

(IV, VIII)

HISTORY 18A. Introduction to Jewish Cultures. 4 Units.
Introduction to the diversity of Jewish cultures from ancient to modern times. Surveys the Jewish experience in various societies and civilizations: ancient Mediterranean, Middle East and North Africa, Europe, and the Americas.

(IV, VIII)

HISTORY 21A. World: Innovations. 4 Units.
Treats major themes of world historical development through the mid-seventeenth century, focusing on the Eurasian world, but with secondary emphasis on Africa and the Americas.

(IV, VIII)

HISTORY 21B. World: Empires and Revolutions. 4 Units.
Examines three major transformations that made the world of 1870 dramatically different from that of 1650: e.g., the scientific revolution, industrialization, and the formation of modern states and nations.

(IV, VIII)

HISTORY 21C. World: Wars and Rights. 4 Units.
Considers several major currents of modern history: technological change and its social effects; changes in gender relations; totalitarianism; peasant revolutions and the crisis of colonization; international migration; and ecological problems.

(IV, VIII)

HISTORY 36A. The Formation of Ancient Greek Society: Early Greece. 4 Units.
A survey of ancient Greek civilization from its origins in the Bronze Age to the mid-Archaic period. Examines political and social history, as well as literature, art, religion, and archaeological remains.

Same as CLASSIC 36A.

(IV)

HISTORY 36B. The Formation of Ancient Greek Society: Late Archaic and Classical Greece. 4 Units.
A survey of ancient Greek civilization from the Late Archaic period to the Classical period. Focuses on major institutions and cultural phenomena as seen through the study of ancient Greek literature, history, archaeology, and religion.

Same as CLASSIC 36B.

(IV)

HISTORY 36C. The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece. 4 Units.
A survey of ancient Greek civilization from the fourth century BCE through to the Hellenistic period. Focuses on major institutions and cultural phenomena as seen through the study of ancient Greek literature, history, archaeology, and religion.

Same as CLASSIC 36C.

(IV)

HISTORY 37A. The Formation of Ancient Roman Society: Origins to Roman Republic. 4 Units.
A survey of the development of Roman civilization from its eighth century BCE beginnings to the civil wars of the first century BCE. Examines political and social history, as well as literature, art, architecture, and religion.

Same as CLASSIC 37A.

(IV)

HISTORY 37B. The Formation of Ancient Roman Society: Roman Empire. 4 Units.
A survey of Roman civilization from Augustus's consolidation of power following the civil wars of the first century BCE to the crisis of the third century CE. Includes social history, literature, art, architecture, and religion.

Same as CLASSIC 37B.

(IV)

HISTORY 37C. The Formation of Ancient Roman Society: The Fall of Rome. 4 Units.
A survey of Roman civilization from the crisis of the third century CE to the so-called "fall of Rome" in 476 CE. Examines political and social history, as well as literature, art, architecture, and religion.

Same as CLASSIC 37C.

(IV)

HISTORY 40A. Colonial America: New Worlds. 4 Units.
Important themes in the social, economic, political, and cultural development in North America that transformed part of the geographical space into the U.S. Topics include Native Americans, European colonization, African enslavement, borderlands, gender, economic stratification, the American Revolution, the Constitution.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

(IV)

HISTORY 40B. Nineteenth-Century U.S.: Crisis and Expansion. 4 Units.
Explores the transformation of American society, economy, and politics during the nineteenth century. Topics include industrial revolution, slavery, antislavery, women's rights, reform movements, Civil War and Reconstruction, immigration and ethnicity, and cultural and social transformation.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

(IV)

HISTORY 40C. Modern America: Culture and Power. 4 Units.
Important themes in U.S. history in the twentieth and early twenty-first centuries. Topics include corporate capitalism, empire, immigration, race, gender, consumer society, World Wars, Progressiveness, New Deal, Great Society, civil rights, women's movements, Vietnam War, conservative politics, and economic stratification.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

(IV)

HISTORY 50. Crises and Revolutions. 4 Units.
Study of turning points in world history, illustrating themes and methods of historical analysis.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

HISTORY 60. The Making of Modern Science. 4 Units.
Surveys the history of science and mathematics since the Scientific Revolution, examining central developments both chronologically and thematically, as well as investigating their significance for contemporary philosophical debates about the role and status of current scientific theories.

Same as LPS 60.

(IV)

HISTORY 70A. Problems in History: Asia. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of Asia, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 70B. Problems in History: Europe. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of Europe, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 70C. Problems in History: United States. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of the United States, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV)

HISTORY 70D. Problems in History: Latin America. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of Latin America, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 70E. Problems in History: Middle East and Africa. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of the Middle East and Africa, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 70F. Problems in History: Transregional History. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of transregional history, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 100W. Writing About History. 4 Units.
Specialized courses focusing on history writing and research skills. Each class reflects the instructor's intellectual interests and is conducted as a discussion group. Limited to 18 students. Several short writing assignments and one longer project meeting the upper-division writing requirement.

Prerequisite: HISTORY 12 or HISTORY 15A or HISTORY 15C or HISTORY 15D or HISTORY 16A or HISTORY 16B or HISTORY 16C or HISTORY 18A or HISTORY 21A or HISTORY 21B or HISTORY 21C or HISTORY 40A or HISTORY 40B or HISTORY 40C or HISTORY 60 or HISTORY 70A or HISTORY 70B or HISTORY 70C or HISTORY 70D or HISTORY 70E or HISTORY 70F. Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: History majors have first consideration for enrollment.

(Ib)

HISTORY 102B. Topics in Environmental History. 4 Units.
Explores the many historical interfaces between climate change, modes of production, and culture. Topics include the environmental history of warfare, imperialism, and famine in the nineteenth century and the history of environmental thought.

Repeatability: Unlimited as topics vary.

HISTORY 103. Topics in International Conflicts. 4 Units.
A study of international conflicts from military, social, economic perspectives with a focus on the preparation for and conduct of war and the consequences. Formerly History 100A.

Repeatability: Unlimited as topics vary.

HISTORY 104. Topics in History and Journalism. 4 Units.
A series of lectures on, and discussions of, announced topics in history and journalism and the literature of facts. Examples: "Early Modern Women in the Public Sphere," "Victorian Cultural Critics," and "Writing about War.".

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

HISTORY 105B. Later Roman Empire. 4 Units.
Creation of a bureaucratic empire; rule by gentry and officers; official culture and rise of Christianity; social conflict and political disintegration.

HISTORY 110A. Europe in the Early Middle Ages. 4 Units.
Survey of Europe between 300 A.D. and 900 A.D. Topics include the breakup of the Roman Empire, barbarian invasions, spread of Christianity, rise of Islam, the Carolingian Empire, and the Vikings.

HISTORY 110B. Europe in the Central Middle Ages. 4 Units.
Survey of European history from ca. 900 to ca. 1300. Topics discussed include the growth of the economy, feudalism, the crusades, the rise of towns, the development of the church, popular heresy, and the rise of large-scale polities.

HISTORY 110C. Europe in the Later Middle Ages. 4 Units.
Survey of European history from ca. 1300 to ca. 1500. Topics include the Black Death, the crisis of the economy, the Hundred Years' War, peasant and urban uprisings, and the Great Schism.

HISTORY 110D. Topics in Medieval Europe. 4 Units.
Studies of the topics in Medieval Europe.

Repeatability: Unlimited as topics vary.

HISTORY 112D. Topics in Early Modern Europe. 4 Units.
Theme-based approach to the main social, political, and cultural developments in Europe between the fifteenth and eighteenth centuries. Topics included Renaissance humanism, Reformation and Counter-Reformation, scientific revolution, court culture and nation building, interactions with non-European peoples, cities and commerce.

Repeatability: Unlimited as topics vary.

HISTORY 114. Topics in Modern European History. 4 Units.
Course content changes with instructor. Topics include the Inquisition; science and religion in modern Europe; sex and society in modern Europe; French revolutions; culture in interwar Europe; the Holocaust; the fall of communism in Eastern Europe.

Repeatability: Unlimited as topics vary.

HISTORY 115C. Europe: Twentieth Century. 4 Units.
World War I and its impact on the modern world; rise of an international Communist movement; regimes created by Mussolini, Hitler, Stalin; World War II; the killing of Europe's Jews; Cold War and collapse of communism.

HISTORY 116A. England in the Early Middle Ages. 4 Units.
Survey of English history from ca. 400 to ca. 1200. Topics include the Anglo-Saxons, the Viking settlement, the Norman Conquest, the Angevin Empire, and the development of royal, legal, and administrative mechanisms.

HISTORY 116B. Later Medieval England. 4 Units.
Survey of English history between ca. 1200 and ca. 1500. Topics include the Magna Carta, the Barons' War, the Welsh and Scottish wars, the development of Parliament, the Hundred Years' War, and the War of the Roses.

HISTORY 118A. Modern Britain: 1700 to 1850. 4 Units.
Examines the major developments in British politics, socioeconomic structure, and culture from 1700-1850. The development of the British nation-state and the fashioning of a national identity. Explores basic questions about British national identity.

HISTORY 118B. Modern Britain: 1850 to 1930. 4 Units.
Examines the social, economic, and political history of Britain from 1850-1930. Post-industrialism, urbanization, population and economic change, increased political participation by working classes and women, consolidation of the empire and the breakup of the United Kingdom.

HISTORY 118C. Modern Britain: 1930 to Present. 4 Units.
Explores Britain from the Second World War to resignation of Margaret Thatcher. Examines Britain's devolution from world power to member of the European Community; transition from a manufacturing to service-based economy; changing demographic and racial composition in light of decolonization.

HISTORY 120B. The French Revolution: 1774-1815. 4 Units.
Emphasis on social, economic, and cultural history of the French Revolution.

HISTORY 120C. France in the Nineteenth Century. 4 Units.
Emphasis on social, economic, and cultural history of France in the Nineteenth Century.

HISTORY 120D. France in the Twentieth Century: 1914 to Present. 4 Units.
Emphasis on social, economic, and cultural history of France from 1914 to present.

HISTORY 120E. History of Paris. 4 Units.
The development of Paris from the beginnings through the present, with emphasis on the last three centuries. The city is examined from the political, social, ecological, and architectural points of view as well as through the perspective of urban planning.

HISTORY 122B. Hitler and the Germans. 4 Units.
Focuses on Hitler's rise to power and Nazi society. Examines Germany's defeat in World War I; the political and cultural experimentation of the 1920s; the causes of Hitler's success; and life in Germany under the Nazis.

HISTORY 123D. Topics in Spanish History. 4 Units.
Topics include Spain in the nineteenth century, the Spanish Civil War, and dictatorship and democracy in modern Spain.

Repeatability: Unlimited as topics vary.

HISTORY 124A. Imperial Russia: 1689-1905. 4 Units.
Political and social developments in Russia from 1689-1905.

HISTORY 124B. Twentieth-Century Russia. 4 Units.
Political and social developments in Twentieth-Century Russia.

HISTORY 126A. The Era of World War I: 1900-1939. 4 Units.
The era of World War I and its political, social and economic history.

HISTORY 126B. The Era of World War II: 1933-45. 4 Units.
The era of World War II and its political, social and economic history.

HISTORY 128A. Women and Gender in Early Modern Europe: 1400-1700. 4 Units.
Explores what it meant to be a woman in early modern Europe. Examines women's lives in early modern Europe while developing skills of historical interpretation. Topics include: notions of masculinity and femininity; "proto-feminism"; marriage and sexuality; female piety and witchcraft.

HISTORY 128C. Topics in the History of Women in Europe. 4 Units.
Studies in selected areas of history of European women. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 130A. Jewish History, Ancient to Early Modern Times. 4 Units.
The history of the Jewish people from their origins in the ancient world to the 1700s. Social, religious, and intellectual life of Jewish communities in the Middle East, North Africa, and Europe.

HISTORY 130B. Modern Jewish History. 4 Units.
History of the Jews in Europe, the Middle East, North Africa, and the United States from the early-eighteenth century to recent times. Emancipation, assimilation, religious reform, antisemitism, Zionism, socialism, the Holocaust, and modern Israel are the major themes.

HISTORY 130C. Topics in the Jewish History. 4 Units.
Studies in selected areas of Jewish history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 131A. History of Zoroastrianism. 4 Units.
Reviews major trends in the history of Zoroastrianism.

Same as REL STD 131A.

HISTORY 131B. Ancient Persia. 4 Units.
Survey of the history of Persia in antiquity.

HISTORY 131C. Medieval Persia. 4 Units.
A survey of Persian history in the context of Late Antique and Medieval Islamic history.

HISTORY 131D. Modern Iran. 4 Units.
The history of Iran from the end of the Safavid Empire in the eighteenth century to the present.

HISTORY 131E. Topics in Iranian History. 4 Units.
Topics include the cultural, political, intellectual, social, and/or economic histories of Iran.

Repeatability: Unlimited as topics vary.

HISTORY 132A. Israel and Palestine. 4 Units.
Origins of Zionism in the nineteenth century, Arab-Jewish conflicts in Palestine, emergence of Palestinian nationalism, formation of the Israeli nation after 1948, and the development of the Palestinian movement. Focus on Palestinian and Israeli society and culture. Formerly History 132.

HISTORY 132B. The Emergence of the Modern Middle East. 4 Units.
Offers a survey of the history of the Middle East from the nineteenth century to the present time. Formerly History 133A.

HISTORY 132G. Topics in Islamic History. 4 Units.
The evolution of Islam as a religion within the social, political, and economic histories of various Muslim societies throughout its 14 centuries. Introduces major concepts, practices, and texts of Islam, and key historical events associated with them. Formerly History 131.

Repeatability: Unlimited as topics vary.

HISTORY 132H. Topics in Middle Eastern History. 4 Units.
Topics include the cultural, political, intellectual, social, and/or economic histories of one or many regions of the Middle East.

Repeatability: Unlimited as topics vary.

HISTORY 134A. Africa: Societies and Cultures. 4 Units.
Introduction to the variety of cultures, political organizations, social structures, and artistic expressions created by Africans over a broad time span. Indigenous development of African societies in distinct regions of the continent. Issues, themes, processes for understanding history of Africa.

HISTORY 134B. Modern Africa. 4 Units.
Explores the last 200 years of history in Africa, from the end of the Atlantic slave trade through colonization to independence.

HISTORY 134C. Topics in the History of Africa. 4 Units.
Studies in selected areas of African history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 134D. Topics in South African History. 4 Units.
Introduction to important historical events and processes in Southern Africa. Focuses on particular themes and explores how those themes change over time. Topics include: changing ideas about race, the development of class structures, identity formation, the role of gender.

Repeatability: Unlimited as topics vary.

HISTORY 134E. History of the African Diaspora. 4 Units.
Examines the causes and consequences of the multiple diasporas of African peoples since the sixteenth century in the Atlantic world, especially the Americas and Europe.

Same as AFAM 137.

HISTORY 135B. Crossing the World's Oceans: From Sail to Steam. 4 Units.
Explores the basics of oceanography, the evolution of ships and sailing in the ancient Mediterranean world, the North Atlantic, Polynesia, the South China Sea, the Arab Indian Ocean, the global oceanic world, and the discovery of celestial and terrestrial navigation.

HISTORY 135D. Maps from Prehistory to the Present. 4 Units.
Examines how technology has assisted in creating visual representations of place, space, and time beginning in ancient Babylonia to the present day.

HISTORY 135E. Topics in the History of Science and Technology. 4 Units.
Studies in selected areas of science and technological history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 135G. Language Origins: Evolution, Genetics, and the Brain. 4 Units.
Examines how human language(s) may have originated. Studies pertinent techniques (reconstruction) and addresses related questions, including Is our language faculty inborn (i.e., genetically encoded)? Can brain imaging and population genetics research help to unlock this mystery of human evolution?.

Same as GLBLCLT 105, ANTHRO 152A, LINGUIS 175.

HISTORY 136D. Topics in the History of Medicine and Health Care. 4 Units.
Studies in selected areas of Medicine and Health Care history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 136E. History of Epidemics and Infectious Disease. 4 Units.
Examines how epidemics tax political, economic, and spiritual resources and challenge prevailing medical theories and practices. Looks at how society has responded to epidemics and disease throughout history, beginning in antiquity and ending in the present.

HISTORY 140A. Early America: 1492-1740. 4 Units.
Examines the history of the land that became the first 13 states of the United States, from early attempts at exploration and discovery to the economic growth and demographic heterogeneity that marked the white settlements of the early 1700s.

HISTORY 140B. Revolutionary America: 1740-1790. 4 Units.
An exploration of why 13 continental colonies, whose commercial and cultural connections with Britain far exceed their interaction with one another, resisted imperial reform after 1763 to the point of war in 1775 and independence the following year.

HISTORY 142A. California in Modern America. 4 Units.
California as a case study of national trends and as a unique setting: its specific problems and culture. Major themes include: colonization, immigration, race relations, agricultural development, industrialization, urbanization, working class movements, social conflict, and political reform.

HISTORY 142B. Topics in American Social and Economic History. 4 Units.
Studies in selected areas of American social and economic history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 144G. Topics in American Cultural and Intellectual History. 4 Units.
Studies in selected areas of American cultural and intellectual history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 146D. Sex in the U.S. to 1860. 4 Units.
Perspectives on sexual behavior in colonial and U.S. history to c. 1860. Mainstream and non-mainstream sexual practices, beliefs, identities. Asks why various ideas of sexual behavior developed and how they related to religious, racial, ethnic, political, cultural belief systems.

HISTORY 146E. Gender in Nineteenth-Century America. 4 Units.
A social and cultural history of women's lives in nineteenth-century America, examining how racial, sexual, class identities were constructed by women themselves and by their surrounding culture. Topics include slavery, anti-slavery movement, domesticity, experience of the Civil War.

HISTORY 146H. Topics in Women and Gender Relations in the United States. 4 Units.
Studies in selected areas of women and gender relations in the United States. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 148B. Topics in Multicultural U.S. History. 4 Units.
Examines the variety of cultural expressions through which the people who came to inhabit the United States historically signify their collective identities.

Repeatability: Unlimited as topics vary.

HISTORY 150. Topics in African American History. 4 Units.
Studies in selected areas of African American history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as AFAM 138.

HISTORY 151A. Chicana/Chicano History: Pre-Colonial to 1900. 4 Units.
Examines social history of the southwest region from antiquity to 1900. Discusses major questions, theory and research methods pertinent to Chicanas/Chicanos. Themes include: indigenous empires, conquest, colonialism, social stratification, ideology, marriage, sexuality, industrial capitalism, accommodation and resistance.

Same as CHC/LAT 132A.

HISTORY 151B. Chicana/Chicano History: Twentieth Century. 4 Units.
Examines social history of the Southwest with emphasis on Mexican-origin people. Discusses major questions, theory and research methods pertinent to Chicana/Chicano history. Themes explored include: immigration, xenophobia, class struggle, leadership, generational cohorts, unionization, education, barrioization, ethnicity, patriarchy, sexuality.

Same as CHC/LAT 132B.

HISTORY 151C. Latinas in the Twentieth Century U.S.. 4 Units.
Latinas in the U.S. from 1900 to present, offering a diversity of their cultures, regional histories, sexualities, generations, and classes.

Same as CHC/LAT 135.

HISTORY 152. Topics in Asian-American History. 4 Units.
Introduction to important themes in the history of people of Asian ancestry in the United States from the nineteenth century to the present.

Repeatability: Unlimited as topics vary.

HISTORY 152A. Asian American Labor. 4 Units.
Explores history of Asian Americans and work from the nineteenth century to the present. Areas of study include migration, colonialism, family, social organization, and work culture.

Same as ASIANAM 137.

HISTORY 152B. Asian American and African American Relations. 4 Units.
Addresses relationships of Asian American and African American communities in the United States. Topics include race, class, gender, labor, economic systems, political mobilization, community, civil rights, activism, cultural expression.

Same as AFAM 117, ASIANAM 167.

HISTORY 153. American Legal History. 4 Units.
Introduction to American legal case materials, to legal categories and ways of thinking, and to selected topics in U.S. legal history. Does not offer a chronological survey of the development of law in the United States.

HISTORY 158A. U.S. as a Global Power. 4 Units.
Examines post-World War II cultural, economic, and strategic patterns that have shaped U.S. relations with the world. Presents diverse perspectives on issues such as nationalism, anticommunism, secrecy and covert action, economic influences, the media's role, and race, gender, and class-related.

HISTORY 160. Sex and Conquest in Latin America. 4 Units.
Competing ideas of masculinity and femininity, sexual violence, sexual identities, and gendered hierarchies informed how the Spanish engaged in military and religious domination of Mexican and Andean communities, as well as the forms of native resistance throughout colonial Latin America.

Same as GEN&SEX 171A.

HISTORY 161A. Indian and Colonial Societies in Mexico. 4 Units.
Examines the history of Colonial Mexico from prehistoric times to the eighteenth century. Focuses on the social, economic, and political evolution of the new Mexican society which resulted from the "meeting" of two cultures.

HISTORY 161C. Twentieth-Century Mexico. 4 Units.
Examines the history of contemporary Mexico beginning with the Mexican Revolution and concluding with the present administration. Social, economic, and political effects of the Revolution; formation of a "one-party democracy"; economic transformation of the nation; the present crisis.

Same as CHC/LAT 133B.

HISTORY 162. Topics in Brazilian History. 4 Units.
Studies in selected areas of Brazilian history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 163. Coffee and Capitalism. 4 Units.
History of consumption and production of coffee over the centuries, and coffee's cultural, economic, social, political consequences. Coffee's social life as a drug, symbol of hospitality, religious rite, sociability and bourgeois lifestyle, commodity, source of livelihoods, imperial revenues, corporate profits.

Same as INTL ST 111B.

HISTORY 164A. Caribbean History: Colonization to Emancipation. 4 Units.
Exploration of the history of the archipelago from pre-Columbian times to the end of slavery; examining the impact of European colonization, decimation of the indigenous populations, African slavery, resistance, and emancipation; the unity and diversity of experience in region.

Same as AFAM 134A.

HISTORY 164B. Caribbean History: Emancipation to Independence. 4 Units.
Post-emancipation and anti-colonial struggles ending with political independence for most of the region. Examines social, political, economic, cultural dimensions of post-emancipation period, including large-scale migration to Central America, the U.S., and Britain; the region's global cultural and political contribution.

Same as AFAM 134B.

HISTORY 165. Race and Empire in Colonial Latin America. 4 Units.
Explores how native people of Latin America with enslaved and free African incorporated and defied Spanish and Portuguese colonization. Focuses on religious adaptions, resistance movements, legal systems, and the emergence of multicultural communities to explain how race shaped European empires.

Same as ANTHRO 162C.

HISTORY 166. U.S. Intervention in Latin America. 4 Units.
Explores political, economic, social, and cultural ties that bind Latin America to the United States. Focuses on U.S. intervention and Latin American response from early nineteenth century to present day. Case studies include Mexico, Guatemala, Cuba, Chile, and Central America.

Same as INTL ST 177D, SOC SCI 123A, CHC/LAT 150.

HISTORY 166A. Gender, Race, and Nation in Latin America. 4 Units.
Addresses the importance of gender and race to nation-making in Latin America during the 19th and 20th centuries (1810-1945). Considers how hierarchies between men and women shaped ideas about family, the state, and modernity.

Same as INTL ST 177H, WOMN ST 172.

HISTORY 166B. Revolution and Reaction in Cold War Latin America. 4 Units.
Explores Latin American experiences of revolutionary change and military dictatorship during the Cold War (1945-1990). Pays particular attention to the lives of women, peasants, workers, and the urban middle classes. Case studies include Guatemala, Cuba, Chile, Argentina, Nicaragua, and Mexico.

Same as INTL ST 177G.

HISTORY 166C. Cuban Society and Revolution. 4 Units.
Explores the causes, development, and legacy of the 1959 Revolution. Themes include economic dependency, democracy, race, gender, culture, and the always volatile relations between Cuba and the United States.

Same as POL SCI 153G, INTL ST 177E, CHC/LAT 157.

HISTORY 166D. Revolution in Latin America. 4 Units.
Presents a comparative analysis of the causes, development, and consequences of selected revolutionary movements, focusing on outbreaks in Mexico, Bolivia, Cuba, Chile, Nicaragua, and Grenada. Explores topics of state formation, economic nationalism, social justice, ethnicity, and role of international affairs.

Same as CHC/LAT 151B, SOC SCI 173N, INTL ST 177C.

HISTORY 169. Topics in Latin American History. 4 Units.
Studies in selected areas of Latin American history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 170D. Premodern East Asia. 4 Units.
Introduction to histories of China, Korea, and Japan from the earliest states to about 1600. Topics include: state formation and dissolution; the role of ideology and how it changes; religious beliefs and values; agriculture, commerce, and industry; changing family values.

HISTORY 170E. East Asia: 1600-1895. 4 Units.
Introduction to China, Korea, and Japan from about 1600 to 1895. Establishment of Qing Chinese, late Choson Korean, and Tokugawa Japanese sociopolitical orders and their characteristics, plus major cultural developments. Responses to Western impact and the rise of Meiji Japan.

HISTORY 170F. East Asia Since 1895. 4 Units.
Introduction to the turbulent modern histories of China, Korea, and Japan since 1895. An overarching concern is to understand the evolution of modern East Asia and its place for humankind's future.

HISTORY 170G. Topics in the History of Asia. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of Asia.

Repeatability: Unlimited as topics vary.

HISTORY 171D. Chinese History to 1800. 4 Units.
A survey of the history of China to 1800.

HISTORY 171E. Chinese History: 1800-1949. 4 Units.
An examination of Chinese society and thought from the late-eighteenth century to the 1949 revolution. Focuses on the role of intellectuals; popular culture; women in Chinese society; developments in commerce and urban life; rebellion; foreign imperialism.

HISTORY 171G. Topics in the History of China. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of China.

Repeatability: Unlimited as topics vary.

HISTORY 172D. Age of the Samurai. 4 Units.
Topics include the simultaneous elaboration of a civilian aristocratic tradition and the military ethos, the conflict between martial and economic values in the context of an expanding economy, and the development of Japan's indigenous religions, art, and literature.

HISTORY 172E. Imperial Japan. 4 Units.
Topics in the rise of modern Japan include the relationship between centralization and imperialism, democracy and fascism, industrialization and feminism in the context of the complex and competing forces that shaped Japan's experience in the modern world.

HISTORY 172F. Postwar Japan. 4 Units.
From the ashes of defeat to economic superpower, from poverty to material consumerism, from the ethic of diligence and fortitude to hedonism. Addresses what these changes have meant for ordinary people, as well as government policy and Japan's international position.

HISTORY 172G. Topics in the History of Japan. 4 Units.
Topics include the cultural, political, economic, social, intellectual and religious history of Japan.

Repeatability: Unlimited as topics vary.

HISTORY 173D. Korean History to 1800. 4 Units.
A general survey of the history of Korea to 1800. Focuses on internal sociopolitical development, major cultural trends, and foreign relations. Students are introduced to various interpretive approaches in the historiography.

HISTORY 173E. Korean History: 1800-1945. 4 Units.
An examination of Korean society and culture in tumultuous transition, focusing on some new challenges for the Choson Dynasty and its abortive reform effort, external imperialist pressures, and the Japanese colonial rule.

HISTORY 173F. Korean History Since 1945. 4 Units.
Topics include the national liberation, origins of conflict between two rival regimes, South Korea's emergence as a major player in the international political economy, some salient characteristics of the North Korean Marxist state, triumph of democracy, and prospect for reunification.

HISTORY 173G. Topics in the History of Korea. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of Korea.

Repeatability: Unlimited as topics vary.

HISTORY 174G. Topics in the History of South Asia. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of South Asia.

Repeatability: Unlimited as topics vary.

HISTORY 175G. Topics in the History of Southeast Asia. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of Southeast Asia.

Repeatability: Unlimited as topics vary.

HISTORY 180. Special Studies in Social History. 4 Units.
Studies in selected areas of social history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 181. Special Studies in Economic History. 4 Units.
Studies in selected areas of economic history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 182. Special Studies in Intellectual-Cultural History. 4 Units.
Studies in selected areas of intellectual-cultural history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 183. Special Studies in International History. 4 Units.
Studies in selected areas of international history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 184. Special Studies in Comparative History. 4 Units.
Studies in selected areas of comparative history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 185. Special Studies in Social Theory. 4 Units.
Studies in selected areas of social theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 190. Colloquium . 4 Units.
Specialized courses dealing primarily with close reading and analysis of primary and secondary works; required reports and papers. Each colloquium reflects the instructor's intellectual interests and is conducted as a discussion group. Limited to 18 students.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. History majors have first consideration for enrollment.

HISTORY 193. Advanced Research Seminar I. 4 Units.
The first course in a two-quarter advanced research sequence, this course allows upper-division history majors to undertake significant research and writing under close faculty supervision.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: History majors only. Upper-division students only.

HISTORY 194. Advanced Research Seminar II. 4 Units.
Second course in a two-quarter advanced research sequence. Allows upper division history majors to undertake significant research and writing under close faculty supervision.

Prerequisite: HISTORY 193. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: History majors only. Upper-division students only.

HISTORY 197. Internships in Public History. 4 Units.
Students will sharpen their abilities to research, critically interpret, and present history by “doing history” beyond the formal classroom. Internships, which introduce students to the field of “public history,” include working as archivists, oral historians, project advisers, and exhibit curators.

Grading Option: Pass/no pass only.

Restriction: Upper-division students only. History majors only.

HISTORY 198. Directed Group Study. 4 Units.
Special topics through directed reading. Paper required.

Repeatability: Unlimited as topics vary.

HISTORY 199. Independent Reading. 1-4 Units.
Investigation of special topics through directed reading. Paper required.

Repeatability: May be repeated for credit unlimited times.

HISTORY 200A. History and Theory. 4 Units.
Introduction to role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. (200A and 200B required for History Ph.D. students; 200C optional.).

Same as HUMAN 200A.

HISTORY 200B. History and Theory. 4 Units.
Introduction to role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. (200A and 200B required for History Ph.D. students; 200C optional.).

Same as HUMAN 200B.

HISTORY 200C. History and Theory . 4 Units.
Introduction to role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. (200A and 200B required for History Ph.D. students; 200C optional.).

Repeatability: Unlimited as topics vary.

Same as HUMAN 200C.

HISTORY 202. Proseminar. 4 Units.
Topical courses devoted to the literature of a broad historical subject, e.g., the absolutist state, the French Revolution, comparative industrialization, women's history.

Repeatability: Unlimited as topics vary.

Restriction: History graduate students only.

HISTORY 203. First-Year Research Seminar. 4 Units.
Devoted to research and writing on questions connected with proseminar topics. Normally required of all entering graduate students. Includes review of the current state of the literature and practical experience in conducting research and writing a research paper.

Prerequisite: HISTORY 202.

Repeatability: May be taken for credit 1 times as topics vary.

HISTORY 204A. Second-Year Research Seminar. 4 Units.
Two-quarter sequence required of all Ph.D. students. Taken during the second year of the Ph.D. program; not required for M.A. students. Includes review of current state of the literature and practical experience in conducting research and writing a research paper.

Restriction: History graduate students only.

HISTORY 204B. Second-Year Research Seminar. 4 Units.
Two-quarter sequence required of all Ph.D. students. Taken during the second year of the Ph.D. program; not required for M.A. students. Includes review of current state of the literature and practical experience in conducting research and writing a research paper.

Prerequisite: HISTORY 204A.

Restriction: History graduate students only.

HISTORY 220A. The Literature and Interpretations of Early Modern Europe: Society and Economy. 4 Units.
Studies in selected areas of society and economy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 220B. The Literature and Interpretations of Early Modern Europe: Political History. 4 Units.
Studies in selected areas of political history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 220C. The Literature and Interpretations of Early Modern Europe: Intellectual & Cultural History. 4 Units.
Studies in selected areas of intellectual and cultural history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 230A. The Literature and Interpretations of Modern European History: Europe, 1789-1848. 4 Units.
Studies in selected areas of Europe, 1789-1848. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 230B. The Literature and Interpretations of Modern European History: Europe, 1850-1914. 4 Units.
Studies in selected areas of Europe, 1850-1914. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 230C. The Literature and Interpretations of Modern European History: Europe, 1914-1989. 4 Units.
Studies in selected areas of Europe, 1914-1989. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 240A. The Literature and Interpretations of World History: Approaches to World History. 4 Units.
Overview of major directions of inquiry in world history and their implications for teaching and research. Topics will include cultural, sociological, economic, and political frameworks.

Repeatability: Unlimited as topics vary.

Restriction: History graduate students only.

HISTORY 240B. The Literature and Interpretations of World History: Topics in World History. 4 Units.
Selected historical issues and periods viewed from a global perspective. Examples include: environmental history, media studies, political economy. May be repeated two times for graduate credit other than fulfillment of field requirement.

Repeatability: Unlimited as topics vary.

Restriction: History graduate students only.

HISTORY 240C. The Literature and Interpretations of World History: Advanced Research in World History. 4 Units.
Studies in selected areas of advanced research in world history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: History graduate students only.

HISTORY 250A. The Literature and Interpretations of Latin American History: Colonial Period. 4 Units.
Studies in selected areas of the Colonial Period. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 250B. The Literature and Interpretations of Latin American History: Nineteenth Century. 4 Units.
Studies in selected areas of nineteenth century. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 250C. The Literature and Interpretations of Latin American History: Twentieth Century. 4 Units.
Studies in selected areas of twentieth century. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 260A. The Literature and Interpretations of American History: Seventeenth & Eighteenth Centuries. 4 Units.
Studies in selected areas of seventeenth and eighteenth centuries. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 260B. The Literature and Interpretations of American History: Nineteenth Century. 4 Units.
Studies in selected areas of the nineteenth century. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 260C. The Literature and Interpretations of American History: Twentieth Century. 4 Units.
Studies in selected areas of the twentieth century. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 273. Research Methods in Chinese History. 4 Units.
Introduces major tools for research in Qing and twentieth-century Chinese history as well as an introduction to research tools for earlier periods.

HISTORY 274A. Seminar in Chinese History: 1100-1750. 4 Units.
The development of Chinese society and culture from 1100-1750. May be used to fulfill the First-Year Research requirement.

Repeatability: Unlimited as topics vary.

HISTORY 274B. Seminar in Chinese History: 1600-1937. 4 Units.
The development of Chinese society and culture from 1600-1937. May be used to fulfill the First-Year Research requirement.

Repeatability: Unlimited as topics vary.

HISTORY 274C. Seminar in Chinese History: 1850-Present. 4 Units.
The development of Chinese society and culture from 1850 to the present. May be used to fulfill the First-Year Research requirement.

Repeatability: Unlimited as topics vary.

HISTORY 275A. Approaches to Islam in the Middle East/Maghrib. 4 Units.
Examines methodologies and approaches to the study of Muslim culture and history in the Middle East and North Africa in medieval and modern times.

Restriction: History graduate students only.

HISTORY 275B. Ottoman and Modern Middle East. 4 Units.
Explores historiographic questions pertaining to the Middle East under Ottoman domination, the encounter with colonialism and modernity, and transitions in the post-colonial period.

Restriction: History graduate students only.

HISTORY 275C. The Maghrib Since 1500. 4 Units.
Focus on the societies and cultures of the region corresponding to today's Libya, Tunisia, Algeria, and Morocco during the Ottoman regencies, Sharifian Morocco, colonial occupation, and post-independence periods.

Restriction: History graduate students only.

HISTORY 280A. China. 4 Units.
Studies in literatures and interpretations of Chinese history.

HISTORY 280B. Japan. 4 Units.
Studies in literatures and interpretations of Japanese history.

HISTORY 280C. Korea. 4 Units.
Studies in literatures and interpretations of Korean history.

HISTORY 280D. South Asia . 4 Units.
Studies in literatures and interpretations of South Asian history.

HISTORY 290. Special Topics . 4 Units.
Lectures, readings, and discussion on subjects more limited in scope than those included in the year-long colloquium series.

Repeatability: Unlimited as topics vary.

HISTORY 291. Directed Reading. 4-12 Units.
Reading courses focused on specialized topics.

Repeatability: May be repeated for credit unlimited times.

Restriction: History graduate students only.

HISTORY 295. Special Methods. 4 Units.
Development of particular research skills.

HISTORY 298. Experimental Group Study. 4-12 Units.
Open to four or more students.

Repeatability: May be repeated for credit unlimited times.

HISTORY 299. Dissertation Research. 4-12 Units.
Specifically designed for students researching and writing their dissertations.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Advancement to Ph.D. candidacy.

HISTORY 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Humanities Courses

HUMAN 1A. Humanities Core Lecture. 4 Units.
Through a range of cultural traditions and an interdisciplinary,approach to works of literature, history, philosophy and contemporary media, this course introduces students to the humanities.

Corequisite: HUMAN 1AS or HUMAN H1AS or HUMAN 1AES.
Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Restriction: Lower-division students only.

(IV)

HUMAN 1AES. Humanities Core Writing: Entry Level Writing. 4 Units. 2 Workload Units.
A small writing course for Entry Level Writing students exploring the ideas presented in the companion lecture course and illustrated in the literary, historical, philosophical, and media works assigned.

Overlaps with HUMAN 1AS, HUMAN H1AS.

Restriction: Lower-division students only.

HUMAN 1AS. Humanities Core Writing. 4 Units.
A small writing course in which students explore the ideas presented in the companion lecture course and illustrated in the literary, historical, philosophical, and media works assigned.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Overlaps with HUMAN 1AES, HUMAN H1AS.

Restriction: Lower-division students only.

(Ia)

HUMAN 1B. Humanities Core Lecture. 4 Units.
Through a range of cultural traditions and an interdisciplinary approach to works of literature, history, philosophy and contemporary media, this course introduces students to the humanities.

Corequisite: HUMAN 1BS or HUMAN H1BS or HUMAN 1BES.
Prerequisite: HUMAN 1A.

Restriction: Lower-division students only.

(IV)

HUMAN 1BES. Humanities Core Writing: Entry Level Writing. 4 Units. 2 Workload Units.
A small writing course for Entry Level Writing students exploring the ideas presented in the companion lecture course and illustrated in the literary, historical, philosophical, and media works assigned.

Prerequisite: HUMAN 1AES. HUMAN 1AES with a grade of C- or lower.

Overlaps with HUMAN 1BS, HUMAN H1BS.

Restriction: Lower-division students only.

(Ia)

HUMAN 1BS. Humanities Core Writing. 4 Units.
A small writing course in which students explore the ideas presented in the companion lecture course and illustrated in the literary, historical, philosophical, and media works assigned.

Prerequisite: HUMAN 1AS or HUMAN H1AS or HUMAN 1AES. HUMAN 1AS with a grade of C or better. HUMAN H1AS with a grade of C or better. HUMAN 1AES with a grade of C or better.

Overlaps with HUMAN H1BS, HUMAN 1BES.

Restriction: Lower-division students only.

(Ia)

HUMAN 1C. Humanities Core Lecture. 4 Units.
Through a range of cultural traditions and an interdisciplinary approach to works of literature, history, philosophy and contemporary media, this course introduces students to the humanities.

Corequisite: HUMAN 1CS or HUMAN H1CS or HUMAN 1CES.
Prerequisite: HUMAN 1B.

Restriction: Lower-division students only.

(IV, VII, VIII)

HUMAN 1CES. Humanities Core Writing: Entry Level Writing. 4 Units. 2 Workload Units.
A small writing course for Entry Level Writing students exploring the ideas presented in the companion lecture course and illustrated in the literary, historical, philosophical, and media works assigned.

Prerequisite: HUMAN 1BES. HUMAN 1BES with a grade of C- or lower.

Overlaps with HUMAN 1CS, HUMAN H1CS.

Restriction: Lower-division students only.

HUMAN 1CS. Humanities Core Writing. 4 Units.
A small writing course in which students explore the ideas presented in the companion lecture course and illustrated in the literary, historical, philosophical, and media works assigned.

Prerequisite: HUMAN 1BS or HUMAN H1BS or HUMAN 1BES. HUMAN 1BS with a grade of C or better. HUMAN H1BS with a grade of C or better. HUMAN 1BES with a grade of C or better.

Overlaps with HUMAN H1CS, HUMAN 1CES.

Restriction: Lower-division students only.

(Ia)

HUMAN H1AS. Humanities Core Writing: Honors. 4 Units.
A small writing course for Campuswide Honors students exploring the ideas presented in the companion lecture course and illustrated in the literary, historical, philosophical, and media works assigned.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Overlaps with HUMAN 1AS, HUMAN 1AES.

Restriction: Lower-division students only. Campuswide Honors Program students only.

(Ia)

HUMAN H1BS. Humanities Core Writing: Honors. 4 Units.
A small writing course for Campuswide Honors students exploring the ideas presented in the companion lecture course and illustrated in the literary, historical, philosophical, and media works assigned.

Prerequisite: HUMAN H1AS or HUMAN 1AS or HUMAN 1AE. HUMAN H1AS with a grade of C or better. HUMAN 1AS with a grade of C or better. HUMAN 1AE with a grade of C or better.

Overlaps with HUMAN 1BS, HUMAN 1BES.

Restriction: Lower-division students only. Campuswide Honors Program students only.

(Ia)

HUMAN H1CS. Humanities Core Writing: Honors. 4 Units.
A small writing course for Campuswide Honors students exploring the ideas presented in the companion lecture course and illustrated in the literary, historical, philosophical, and media works assigned.

Prerequisite: HUMAN 1BS or HUMAN H1BS or HUMAN 1BES. HUMAN 1BS with a grade of C or better. HUMAN H1BS with a grade of C or better. HUMAN 1BES with a grade of C or better.

Overlaps with HUMAN 1CS, HUMAN 1CES.

Restriction: Lower-division students only. Campuswide Honors Program students only.

(Ia)

HUMAN 10. Masterpieces of Literature. 4 Units.
Students closely read major works of world literature that are significant (1) in their own right, (2) for a specific literary tradition, and (3) because of their reception in other cultural contexts. Literature written in English and English translation.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HUMAN 55. What is the Origin of Language?. 4 Units.
Teaches symbol-based logic and universal grammar in human language as tools to investigate the origin of language. Does language originate with reason? Is language inherently universal or diverse? Does it begin as something literal or figurative.

((III or IV) and Vb).

HUMAN 100. Latin America and the Caribbean. 4 Units.
Introduces students to Latin America and the Caribbean by focusing on the social, cultural, economic, and/or political issues and processes that have widely affected the region during various time periods.

Repeatability: Unlimited as topics vary.

HUMAN H120. Honors Proseminar . 4 Units.
Interdisciplinary Honors courses organized each year around a single topic problem designed to compare and contrast modes of analysis in history, literary studies, and philosophy.

Repeatability: May be taken for credit 3 times as topics vary.

Restriction: Humanities Honors Program students only.

HUMAN H140. Senior Honors Seminar. 4 Units.
Directed by Humanities Honors Thesis Advisor and required of students in Humanities Honors program and Humanities majors in Campuswide Honors Program. Designed to facilitate exchange of ideas and research strategies among students and begin process of writing senior honors thesis.

Restriction: Seniors only. Humanities Honors Program students only.

HUMAN H141. Senior Honors Thesis. 4 Units.
Directed independent research required of participants in the Humanities Honors Program and Humanities majors in the Campuswide Honors Program.

Prerequisite: HUMAN H140.

Restriction: Humanities Honors Program students only. Campuswide Honors Program students only.

HUMAN H142W. Senior Honors Colloquium. 4 Units.
Completion, presentation, and discussion of Senior Honors Theses.

Prerequisite: HUMAN H141.

Restriction: Humanities Honors Program students only. Campuswide Honors Program students only.

(Ib)

HUMAN 149. Rhetoric and Public Speech. 4 Units.
A course in public speaking as rhetorical practice. Key concepts include situation, audience, public, argument, persuasion, style, and ethics. Includes analysis of significant speeches by public figures from a range of social positions, and practice in composing and delivering speeches.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

HUMAN 183A. International Studies Forum. 2 Units.
A faculty-student forum featuring lecturers from a variety of institutions with discussion issues related to international studies.

Repeatability: May be taken for credit 4 times.

Same as SOC SCI 183A, SOCECOL 183A, INTL ST 183A.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

HUMAN 183B. Seminar in Mediation. 4 Units.
Student develop mediation skills and refine knowledge in the practice and theory of conflict resolution. Students who complete this course may serve as mediators in the Campus Mediation Program. Course is a prerequisite to completing Indep Study as an intern.

Same as SOC SCI 183B, INTL ST 183B, SOCECOL 183B.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

HUMAN 183C. Seminar in Conflict Resolution . 4 Units.
Designed for students pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write research paper.

Same as SOCECOL 183C, SOC SCI 183C.

HUMAN 183CW. Seminar Conflict Resolution. 4 Units.
Designed for seniors who are pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOCECOL 183CW, SOC SCI 183CW.

(Ib)

HUMAN 195. Humanities Out There (H.O.T.) Public Humanities Practicum. 04.0 Units.
Five-week workshops on topics in public humanities. Via workshops, teams of undergraduates collaborate with the Orange County Public Libraries to produce local oral histories. Requirements: five training sessions; five oral history sessions; two electronic journals; short paper.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

HUMAN 197. Individual Field Study. 1-4 Units.
Individually arranged field study.

Repeatability: May be repeated for credit unlimited times.

HUMAN 198. Directed Group Study. 1-4 Units.
Directed group study on special topics.

Grading Option: Pass/no pass only.

Repeatability: Unlimited as topics vary.

HUMAN 199. Directed Research. 1-4 Units.
Directed research for senior Humanities students.

Repeatability: Unlimited as topics vary.

Restriction: Seniors only.

HUMAN 200A. History and Theory. 4 Units.
Introduction to role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. (200A and 200B required for History Ph.D. students; 200C optional.).

Same as HISTORY 200A.

HUMAN 200B. History and Theory. 4 Units.
Introduction to role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. (200A and 200B required for History Ph.D. students; 200C optional.).

Same as HISTORY 200B.

HUMAN 200C. History and Theory . 4 Units.
Introduction to role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. (200A and 200B required for History Ph.D. students; 200C optional.).

Repeatability: Unlimited as topics vary.

Same as HISTORY 200C.

HUMAN 220A. Studies in Literary Theory and Its History. 4 Units.
Introduction to criticism and aesthetics for beginning graduate students. Readings from continental, English, and American theorists.

Same as CRITISM 220A.

Restriction: Graduate students only.

HUMAN 220B. Studies in Literary Theory and Its History. 4 Units.
Introduction to criticism and aesthetics for beginning graduate students. Readings from continental, English, and American theorists.

Same as CRITISM 220B.

Restriction: Graduate students only.

HUMAN 260A. Critical Theory Workshop.
A year-long Critical Theory Workshop, conducted by a team of instructors, conceived as a reading group, and developed with the input of all participants, where significant texts are discussed and analyzed in class.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

HUMAN 260B. Critical Theory Workshop.
A year-long Critical Theory Workshop, conducted by a team of instructors, conceived as a reading group, and developed with the input of all participants, where significant texts are discussed and analyzed in class.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

HUMAN 260C. Critical Theory Workshop. 4 Units.
A year-long Critical Theory Workshop, conducted by a team of instructors, conceived as a reading group, and developed with the input of all participants, where significant texts are discussed and analyzed in class.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

HUMAN 270. Advanced Critical Theory. 4 Units.
Seminars on various topics in critical theory.

Prerequisite: Students should have taken introductory courses before enrolling in these seminars.

Repeatability: Unlimited as topics vary.

HUMAN 298. Group Study . 4 Units.
Group study with Humanities faculty.

Repeatability: Unlimited as topics vary.

HUMAN 398A. Foreign Language Teaching: Approaches and Methods. 2 Units.
Introduces approaches and methods of foreign language learning and teaching, and the theoretical models of second-language acquisition and teaching. Focus areas include lesson planning, teaching vocabulary, grammar, speaking, reading, writing, listening, culture, task-based teaching, uses of digital media.

Restriction: Graduate students only.

HUMAN 398B. Foreign Language Teaching: Approaches and Methods. 2 Units.
Introduces approaches and methods of foreign language learning and teaching, and the theoretical models of second-language acquisition and teaching. Focus areas include lesson planning, teaching vocabulary, grammar, speaking, reading, writing, listening, culture, task-based teaching, uses of digital media.

Restriction: Graduate students only.

HUMAN 399. University Teaching. 4 Units.
Limited to Teaching Associates in Humanities Core course.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Italian Courses

ITALIAN 1A. Fundamentals of Italian. 5 Units.
Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily.

Overlaps with ITALIAN S1AB.

Restriction: ITALIAN 1A and ITALIAN S1AB may not be taken for full credit.

ITALIAN 1B. Fundamentals of Italian. 5 Units.
Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily.

Prerequisite: ITALIAN 1A or Placement Exam into ITALIAN 1B. ITALIAN 1A with grade of C or better.

Overlaps with ITALIAN S1AB, ITALIAN S1BC.

Restriction: ITALIAN 1B and ITALIAN S1AB and ITALIAN S1BC may not be taken for full credit.

ITALIAN 1C. Fundamentals of Italian. 5 Units.
Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily.

Prerequisite: ITALIAN 1B or ITALIAN S1AB or Placement Exam into 1C. ITALIAN 1B with a grade of C or better. ITALIAN S1AB with a grade of C or better.

Overlaps with ITALIAN S1BC.

Restriction: ITALIAN 1C and ITALIAN S1BC may not both be taken for full credit.

(VI)

ITALIAN S1AB. Italian Fundamentals. 7.5 Units.
First-year Italian in an intensified form. Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily three hours for five weeks each session.

Overlaps with ITALIAN 1A, ITALIAN 1B.

Restriction: ITALIAN S1AB and ITALIAN 1A and ITALIAN 1B may not be taken for full credit.

ITALIAN S1BC. Italian Fundamentals. 7.5 Units.
First-year Italian in an intensified form. Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily three hours for five weeks each session.

Prerequisite: ITALIAN S1AB or ITALIAN 1B. ITALIAN S1AB with a grade of C or better. ITALIAN 1B with a grade of C or better.

Overlaps with ITALIAN 1B, ITALIAN 1C.

Restriction: ITALIAN S1BC and ITALIAN 1B and ITALIAN 1C may not be taken for full credit.

(VI)

ITALIAN 2A. Intermediate Italian. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in Italian.

Prerequisite: ITALIAN 1C or ITALIAN S1BC or Placement Exam into 2A. ITALIAN 1C with grade of C or better. ITALIAN S1BC with grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ITALIAN 2B. Intermediate Italian. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in Italian.

Prerequisite: ITALIAN 2A or Placement Exam into 2B. ITALIAN 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ITALIAN 2C. Intermediate Italian. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in Italian.

Prerequisite: ITALIAN 2B or Placement Exam into 2C. ITALIAN 2B with grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ITALIAN 99. Special Studies in Italian. 4 Units.
Both student and instructor arrive at the theme of the course and the critical approach to be followed in consultation. Intended to offer courses in Italian otherwise unavailable.

Repeatability: May be repeated for credit unlimited times.

ITALIAN 101A. Introduction to Italian Literature. 4 Units.
Introduction to all of the genres of a narrowly defined period in relationship to a specific literary problem. In Italian.

Prerequisite: ITALIAN 2C.

ITALIAN 101B. Introduction to Italian Literature. 4 Units.
Introduction to all of the genres of a narrowly defined period in relationship to a specific literary problem. In Italian.

Prerequisite: ITALIAN 2C.

ITALIAN 150. Topics in Italian Literature and Culture. 4 Units.
Taught in English.

Repeatability: Unlimited as topics vary.

ITALIAN 199. Tutorial in Italian Literature and Culture. 4 Units.
The student must submit a written description of the proposed course to the instructor and the Chair prior to the beginning of the course.

Repeatability: Unlimited as topics vary.

Japanese Courses

JAPANSE 1A. Fundamental Japanese. 5 Units.
Students develop listening, speaking, reading, and writing abilities in Japanese for meaningful communication. Content deals with daily life, society, and culture in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the hiragana and katakana orthography.

Prerequisite: Placement into JAPANSE 1A.

Overlaps with JAPANSE S1AB.

Restriction: JAPANSE 1A and JAPANSE S1AB may not be taken for full credit.

JAPANSE 1B. Fundamental Japanese. 5 Units.
Students develop listening, speaking, reading, and writing abilities in Japanese for meaningful communication. Content deals with daily life, society, and culture in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the hiragana and katakana orthography.

Prerequisite: JAPANSE 1A or JAPANSE S1AB or placement into JAPANSE 1B. JAPANSE 1A with a grade of C or better. JAPANSE S1AB with a grade of C or better.

Overlaps with JAPANSE S1AB, JAPANSE S1BC.

Restriction: JAPANSE 1B and JAPANSE S1AB and JAPANSE S1BC may not be taken for full credit.

JAPANSE 1C. Fundamental Japanese. 5 Units.
Students develop listening, speaking, reading, and writing abilities in Japanese for meaningful communication. Content deals with daily life, society, and culture in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the hiragana and katakana orthography.

Prerequisite: JAPANSE 1B or JAPANSE S1AB or placement into JAPANSE 1C. JAPANSE 1B with a grade of C or better. JAPANSE S1AB with a grade of C or better.

Overlaps with JAPANSE S1BC.

Restriction: JAPANSE 1C and JAPANSE S1BC may not be taken for full credit.

(VI)

JAPANSE S1AB. Fundamentals of Japanese. 7.5 Units.
First half of first-year Japanese in an intensified form.

Prerequisite: Placement into JAPANSE 1A.

Overlaps with JAPANSE 1A, JAPANSE 1B.

Restriction: JAPANSE S1AB and JAPANSE 1A and JAPANSE 1B may not be taken for full credit.

JAPANSE S1BC. Fundamentals of Japanese. 7.5 Units.
Second half of first-year Japanese in an intensified form.

Prerequisite: JAPANSE S1AB or JAPANSE 1B or placement into JAPANSE 1C. JAPANSE S1AB with a grade of C or better. JAPANSE 1B with a grade of C or better.

Overlaps with JAPANSE 1C, JAPANSE 1B.

Restriction: JAPANSE S1BC and JAPANSE 1B and JAPANSE 1C may not be taken for full credit.

(VI)

JAPANSE 2A. Intermediate Japanese. 5 Units.
Japanese listening, speaking, reading, and writing abilities developed for meaningful communication. Content deals with daily life, society, and culture, including social issues in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the 180 characters learned in 1A-B-C.

Prerequisite: JAPANSE 1C or JAPANSE S1BC or placement into JAPANSE 2A. JAPANSE 1C with a grade of C or better. JAPANSE S1BC with a grade of C or better.

Overlaps with JAPANSE S2AB.

Restriction: JAPANSE 2A and JAPANSE S2AB may not be taken for full credit.

(VIII)

JAPANSE 2B. Intermediate Japanese. 5 Units.
Japanese listening, speaking, reading, and writing abilities developed for meaningful communication. Content deals with daily life, society, and culture, including social issues in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the 180 characters learned in 1A-B-C.

Prerequisite: JAPANSE 2A or placement into JAPANSE 2B. JAPANSE 2A with a grade of C or better.

Overlaps with JAPANSE S2AB.

Restriction: JAPANSE 2B and JAPANSE S2AB and JAPANSE S2BC may not be taken for full credit.

(VIII)

JAPANSE 2C. Intermediate Japanese. 5 Units.
Japanese listening, speaking, reading, and writing abilities developed for meaningful communication. Content deals with daily life, society, and culture, including social issues in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the 180 characters learned in 1A-B-C.

Prerequisite: JAPANSE 2B or JAPANSE S2AB or placement into JAPANSE 2C. JAPANSE 2B with a grade of C or better. JAPANSE S2AB with a grade of C or better.

Overlaps with JAPANSE S2BC.

Restriction: JAPANSE 2C and JAPANSE S2BC may not be taken for full credit.

(VIII)

JAPANSE S2AB. Intermediate Japanese. 7.5 Units.
First half of second-year Japanese in an intensified form.

Prerequisite: JAPANSE 1C or JAPANSE S1BC or placement in JAPANSE 2A. JAPANSE 1C with a grade of C or better. JAPANSE S1BC with a grade of C or better.

Overlaps with JAPANSE 2A, JAPANSE 2B.

Restriction: JAPANSE S2AB and JAPANSE 2A and JAPANSE 2B may not be taken for full credit.

(VIII)

JAPANSE S2BC. Intermediate Japanese. 7.5 Units.
Second half of second-year Japanese in an intensified form.

Prerequisite: JAPANSE S2AB or JAPANSE 2B or placement into JAPANSE 2C. JAPANSE S2AB with a grade of C or better. JAPANSE 2B with a grade of C or better.

Overlaps with JAPANSE 2C, JAPANSE 2B.

Restriction: JAPANSE S2BC and JAPANSE 2B and JAPANSE 2C may not be taken for full credit.

(VIII)

JAPANSE 3A. Advanced Japanese. 4 Units.
Students are taught to conceptualize in Japanese as they learn to understand, read, write, and speak. Authentic Japanese texts are used. Approximately 360 kanji (Chinese characters) in addition to the 270 characters learned in 1A-B-C and 2A-B-C are introduced.

Prerequisite: JAPANSE 2C or JAPANSE S2BC or placement into JAPANSE 3A. JAPANSE 2C with a grade of C or better. JAPANSE S2BC with a grade of C or better.

(VIII)

JAPANSE 3B. Advanced Japanese. 4 Units.
Students are taught to conceptualize in Japanese as they learn to understand, read, write, and speak. Authentic Japanese texts are used. Approximately 360 kanji (Chinese characters) in addition to the 270 characters learned in 1A-B-C and 2A-B-C are introduced.

Prerequisite: JAPANSE 3A or placement into JAPANSE 3B. JAPANSE 3A with a grade of C or better.

(VIII)

JAPANSE 3C. Advanced Japanese. 4 Units.
Students are taught to conceptualize in Japanese as they learn to understand, read, write, and speak. Authentic Japanese texts are used. Approximately 360 kanji (Chinese characters) in addition to the 270 characters learned in first and second year are introduced.

Prerequisite: JAPANSE 3B or placement into JAPANSE 3C. JAPANSE 3B with a grade of C or better.

Restriction: Japanese majors have first consideration for enrollment.

(VIII)

JAPANSE 100A. Classical Japanese. 4 Units.
Introduction to classical Japanese grammar and vocabulary with emphasis on reading and analysis of basic texts.

Prerequisite: JAPANSE 3C. JAPANSE 3C with a grade of C or better.

JAPANSE 100B. Classical Japanese. 4 Units.
Introduction to classical Japanese grammar and vocabulary with emphasis on reading and analysis of basic texts.

Prerequisite: JAPANSE 100A. JAPANSE 100A with a grade of C or better.

JAPANSE 101A. Fourth Year Japanese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of texts.

Prerequisite: JAPANSE 3C.

JAPANSE 101B. Fourth Year Japanese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of texts.

Prerequisite: JAPANSE 3C.

JAPANSE 101C. Fourth Year Japanese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of texts.

Prerequisite: JAPANSE 3C.

JAPANSE 115. Japanese Literature: Advanced Texts. 4 Units.
Designed for students with near-fluency in reading Japanese. Texts include both fiction and nonfiction by important writers, and may be supplemented and contextualized where needed by literary criticism and cultural-studies texts in English.

Prerequisite: JAPANSE 101A or JAPANSE 101B or JAPANSE 101C.

Repeatability: Unlimited as topics vary.

JAPANSE 180. Topics in Japanese Literature. 4 Units.
Special topics through directed reading in Japanese. Paper required.

Repeatability: May be taken for credit 3 times as topics vary.

JAPANSE 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading in Japanese. Paper required.

Repeatability: May be taken for credit for 12 units.

JAPANSE 201. Readings in Traditional Japanese Prose. 4 Units.
Close reading of selected premodern prose texts, including tales, journals, travel journals, essays.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 202. Readings in Traditional Japanese Poetry or Drama. 4 Units.
Close reading of selected premodern poetic or dramatic texts.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 203. Readings in Modern Japanese Literature. 4 Units.
Texts include both fiction and nonfiction by important writers, and may be supplemented where needed by literary criticism and cultural-studies texts in English.

Prerequisite: JAPANSE 101C.

Repeatability: Unlimited as topics vary.

JAPANSE 204. Readings in Traditional Japanese Literary and Cultural Theory . 4 Units.
Close reading of selected texts involving literary criticism and/or aesthetics.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 205. Readings in Japanese Religion. 4 Units.
Close readings of selected Japanese religious texts.

Prerequisite: JAPANSE 101C.

Repeatability: Unlimited as topics vary.

JAPANSE 211A. Studies in Traditional Japanese Prose. 4 Units.
Studies in selected areas of traditional Japanese prose. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 211B. Studies in Traditional Japanese Prose. 4 Units.
Studies in selected areas of traditional Japanese prose. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 100B and JAPANSE 211A.

Repeatability: Unlimited as topics vary.

JAPANSE 212A. Studies in Traditional Japanese Poetry or Drama. 4 Units.
Studies in selected areas of traditional Japanese poetry or drama. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 212B. Studies in Traditional Japanese Poetry or Drama. 4 Units.
Studies in selected areas of traditional Japanese poetry or drama. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 212A.

Repeatability: Unlimited as topics vary.

JAPANSE 213A. Studies in Modern Japanese Literature. 4 Units.
A two-quarter, in-depth look at a major author and/or issue in modern Japanese literature. Seminar format. The first quarter is devoted to reading of the requisite texts; the second quarter, to the writing of a research paper.

Prerequisite: JAPANSE 203.

Repeatability: Unlimited as topics vary.

JAPANSE 213B. Studies in Modern Japanese Literature. 4 Units.
A two-quarter, in-depth look at a major author and/or issue in modern Japanese literature. Seminar format. The first quarter is devoted to reading of the requisite texts; the second quarter, to the writing of a research paper.

Prerequisite: JAPANSE 203 and JAPANSE 213A.

Repeatability: May be repeated for credit unlimited times.

JAPANSE 214. Studies in Japanese Literary and Cultural Theory. 4 Units.
Studies in selected areas of Japanese literary and cultural theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

JAPANSE 215. Studies in Japanese Religion. 4 Units.
Studies in selected areas of Japanese religion. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 101C.

Repeatability: Unlimited as topics vary.

JAPANSE 230. Topics in Japanese Literature and Culture. 4 Units.
A topical study that addresses important issues in Japanese literature and culture. May focus on a specific writer or writers, or on a specific issue or set of related issues.

Prerequisite: JAPANSE 203.

Repeatability: Unlimited as topics vary.

JAPANSE 290. Independent Study. 4 Units.
Directed research on topic determined in consultation with faculty member. A term paper or project is required.

Repeatability: May be repeated for credit unlimited times.

JAPANSE 299. Dissertation Research. 4-12 Units.
For Students who have been admitted to doctoral candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Advancement to Ph.D. candidacy.

Korean Courses

KOREAN 1A. Fundamental Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with no previous background in Korean. Conducted in both English and Korean.

Prerequisite: Placement into KOREAN 1A.

Overlaps with KOREAN 1KA, KOREAN S1AB.

Restriction: KOREAN 1A and KOREAN 1KA and KOREAN S1AB may not be taken for full credit.

KOREAN 1B. Fundamental Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with no previous background in Korean. Conducted in both English and Korean.

Prerequisite: KOREAN 1A or placement into KOREAN 1B. KOREAN 1A with a grade of C or better.

Overlaps with KOREAN S1BC, KOREAN 1KB, KOREAN S1AB.

Restriction: KOREAN 1B and KOREAN 1KB and KOREAN S1AB and KOREAN S1BC may not be taken for full credit.

KOREAN 1C. Fundamental Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with no previous background in Korean. Conducted in both English and Korean.

Prerequisite: KOREAN 1B or KOREAN S1AB or placement into KOREAN 1C. KOREAN 1B with a grade of C or better. KOREAN S1AB with a grade of C or better.

Overlaps with KOREAN 1KC, KOREAN S1BC.

Restriction: KOREAN 1C and KOREAN 1KC and KOREAN S1BC may not be taken for full credit.

(VI)

KOREAN 1KA. Fundamental Korean for Students with a Previous Background in Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with a previous background in Korean. Conducted in both English and Korean.

Prerequisite: Placement into KOREAN 1KA.

Overlaps with KOREAN 1A, KOREAN S1AB.

Restriction: KOREAN 1KA and KOREAN 1A and KOREAN S1AB may not be taken for full credit.

KOREAN 1KB. Fundamental Korean for Students with a Previous Background in Korean . 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with a previous background in Korean. Conducted in both English and Korean.

Prerequisite: KOREAN 1KA or placement into KOREAN 1KB. KOREAN 1KA with a grade of C or better.

Overlaps with KOREAN 1B, KOREAN S1AB, KOREAN S1BC.

Restriction: KOREAN 1KB and KOREAN 1B and KOREAN S1AB and KOREAN S1BC may not be taken for full credit.

KOREAN 1KC. Fundamental Korean for Students with a Previous Background in Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with a previous background in Korean. Conducted in both English and Korean.

Prerequisite: KOREAN 1KB or placement into KOREAN 1KC. KOREAN 1KB with a grade of C or better.

Overlaps with KOREAN 1C, KOREAN S1BC.

Restriction: KOREAN 1KC and KOREAN 1C and KOREAN S1BC may not be taken for full credit.

(VI)

KOREAN S1AB. Fundamentals of Korean. 7.5 Units.
First half of first-year Korean in an intensified form.

Prerequisite: Placement into KOREAN 1A or KOREAN 1KA or KOREAN 1B or KOREAN 1KB.

Overlaps with KOREAN 1A, KOREAN 1B, KOREAN 1KA, KOREAN 1KB.

Restriction: KOREAN S1AB and KOREAN 1A and KOREAN 1KA and KOREAN 1B and KOREAN 1KB may not be taken for full credit.

KOREAN S1BC. Fundamentals of Korean. 7.5 Units.
Second half of first-year Korean in an intensified form.

Prerequisite: KOREAN S1AB or KOREAN 1B or KOREAN 1KB or placement into KOREAN 1C or KOREAN 1KC. KOREAN S1AB with a grade of C or better. KOREAN 1B with a grade of C or better. KOREAN 1KB with a grade of C or better.

Overlaps with KOREAN 1C, KOREAN 1KB, KOREAN 1KC, KOREAN 1B.

Restriction: KOREAN S1BC and KOREAN 1B and KOREAN 1KB and KOREAN 1C and KOREAN 1KC may not be taken for full credit.

(VI)

KOREAN 2A. Intermediate Korean. 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students without previous initial background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 1C or KOREAN S1BC or placement into KOREAN 2A. KOREAN 1C with a grade of C or better. KOREAN S1BC with a grade of C or better.

Overlaps with KOREAN 2KA, KOREAN S2AB.

Restriction: KOREAN 2A and KOREAN 2KA and KOREAN S2AB may not be taken for full credit.

(VIII)

KOREAN 2B. Intermediate Korean. 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students without previous initial background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 2A or placement into KOREAN 2B . KOREAN 2A with a grade of C or better.

Overlaps with KOREAN 2KB, KOREAN S2AB, KOREAN S2BC.

Restriction: KOREAN 2B and KOREAN 2KB and KOREAN S2AB and KOREAN S2BC may not be taken for full credit.

(VIII)

KOREAN 2C. Intermediate Korean. 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students without previous initial background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 2B or placement into KOREAN 2C. KOREAN 2B with a grade of C or better.

Overlaps with KOREAN 2KC, KOREAN S2AB, KOREAN S2BC.

Restriction: KOREAN 2C and KOREAN 2KC and KOREAN S2BC may not be taken for full credit.

(VIII)

KOREAN 2KA. Intermediate Korean for Students with a Previous Background in Korean . 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students with previous background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 1KC or KOREAN S1BC or placement into KOREAN 2KA. KOREAN 1KC with a grade of C or better. KOREAN S1BC with a grade of C or better.

Overlaps with KOREAN 2A, KOREAN S2AB.

Restriction: KOREAN 2KA and KOREAN 2A and KOREAN S2AB may not be taken for full credit.

(VIII)

KOREAN 2KB. Intermediate Korean for Students with a Previous Background in Korean . 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students with previous background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 2KA or placement into KOREAN 2KB. KOREAN 2KA with a grade of C or better.

Overlaps with KOREAN 2B, KOREAN S2BC, KOREAN S2AB.

Restriction: KOREAN 2KB and KOREAN 2B and KOREAN S2AB and KOREAN S2BC may not be taken for full credit.

(VIII)

KOREAN 2KC. Intermediate Korean for Students with a Previous Background in Korean. 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students with previous background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 2KB or placement into KOREAN 2KC. KOREAN 2KB with a grade of C or better.

Overlaps with KOREAN 2C, KOREAN S2BC.

Restriction: KOREAN 2KC and KOREAN 2C and KOREAN S2BC may not be taken for full credit.

(VIII)

KOREAN S2AB. Intensive Intermediate Korean. 7.5 Units.
First half of second-year Korean in an intensive form. Specifically designed for students with no previous initial background in Korean.

Prerequisite: KOREAN 1C or KOREAN S1BC. KOREAN 1C with a grade of C or better. KOREAN S1BC with a grade of C or better.

Overlaps with KOREAN 2A, KOREAN 2B, KOREAN 2KA, KOREAN 2KB.

Restriction: KOREAN S2AB and KOREAN 2A and KOREAN 2KA and KOREAN 2B and KOREAN 2KB may not be taken for full credit.

(VIII)

KOREAN S2BC. Intensive Intermediate Korean. 7.5 Units.
Second half of second-year Korean in an intensive form. Specifically designed for students with no previous initial background in Korean.

Prerequisite: KOREAN 2B or KOREAN S2AB. KOREAN 2B with a grade of C or better. KOREAN S2AB with a grade of C or better.

Overlaps with KOREAN 2C, KOREAN 2B, KOREAN 2KB, KOREAN 2KC.

Restriction: KOREAN S2BC and KOREAN 2B and KOREAN 2KB and KOREAN 2C and KOREAN 2KC may not be taken for full credit.

(VIII)

KOREAN 3A. Advanced Korean. 4 Units.
Focuses on developing advanced reading/writing and translation skills with additional instruction in Chinese characters.

Prerequisite: KOREAN 2C or KOREAN 2KC or KOREAN S2BC or placement in KOREAN 3A. KOREAN 2C with a grade of C or better. KOREAN 2KC with a grade of C or better. KOREAN S2BC with a grade of C or better.

(VIII)

KOREAN 3B. Advanced Korean. 4 Units.
Focuses on developing advanced reading, writing, and translation skills.

Prerequisite: KOREAN 3A or placement into KOREAN 3B. KOREAN 3A with a grade of C or better.

(VIII)

KOREAN 3C. Advanced Korean. 4 Units.
Focuses on developing advanced reading, writing, and translation skills.

Prerequisite: KOREAN 3B or placement into KOREAN 3C. KOREAN 3B with a grade of C or better.

(VIII)

KOREAN 101A. Fourth Year Korean. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of modern texts.

Prerequisite: KOREAN 3C.

KOREAN 101B. Fourth Year Korean. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of modern texts.

Prerequisite: KOREAN 3C.

KOREAN 101C. Fourth Year Korean. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of modern texts.

Prerequisite: KOREAN 3C.

KOREAN 115. Korean Literature: Advanced Texts. 4 Units.
Designed for students with near-fluency in reading Korean. Readings include modern Korean literary works (poetry, prose, and drama) by important writers. Emphasis is on the interpretation of the texts and writings that interpret those texts in the original language.

Prerequisite: KOREAN 101A or KOREAN 101B or KOREAN 101C.

Repeatability: Unlimited as topics vary.

KOREAN 180. Topics in Korean Literature. 4 Units.
Special topics through directed readings in Korean. Paper required.

Repeatability: May be taken for credit 3 times.

KOREAN 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading in Korean. Paper required.

Repeatability: May be taken for credit for 12 units.

Latin Courses

LATIN 1A. Fundamentals of Latin. 5 Units.
Elements of Latin grammar, syntax, and vocabulary.

Overlaps with LATIN S1AB.

Restriction: LATIN 1A and LATIN S1AB may not be taken for full credit.

LATIN 1B. Fundamentals of Latin. 5 Units.
Elements of Latin grammar, syntax, and vocabulary.

Prerequisite: LATIN 1A. LATIN 1A with a grade of C or better.

Overlaps with LATIN S1AB, LATIN S1BC.

Restriction: LATIN 1B and LATIN S1AB and LATIN S1BC may not be taken for full credit.

LATIN 1C. Fundamentals of Latin. 5 Units.
Introduction to reading texts, including study of the poetry of Catullus and selected readings.

Prerequisite: LATIN 1B. LATIN 1B with a grade of C or better.

Overlaps with LATIN S1BC.

Restriction: LATIN 1C and LATIN S1BC may not be taken for full credit.

(VI)

LATIN S1AB. Fundamentals of Latin. 7.5 Units.
First half of first-year Latin in an intensified form.

Overlaps with LATIN 1A, LATIN 1B.

Restriction: LATIN S1AB and LATIN 1A and LATIN 1B may not be taken for full credit.

LATIN S1BC. Fundamentals of Latin . 7.5 Units.
Second half of first-year Latin in an intensified form.

Prerequisite: LATIN S1AB or LATIN 1B. LATIN S1AB with a grade of C or better. LATIN 1B with a grade of C or better.

Overlaps with LATIN 1B, LATIN 1C.

Restriction: LATIN S1BC and LATIN 1B and LATIN 1C may not be taken for full credit.

(VI)

LATIN 99. Special Studies in Latin. 1-4 Units.
Lower-division level independent research with Latin faculty.

Repeatability: May be repeated for credit unlimited times.

LATIN 100. Topics in Classical Latin. 4 Units.
Selected readings in Classical Latin prose and poetry. Authors may include Cicero, Caesar, Ovid, Catullus, and others. Selections from prose and poetry will be read each quarter. Grammar and syntax review included.

Prerequisite: LATIN 1C or placement into Latin 100. LATIN 1C with a grade of C or better.

Repeatability: Unlimited as topics vary.

LATIN 103. Seminar in Latin Prose. 4 Units.
Specialized and focused study of a particular Latin prose author or topic.

Prerequisite: LATIN 100.

Repeatability: Unlimited as topics vary.

LATIN 104. Seminar in Latin Poetry. 4 Units.
Specialized and focused study of a particular topic or author in Latin poetry.

Prerequisite: LATIN 100.

Repeatability: Unlimited as topics vary.

LATIN 198. Directed Group Study. 1-4 Units.
Special topics in Roman culture and civilization through directed reading and research.

Repeatability: May be repeated for credit unlimited times.

LATIN 199. Independent Studies in Latin. 1-4 Units.
Independent research with Latin faculty.

Repeatability: May be repeated for credit unlimited times.

Literary Journalism Courses

LIT JRN 20. Introduction to Literary Journalism. 4 Units.
Reading of selected texts to explore the ways in which literary journalism and related nonfiction modes formulate experience. Students complete a range of writing projects.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Literary Journalism majors have first consideration for enrollment.

(IV)

LIT JRN 21. Reporting for Literary Journalism. 4 Units.
Instruction and hands-on training in how to interview, report, research, and collect the types of information needed to write literary journalism.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Literary Journalism majors have first consideration for enrollment.

LIT JRN 100. Advanced Reporting. 4 Units.
Practical engagement with advanced reporting techniques of Literary Journalism, emphasizing the importance of thorough and effective research in the production of high-quality journalistic writing. Prepares students to make good decisions about where and how to publish their writing.

Prerequisite: LIT JRN 21.

LIT JRN 101A. Studies in the History, Theory, and Ethics of Literary Journalism. 4 Units.
Required of upper-division majors in Literary Journalism. Lectures and discussion on topics that explore the historical and theoretical dimensions of literary journalism, with particular emphasis on the evolution of ethics in the field.

Prerequisite: LIT JRN 21 and LIT JRN 20 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E or COM LIT 60A or COM LIT 60B or COM LIT 60C).

LIT JRN 101BW. Literary Journalism Core Writing Seminar. 4 Units.
Limited to 20 students. Writing seminars in announced specialized genres that students will both study and practice. Examples: "The Memoir"; "Review Writing"; "The Editorial"; "Writing Biography"; "The Profile"; "Political Writing.".

Prerequisite: LIT JRN 101A. Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be taken for credit 3 times as topics vary.

Restriction: Upper-division students only. Students may enroll in a maximum of one LIT JRN 101BW course per quarter.

(Ib)

LIT JRN 103. Lectures on Topics in Literary Journalism. 4 Units.
A series of lectures on, and discussions of, announced topics in literary journalism and the literature of fact. Examples: "Writing the Palate"; "Early Modern Women in the Public Sphere"; "Victorian Cultural Critics"; "Writing about War.".

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

LIT JRN 197. Community Reporting . 4 Units.
Directed group study in which students work with an instructor to report and write about community news in a newsroom-style format. Students will partner with local publications to pitch, market, and publish their stories.

Prerequisite: Satisfactory completion of lower-division writing requirement.

Repeatability: May be repeated for credit unlimited times.

LIT JRN 198. Special Topics. 4 Units.
Directed group study of selected topics.

Repeatability: Unlimited as topics vary.

LIT JRN 199. Reading and Conference. 1-4 Units.
To be taken only when the materials to be studied lie outside the normal run of departmental offerings.

Repeatability: May be repeated for credit unlimited times.

Persian Courses

PERSIAN 1A. Fundamentals in Persian. 5 Units.
Designed for students with little or no exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills and fosters college-level literacy in Persian culture.

Prerequisite: Placement into PERSIAN 1A.

Overlaps with PERSIAN S1AB.

Restriction: PERSIAN 1A and PERSIAN S1AB may not be taken for full credit.

PERSIAN 1B. Fundamentals in Persian. 5 Units.
Designed for students with little or no exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills and fosters college-level literacy in Persian culture.

Prerequisite: PERSIAN 1A or placement into PERSIAN 1B. PERSIAN 1A with a grade of C or better.

Overlaps with PERSIAN S1AB, PERSIAN S1BC.

Restriction: PERSIAN 1B and PERSIAN S1AB and PERSIAN S1BC may not be taken for full credit.

PERSIAN 1C. Fundamentals in Persian. 5 Units.
Designed for students with little or no exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills and fosters college-level literacy in Persian culture.

Prerequisite: PERSIAN 1B or PERSIAN S1AB or placement in PERSIAN 1C. PERSIAN 1B with a grade of C or better. PERSIAN S1AB with a grade of C or better.

Overlaps with PERSIAN S1BC.

Restriction: PERSIAN 1C and PERSIAN S1BC may not be taken for full credit.

(VI)

PERSIAN S1AB. Fundamentals of Persian. 7.5 Units.
First half of first-year Persian. Designed for students with little or no exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills. Fosters college-level literacy in Persian culture.

Prerequisite: Placement into PERSIAN S1AB.

Overlaps with PERSIAN 1A, PERSIAN 1B.

Restriction: PERSIAN S1AB and PERSIAN 1A and PERSIAN 1B may not be taken for full credit.

PERSIAN S1BC. Fundamentals of Persian. 7.5 Units.
Second half of first-year Persian. Continuation of S1AB, or for students with limited exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills. Fosters college-level literacy in Persian culture.

Prerequisite: PERSIAN S1AB or PERSIAN 1B or placement into PERSIAN S1BC. PERSIAN S1AB with a grade of C or better. PERSIAN 1B with a grade of C or better.

Overlaps with PERSIAN 1B, PERSIAN 1C.

Restriction: PERSIAN S1BC and PERSIAN 1B and PERSIAN 1C may not be taken for full credit.

(VI)

PERSIAN 2A. Intermediate Persian. 4 Units.
Designed for students to advance their Persian language skills from introductory to intermediate level. Student will advance their understanding of grammar and syntax. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: PERSIAN 1C or PERSIAN S1BC or placement into PERSIAN 2A. PERSIAN 1C with a grade of C or better. PERSIAN S1BC with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

PERSIAN 2B. Intermediate Persian. 4 Units.
Designed for students to advance their Persian language skills from introductory to intermediate level. Students will advance their understanding of grammar and syntax. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: PERSIAN 2A or placement into PERSIAN 2B. PERSIAN 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

PERSIAN 2C. Intermediate Persian. 4 Units.
Designed for students to advance their Persian language skills from introductory to intermediate level. Students will advance their understanding of grammar and syntax. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: PERSIAN 2B or placement in PERSIAN 2C. PERSIAN 2B with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

PERSIAN 3A. Advanced Persian. 4 Units.
Students improve Persian language skills and grammatical knowledge. Explores tenth- to twentieth-century Persian poetry and prose (e.g., Rudaki, Ferdowsi, Bahar, Nima Yushij).

Prerequisite: PERSIAN 2C. PERSIAN 2C with a grade of C or better.

(VIII)

PERSIAN 3B. Advanced Persian. 4 Units.
Students improve their Persian language skills and grammatical knowledge. Explores tenth- to twentieth-century Persian poetry and prose (e.g., Rudaki, Ferdowsi, Bahar, Nima Yushij).

Prerequisite: PERSIAN 3A. PERSIAN 3A with a grade of C or better.

(VIII)

PERSIAN 10A. Persian Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. PERSIAN 10A is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

PERSIAN 10B. Persian Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. PERSIAN 10B is for language mentees.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

PERSIAN 50. Persian Culture. 4 Units.
Study of varied topics in Persian culture, area studies, and society, both in the present and in historical perspective. Topics are not normally repeated for a two-year period.

Repeatability: Unlimited as topics vary.

(IV, VIII)

Philosophy Courses

PHILOS 1. Introduction to Philosophy. 4 Units.
A selection of philosophical problems, concepts, and methods, e.g., free will and cause and substance, personal identity, the nature of philosophy itself.

(IV)

PHILOS 2. Puzzles and Paradoxes. 4 Units.
Introduction to the formal tools needed to comprehend and evaluate philosophical arguments and theoretical reasoning in general.

(IV, Vb)

PHILOS 4. Introduction to Ethics. 4 Units.
Selected topics from the history of ethics, e.g., the nature of the good life and the moral justification of conduct.

(IV)

PHILOS 5. Contemporary Moral Problems. 4 Units.
Selected moral issues of current interest, e.g., abortion, sexual morality, euthanasia, capital punishment, reverse discrimination, civil disobedience, or violence.

(IV)

PHILOS 6. Philosophy and Psychoanalysis. 4 Units.
An analysis of Freudian psychoanalytic theory and therapy, and its significance for such classical philosophical problems such as the mind-body problem, self-identity and self-deception, psyche and consciousness, innatism, and the origins of moral behavior.

(IV)

PHILOS 7. Introduction to Existentialism. 4 Units.
An analysis of themes in phenomenology and existentialism and their philosophical origins, e.g., consciousness, self and other, freedom and individuality.

(IV)

PHILOS 9. Feminist Moral and Political Philosophy. 4 Units.
Selected topics in moral and political philosophy analyzed from feminist perspectives, e.g., gender-based differences in moral attitudes and virtues, hidden in traditional accounts of political obligation, and feminism and sexual orientation.

Prerequisite: Recommended: PHILOS 4.

(IV)

PHILOS 10. History of Ancient Philosophy. 4 Units.
Examination of the central philosophical themes developed by the pre-Socratics, Socrates, Plato, Aristotle, the Stoics, the Epicureans, and the Skeptics.

(IV)

PHILOS 11. History of Medieval Philosophy. 4 Units.
A study of some of the major theological and philosophical texts from the Medieval period.

Prerequisite: Recommended: PHILOS 10.

(IV)

PHILOS 12. History of Modern Philosophy. 4 Units.
A study of major developments in western philosophy from Descartes to Kant with readings from Descartes, Leibniz, Locke, Berkeley, Hume, and Kant.

Prerequisite: Recommended: PHILOS 10 or PHILOS 11.

(IV)

PHILOS 13. History of Contemporary Philosophy. 4 Units.
A study of recent philosophical developments in Anglo-American and Continental philosophy with readings from such figures as Russell, Moore, Wittgenstein, Quine, Heidegger, and Sartre.

Prerequisite: Recommended: PHILOS 12.

(IV)

PHILOS 22. Introduction to Law and Society. 4 Units.
What constitutes a legal system? What does it mean for a society to have a system as a part of the social fabric. Examines the social status of law and its use as a tool for fashioning society.

(III)

PHILOS 23. Introduction to Problems of Self and Mind. 4 Units.
Study of basic problems in metaphysics: What am I? A mind, a soul, a body? A social being? A bioorganism? Am I the same person today, yesterday, and tomorrow? Is there a story of my life that captures my essence?.

(IV)

PHILOS 29. Critical Reasoning. 4 Units.
Introduction to analysis and reasoning. The concepts of argument, premise, and conclusion, validity and invalidity, consistency and inconsistency. Identifying and assessing premises and inferences. Deductive versus inductive reasoning, and introduction to the probability calculus. Evaluating definitions. Informal fallacies.

Same as LPS 29.

(II, Vb)

PHILOS 30. Introduction to Symbolic Logic. 4 Units.
An introduction to the symbolism and methods of the logic of statements, including evaluation of arguments by truth tables, the techniques of natural deduction and semantic tableaux.

Same as LPS 30.

(Vb)

PHILOS 31. Introduction to Inductive Logic. 4 Units.
Philosophical questions concerning the foundations of scientific inference, e.g., the traditional problem of induction, the Goodman paradox, the concept of cause, Mill's method of inductive reasoning, probability calculus, different interpretations of probability, and their interaction in inductive reasoning.

Same as LPS 31.

(II, Va)

PHILOS 40. Special Topics in Philosophy. 4 Units.
Lectures on selected topics at the lower-division level.

Repeatability: Unlimited as topics vary.

PHILOS 100W. Writing Philosophy. 4 Units.
Discussion of those aspects of writing of special importance in philosophy, e.g., philosophical terminology, techniques for evaluating arguments, philosophical definitions and theories. At least 4,000 words of assigned composition based on philosophical readings.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as LPS 100W.

Restriction: Upper-division students only.

(Ib)

PHILOS 101. Introduction to Metaphysics. 4 Units.
A study of one or more of the problems of "first philosophy," e.g., substance, free will, causation, abstract entities, identity.

PHILOS 102. Introduction to the Theory of Knowledge. 4 Units.
A study of one or more of the basic issues in epistemology, e.g., the role of perception in the acquisition of knowledge, the nature of evidence, the distinction between belief and knowledge, and the nature of truth and certainty.

Same as LPS 102.

PHILOS 102W. Introduction to the Theory of Knowledge. 4 Units.
A study of one or more of the basic issues in epistemology, e.g., the role of perception in the acquisition of knowledge, the nature of evidence, the distinction between belief and knowledge, and the nature of truth and certainty.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Overlaps with PHILOS 102, LPS 102.

(Ib)

PHILOS 103. Introduction to Moral Philosophy. 4 Units.
A study of one or more of the problems of contemporary moral philosophy, e.g., the nature of justice, liberalism versus conservatism, happiness and its relation to virtue and right conduct, the objectivity of moral standards.

PHILOS 104. Introduction to Logic. 4 Units.
Introduction to sentence logic, including truth tables and natural deduction; and to predicate logic, including semantics and natural deduction.

Same as LPS 104.

PHILOS 105A. Elementary Set Theory. 4 Units.
An introduction to the basic working vocabulary of mathematical reasoning. Topics include: sets, Boolean operations, ordered n-tuples, relations, functions, ordinal and cardinal numbers.

Same as LPS 105A.

PHILOS 105B. Metalogic. 4 Units.
Introduction to formal syntax (proof theory) and semantics (model theory) for first-order logic, including the deduction, completeness, compactness, and Löewenheim-Skolem theorems.

Prerequisite: PHILOS 105A.

Same as LPS 105B.
Overlaps with MATH 150.

PHILOS 105C. Undecidability and Incompleteness. 4 Units.
Introduction to the formal theory of effective processes, including recursive functions, Turing machines, Church's thesis, and proofs of Göedel's incompleteness theorem for arithmetic, and Church's undecidability theorem for first-order logic.

Prerequisite: PHILOS 105B.

Same as LPS 105C.
Overlaps with MATH 152.

PHILOS 106. Topics in Logic . 4 Units.
Selected topics in mathematical or philosophical logic.

Prerequisite: LPS 105B or PHILOS 105B.

Repeatability: Unlimited as topics vary.

Same as LPS 106.

PHILOS 108. Topics in Induction, Probability, and Decision Theory. 4 Units.
Selected topics in induction, probability, and decision theory.

Repeatability: Unlimited as topics vary.

Same as LPS 108.

PHILOS 110. Topics in Ancient Philosophy. 4 Units.
Selected topics from the writings of Plato and Aristotle, e.g., Aristotle's criticisms of Plato's metaphysics, ethics, or politics.

Repeatability: May be taken for credit 2 times as topics vary.

PHILOS 111. Topics in Medieval Philosophy. 4 Units.
Studies of some of the major issues of concern to Medieval philosophers, e.g., universals, the nature and existence of God, faith, and reason.

Repeatability: May be taken for credit 2 times as topics vary.

PHILOS 113. Topics in Modern Philosophy. 4 Units.
Focuses on the works of central philosophical figures of modern Philosophy (e.g., Descartes, Leibniz, Hobbes, Locke, Hume, Kant) or on the treatment of one or more central philosophical problems by a number of these figures.

Repeatability: Unlimited as topics vary.

Same as LPS 113.

PHILOS 114. Topics in Nineteenth-Century Philosophy. 4 Units.
Studies of some of the major figures after Kant (e.g., Hegel, Nietzsche, Marx, Kierkegaard), especially in German idealism and social thought.

Repeatability: Unlimited as topics vary.

PHILOS 115. Topics in History of Analytic Philosophy. 4 Units.
Review of central theories or figures in the history of analytic philosophy. Emphasis on writings of Frege, Russell, Schlick, Carnap, and Quine. Topics include the nature of meaning and truth, the synthetic/analytic distinction, and scientific knowledge.

Repeatability: Unlimited as topics vary.

Same as LPS 115.

PHILOS 116. Topics in Continental Philosophy. 4 Units.
Studies of some of the major figures (e.g., Husserl), movements (e.g., phenomenology, existentialism) in early twentieth-century continental European thought.

Repeatability: Unlimited as topics vary.

PHILOS 120. Topics in Metaphysics. 4 Units.
Examines central philosophical questions concerning our own fundamental nature and that of the world around us (e.g., causation and necessity, determination, free will, personal identity, the mind-body problem).

Repeatability: Unlimited as topics vary.

Same as LPS 120.

PHILOS 121. Topics in the Theory of Knowledge . 4 Units.
One or more topics in the theory of knowledge, e.g., the nature of rational justification, of perceptual knowledge, of a priori knowledge.

Repeatability: Unlimited as topics vary.

Same as LPS 121.

PHILOS 122. Topics in Philosophy of Mind. 4 Units.
Selected topics involving the concept of mind, e.g., the relation between mind and body, the self, personal identity, consciousness, the unconscious.

Repeatability: Unlimited as topics vary.

PHILOS 123. Topics in Philosophy of Religion. 4 Units.
Critical examination of concepts involved in the theological literature, e.g., the nature and existence of God, miracles, the problem of evil, divine command theories in ethics.

Repeatability: Unlimited as topics vary.

PHILOS 130. Topics in Moral Philosophy. 4 Units.
Selected topics in ethics.

Repeatability: Unlimited as topics vary.

PHILOS 131A. Applied Ethics. 4 Units.
Topics may include capital punishment, world hunger, obligations to future generations, environmental ethics, animal rights, economic justice, sexual morality, affirmative action, racism and sexism, or legalization of drugs.

PHILOS 131C. Medical Ethics. 4 Units.
Analysis of moral issues concerning health care. Topics may include: just allocation of scarce medical resources, the doctor/patient relationship, genetic engineering, surrogate motherhood, abortion, euthanasia, or social policy concerning AIDS.

PHILOS 132. Topics in Political and Social Philosophy. 4 Units.
Selected topics in social and political philosophy, e.g., the functions of government, the justification of political authority, the nature of democracy, the varieties of liberty, and social justice. Readings from classical and contemporary sources.

Repeatability: Unlimited as topics vary.

PHILOS 133. Topics in Philosophy of Law. 4 Units.
Selected topics concerning legal systems and the concept of law, e.g., the nature and purpose of law, the nature of authority, the relationship between law and morality, law and political-economic systems.

Repeatability: Unlimited as topics vary.

PHILOS 140. Topics in Philosophy of Science. 4 Units.
Selected topics in contemporary philosophy of science, e.g., the status of theoretical entities, the confirmation of theories, the nature of scientific explanation.

Repeatability: Unlimited as topics vary.

Same as LPS 140.

PHILOS 141A. Topics in Philosophy of Physics. 4 Units.
Selected topics in the philosophy of physics, e.g., the interpretation of quantum mechanics, the nature of spacetime, the problem of quantum field theories.

Repeatability: Unlimited as topics vary.

Same as LPS 141A.

PHILOS 141B. Geometry and Spacetime. 4 Units.
An examination of the foundations of the special theory of relativity, with emphasis on the geometry of Minkowski spacetime, and its relation to both Euclidean and non-Euclidean (hyperbolic) plane geometries.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

Same as LPS 141B.

PHILOS 141C. Philosophy of Quantum Mechanics. 4 Units.
An examination of the standard von Neumann-Dirac formulation of quantum mechanics. The quantum measurement problem is discussed along with several proposed solutions, including GRW, many-worlds, man-minds, and Bohm's theory.

Same as LPS 141C.

PHILOS 141D. Probability and Determinism. 4 Units.
An examination of a cluster of interrelated issues concerning probability, determinism, logic, and the foundations of quantum mechanics.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

Same as LPS 141D.

PHILOS 142W. Writing/Philosophy of Biology. 4 Units.
Philosophy of biology, e.g., scientific method in biology, the structure of evolutionary theory, teleology, ethics, and evolution. Course work includes one 4,000-word and four 1,000-word papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as LPS 142W, BIO SCI E142W.

Restriction: Juniors only.

(Ib)

PHILOS 143. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as LPS 143, PSYCH 123P.

Restriction: Psychology and Philosophy majors have first consideration for enrollment.

PHILOS 144. Topics in Philosophy of Social Science. 4 Units.
Selected topics in the philosophy of the social sciences, e.g., is their goal to understand behavior or to predict and control it?; are they normative and the natural sciences not?; do they incorporate philosophical doctrines about language and mind?.

Repeatability: Unlimited as topics vary.

Same as LPS 144.

PHILOS 145. Topics in Philosophy of Language. 4 Units.
Selected topics in the philosophy of language, e.g., the nature of meaning, mechanisms of reference, speech acts.

Repeatability: Unlimited as topics vary.

Same as LPS 145, LINGUIS 141.

PHILOS 146. Topics in Philosophy of Logic. 4 Units.
Selected topics in the philosophy of logic, e.g., the nature of logical truth and our knowledge of it, the status of propositions, definite descriptions, and existential presuppositions.

Repeatability: Unlimited as topics vary.

Same as LPS 146.

PHILOS 147. Topics in Philosophy of Mathematics. 4 Units.
Selected historical and contemporary topics in the philosophy of mathematics, e.g., mathematical truth and ontology, mathematical knowledge, the nature and role of proof, the workings of mathematics in application.

Repeatability: Unlimited as topics vary.

Same as LPS 147.

PHILOS 150. Phenomenology . 4 Units.
A study of the foundations of phenomenology in Husserl and its background in Bolzano, Frege, Brentano, Meinong, Kant, and Descartes.

PHILOS 151. Existentialism. 4 Units.
A study of such central existentialist thinkers as Heidegger and Sartre.

Prerequisite: Recommended: PHILOS 7 or PHILOS 150.

PHILOS 190. Special Topics in Philosophy. 4 Units.
Lectures on selected topics to be given by regular faculty and visiting faculty.

Repeatability: Unlimited as topics vary.

PHILOS 199. Directed Special Studies. 2-4 Units.
Independent study on a research topic supervised by a faculty member.

Repeatability: May be repeated for credit unlimited times.

PHILOS 200. Special Topics in Philosophy. 4 Units.
Seminars on selected topics to be given by regular faculty and visiting faculty.

Repeatability: Unlimited as topics vary.

PHILOS 201. First-Year Seminar. 4 Units.
An examination of some standard works in the history of philosophy, value theory, metaphysics, or epistemology; required of all first-year Philosophy graduate students in the School of Humanities.

Repeatability: May be taken for credit 2 times.

Restriction: Philosophy graduate students and Logic & Philosophy of Science graduate students only.

PHILOS 205A. Set Theory. 4 Units.
The basic working vocabulary of mathematical reasoning. Topics include: sets, Boolean operations, ordered n-tuples, relations, functions, ordinal and cardinal numbers.

Same as LPS 205A.

PHILOS 205B. Metalogic. 4 Units.
Formal syntax (proof theory) and semantics (model theory) for first-order logic, including the deduction, completeness, compactness, and Loewenheim-Skolem theorems.

Prerequisite: PHILOS 205A or LPS 205A.

Same as LPS 205B.

PHILOS 205C. Undecidability and Incompleteness. 4 Units.
Formal theory of effective processes, including recursive function, Turing machines, Church's thesis, and proofs of Goedel's incompleteness theorem for arithmetics, and Church's undecidability for first-order logic.

Prerequisite: PHILOS 205B or LPS 205B.

Same as LPS 205C.

PHILOS 206. Topics in Logic . 4 Units.
Studies in selected areas of logic. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 206.

PHILOS 210. Topics in Ancient Philosophy. 4 Units.
Studies in selected areas of ancient philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 211. Topics in Medieval Philosophy. 4 Units.
Studies in selected areas of medieval philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 212. Topics in Renaissance Philosophy. 4 Units.
Studies in selected areas of renaissance philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 213. Topics in Modern Philosophy. 4 Units.
Studies in selected areas of modern philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 213.

PHILOS 214. Topics in Nineteenth-Century Philosophy. 4 Units.
Studies in selected areas of nineteenth-century philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 215. Topics in Analytic Philosophy. 4 Units.
Studies in selected areas of analytic philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 215.

PHILOS 216. Topics in Continental Philosophy. 4 Units.
Studies in selected areas of continental philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 218. Topics in Contemporary Philosophy. 4 Units.
Studies in selected areas of contemporary philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 220. Topics in Metaphysics. 4 Units.
Studies in selected areas of metaphysics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 220.

PHILOS 221. Topics in Epistemology. 4 Units.
Studies in selected areas of epistemology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 221.

PHILOS 222. Topics in Mind and Action. 4 Units.
Studies in selected areas of mind and action. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 230. Topics in Ethics . 4 Units.
Studies in selected areas of ethics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 232. Topics in Political and Social Philosophy. 4 Units.
Studies in selected areas of political and social philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 232.

PHILOS 234. Topics in Aesthetics . 4 Units.
Studies in selected areas of aesthetics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 240. Topics in Philosophy of Science. 4 Units.
Studies in selected areas of philosophy of science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 240.

PHILOS 241. Topics in Philosophy of Physics. 4 Units.
Studies in selected areas of philosophy of physics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 241.

PHILOS 243. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as LPS 243, PSYCH 231P.

PHILOS 244. Topics in Philosophy of Social Science. 4 Units.
Studies in selected areas of philosophy and social science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 244.

PHILOS 245. Topics in Philosophy of Language. 4 Units.
Studies in selected areas of philosophy of language. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 245.

PHILOS 246. Topics in Philosophy of Logic. 4 Units.
Studies in selected areas of philosophy of logic. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 246.

PHILOS 247. Topics in Philosophy of Mathematics. 4 Units.
Studies in selected areas of philosophy of mathematics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 247.

PHILOS 250. Topics in Existentialism and Phenomenology. 4 Units.
Studies in selected areas of existentialism and phenomenology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 298. Independent Study. 4-12 Units.
Independent research with Philosophy faculty.

Repeatability: May be repeated for credit unlimited times.

PHILOS 299. Directed Research. 4-12 Units.
Directed research with Philosophy faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Humanities graduate students only.

PHILOS 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Humanities graduate students only.

Portuguese Courses

PORTUG 121. Topics in Luso-Brazilian Literature. 4 Units.
In English. Contextualized study of a major author, current, or genre in Brazilian, Portuguese, and/or Lusophone African literature. Examples: Gender, Race, and Sexualities in Postcolonial Lusophone Literatures; Women and Writing in Brazil and Portugal; The Short Story.

Repeatability: Unlimited as topics vary.

PORTUG 190. Individual Study. 4 Units.
Individual study with Portuguese faculty.

PORTUG 243. Studies in Luso-Brazilian Literature and Culture. 4 Units.
Critical analysis of selected literary works from Portugal and/or Brazil. Contextualizes the works within their historical and literary specificity, and discusses pertinent theoretical issues raised by them. Taught in Portuguese.

Prerequisite: Reading knowledge of Portuguese.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PORTUG 290. Individual Study. 4 Units.
Individual study.

Restriction: Graduate students only.

Religious Studies Courses

REL STD 5A. World Religions I. 4 Units.
An introduction to the history, doctrine, culture, and writing of the three "religions of Abraham": Judaism, Christianity, and Islam.

Same as HISTORY 16A.

(IV, VIII)

REL STD 5B. World Religions II. 4 Units.
An introduction to various religious traditions in selected areas of the world—including India and South Asia, East Asia, Africa, and the Americas.

Same as HISTORY 16B.

(IV, VIII)

REL STD 5C. Religious Dialogue. 4 Units.
Lectures and discussion on controversial topics in religion: sexual morality; religious violence; science; treatment of women and girls; religious truth, American Constitutional matters; secularization; the future of religion, and other topics.

Same as HISTORY 16C.

(IV, VIII)

REL STD 17. An Economic Approach to Religion. 4 Units.
Introduction to how basic economic concepts such as demand, supply, consumption, production, competition, free-riding, innovation, regulation, and rent-seeking can be applied to understand observed religious behavior.

Same as ECON 17.

(III)

REL STD 21. Philosophy and Religion. 4 Units.
Examines the intersection of religion and philosophy from a standpoint that does not presuppose previous academic study of either. Both Western and Eastern traditions and perspectives may be explored.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 56. Society and Religion. 4 Units.
A critical and personal examination of the varieties of religious and spiritual experience human beings are undergoing in contemporary society. The role of conscious understanding and unconscious conditioning regarding religion and spirituality.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 60. Gender and Religion. 4 Units.
A presentation in selected issues in the study of gender and religion.

Repeatability: May be taken for credit 3 times as topics vary.

(III, VIII)

REL STD 90. Aspects of Religion. 4 Units.
A presentation of selected issues in the study of religion.

Repeatability: May be taken for credit 3 times as topics vary.

(IV)

REL STD 91. Aspects of Asian Religions. 4 Units.
A survey course of a specific Asian religious tradition such as Hinduism, Buddhism, Taoism, Confucianism, or Shinto in its manifestation in Asia or in its transmission to the Americas.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 100. Topics in the Study of Religion. 4 Units.
The intersection of religious belief and practices with selected subjects of continuing interest.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 103. Topics in the Philosophy of Religion. 4 Units.
Critical examination of philosophical concepts in religious scripture and theology, e.g., the nature and existence of God, miracles, the problem of evil, divine command theories in ethics. May include both Eastern and Western religious traditions.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 106. Topics in Gender and Religion. 4 Units.
Critical examination of how religious beliefs and practices have shaped (and been shaped by) attitudes toward gender and sexuality in modern and/or premodern society.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 110. Thinking about Religion: Theories and Methodologies. 4 Units.
A survey and investigation of the major thinkers, theories, and methodologies in the study of religions. Designed to develop the student's ability to analyze and articulate theoretical arguments; includes a paper on relevant Religious Studies topics.

Prerequisite: REL STD 5A and REL STD 5B and REL STD 5C.

Restriction: Religious Studies Majors only.

REL STD 112B. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.

Same as SOC SCI 130B, PSYCH 172S, LPS 140B.

REL STD 115. Religion and World Politics. 4 Units.
Examines the relationship between religion and world politics historically and today, focusing on connections with peace/war, democracy, human rights, secularism(s), and globalization. Covers major debates, scholarship, concepts, and theories through class exercises, exams, and essays.

Prerequisite: POL SCI 41A or INTL ST 11 or INTL ST 12 or REL STD 5A or REL STD 5B or REL STD 5C.

Same as POL SCI 146B, INTL ST 151B.

REL STD 120. Asian Religious Traditions. 4 Units.
Studies involving (but not limited to) Hinduism, Buddhism, Confucianism, Taoism, Shinto and Shamanism, including both elite and doctrinal aspects and forms of more popular religiosity.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 130. Jewish, Islamic, and Middle Eastern Religious Traditions. 4 Units.
Character and evolution of Egyptian, Jewish, Zoroastrian, Muslim, and other religious communities of the region from their formative periods to the present era.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 131A. History of Zoroastrianism. 4 Units.
Reviews major trends in the history of Zoroastrianism.

Same as HISTORY 131A.

REL STD 140. Early Western Religious Traditions. 4 Units.
Religious perspectives of the Mediterranean and European regions from the earliest times to approximately 1500 C.E.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 141. Recent Western Religious Traditions. 4 Units.
Studies related to Catholic, Protestant, and Orthodox Christianity as well as alternative belief systems in Europe of the early modern and modern eras.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 150. Religion in the Americas. 4 Units.
Religious belief and social context in North and South America from the earliest human societies to the present.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 160. Diaspora Religions. 4 Units.
Examination of what happens to belief and practice as religious communities are scattered geographically.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 170. Comparative Studies in Religion. 4 Units.
Systematic comparisons of different religious and quasi-religious traditions, their beliefs and practices.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 190. Senior Colloquium. 4 Units.
Reading and group discussion of selected texts under the direction of an instructor. Paper required.

Repeatability: May be taken for credit 3 times as topics vary.

Restriction: A minimum of two students must enroll.

REL STD 199. Independent Study. 1-4 Units.
Directed reading and research in consultation with a faculty member. Substantial written work required.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

Russian Courses

RUSSIAN 1A. Fundamentals of Russian. 5 Units.
Focuses on reading, comprehension, basic composition, and conversation skills, and gives the student an initial exposure to the Russian cultural scene.

Prerequisite: Placement into RUSSIAN 1A.

RUSSIAN 1AB. Intensive Russian Fundamentals. 7.5 Units.
First half of first#year Russian in a time#intensive form. Development of meaningful communicative skills for the purposes of interaction with Russian speakers and beginning study of Russian. Learner#centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge. Course may be offered online.

Prerequisite: Placement into RUSSIAN 1A.

Overlaps with RUSSIAN 1A, RUSSIAN 1B.

Restriction: RUSSIAN 1AB and RUSSIAN 1A and RUSSIAN 1B may not be taken for full credit.

RUSSIAN 1B. Fundamentals of Russian. 5 Units.
Focuses on reading, comprehension, basic composition, and conversation skills, and gives the student an initial exposure to the Russian cultural scene.

Prerequisite: RUSSIAN 1A or placement into RUSSIAN 1B. RUSSIAN 1A with a grade of C or better.

RUSSIAN 1BC. Intensive Russian Fundamentals. 7.5 Units.
Second half of first#year Russian in a time#intensive form. Development of meaningful communicative skills for the purposes of interaction with Russian speakers and beginning study of Russian. Learner#centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge. Course may be offered online.

Prerequisite: RUSSIAN 1AB or Russian 1B. RUSSIAN 1AB with a grade of C or better. RUSSIAN 1B with a grade of C or better.

Overlaps with RUSSIAN 1B, RUSSIAN 1C.

Restriction: Russian 1BC and Russian 1B and Russian 1C may not be taken for full credit.

(VI)

RUSSIAN 1C. Fundamentals of Russian. 5 Units.
Focuses on reading, comprehension, basic composition, and conversation skills, and gives the student an initial exposure to the Russian cultural scene.

Prerequisite: RUSSIAN 1B or placement into RUSSIAN 1C. RUSSIAN 1B with a grade of C or better.

(VI)

RUSSIAN 2A. Intermediate Russian. 4 Units.
Students read simple passages from contemporary Russian literary texts and newspapers. Development of oral skills and exposure to Russian culture continue.

Prerequisite: RUSSIAN 1C or placement in RUSSIAN 2A. RUSSIAN 1C with a grade of C or better.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

RUSSIAN 2B. Intermediate Russian. 4 Units.
Students read simple passages from contemporary Russian literary texts and newspapers. Development of oral skills and exposure to Russian culture continue.

Prerequisite: RUSSIAN 2A or placement into RUSSIAN 2B. RUSSIAN 2A with a grade of C or better.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

RUSSIAN 2C. Intermediate Russian. 4 Units.
Students read simple passages from contemporary Russian literary texts and newspapers. Development of oral skills and exposure to Russian culture continue.

Prerequisite: RUSSIAN 2B or placement into RUSSIAN 2C. RUSSIAN 2B with a grade of C or better.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

RUSSIAN 50. Russian Culture . 4 Units.
Study of varied topics in Russian culture, area studies, and society, both in the present and in historical perspective.

Repeatability: May be taken for credit 4 times as topics vary.

(IV, VIII)

RUSSIAN 99. Special Studies Russian. 1-5 Units.
Special studies under faculty supervision.

Repeatability: May be taken for credit 2 times.

RUSSIAN 140. Topics in Russian Literary Theory. 4 Units.
Examines the work of individual theorists and schools of literary theory in the nineteenth and twentieth centuries.

Repeatability: Unlimited as topics vary.

RUSSIAN 150. Topics in Russian Literature. 4 Units.
Examines major themes in Russian literature, film, and other media from the eighteenth to twenty-first centuries. Taught in English.

Repeatability: Unlimited as topics vary.

RUSSIAN 190. Russian Language Through Film. 4 Units.
Uses Russian films of the late twentieth century to enhance students' language skills and deepen their cultural knowledge. Work involves intensive conversation, reading and listening comprehension, and the acquisition of written skills and grammatical accuracy. Conducted primarily in Russian.

Prerequisite: RUSSIAN 2C.

Repeatability: Unlimited as topics vary.

RUSSIAN 199. Independent Study. 1-4 Units.
Independent study under direct faculty supervision.

Repeatability: May be taken for credit 2 times.

Spanish Courses

SPANISH 1A. Fundamentals of Spanish. 5 Units.
Communicative approach with emphasis on conversational skills: the students and their environment, their experiences, and their opinions about issues. Reading and writing skills also introduced.

Prerequisite: Placement into SPANISH 1A.

Overlaps with SPANISH 1AB, SPANISH S1AB.

Restriction: SPANISH 1A and SPANISH 1AB and SPANISH S1AB may not be taken for full credit.

SPANISH 1AB. Fundamentals Intensive Spanish. 10 Units.
An intensive, proficiency-oriented, and task-based approach, designed to develop basic oral communicative abilities in Spanish. Reading and writing skills, along with an an introduction to Hispanic cultures.

Prerequisite: Placement into SPANISH 1A.

Overlaps with SPANISH 1A, SPANISH 1B, SPANISH S1AB.

Restriction: SPANISH 1AB and SPANISH 1A and SPANISH 1B and SPANISH S1AB may not be taken for full credit.

SPANISH 1B. Fundamentals of Spanish. 5 Units.
Communicative approach with emphasis on conversational skills: the students and their environment, their experiences, and their opinions about issues. Reading and writing skills also introduced.

Prerequisite: SPANISH 1A or placement into SPANISH 1B. SPANISH 1A with a grade of C or better.

Overlaps with SPANISH 1AB, SPANISH S1AB.

Restriction: SPANISH 1B and SPANISH 1AB and SPANISH S1AB may not be taken for full credit.

SPANISH 1C. Fundamentals of Spanish. 5 Units.
Communicative approach with emphasis on conversational skills: the students and their environment, their experiences, and their opinions about issues. Reading and writing skills also introduced.

Prerequisite: SPANISH 1AB or SPANISH 1B or SPANISH S1AB or placement into SPANISH 1C. SPANISH 1AB with a grade of C or better. SPANISH 1B with a grade of C or better. SPANISH S1AB with a grade of B or better.

Overlaps with SPANISH S1BC.

Restriction: SPANISH 1C and SPANISH S1BC may not be taken for full credit.

(VI)

SPANISH S1AB. Fundamentals of Spanish. 7.5 Units.
First half of first-year Spanish in an intensified form. Communicative approach with emphasis on conversational skills.

Prerequisite: Placement into SPANISH 1A.

Overlaps with SPANISH 1A, SPANISH 1B, SPANISH 1AB.

Restriction: SPANISH S1AB and SPANISH 1A and SPANISH 1B and SPANISH 1AB may not be taken for full credit.

SPANISH S1BC. Fundamentals of Spanish. 7.5 Units.
Second half of first-year Spanish in an intensified form. Communicative approach with emphasis on conversational skills.

Prerequisite: (SPANISH S1AB) or (SPANISH 1B) or (placement into SPANISH 1B) or (placement into SPANISH 1C) or (SPANISH 1A). SPANISH S1AB with a grade of C or better. SPANISH 1B with a grade of C or better. SPANISH 1A with a grade of B or better.

Overlaps with SPANISH 1B, SPANISH 1C, SPANISH 1AB.

Restriction: SPANISH S1BC and SPANISH 1B and SPANISH 1C and SPANISH 1AB may not be taken for full credit.

(VI)

SPANISH 2. Accelerated Intermediate Spanish. 12 Units.
An accelerated course that covers the second year of Spanish in one quarter. The course replicates the conditions of immersion programs and is designed for highly motivated students.

Prerequisite: SPANISH 1C or SPANISH S1BC or placement into SPANISH 2. SPANISH 1C with a grade of B or better. SPANISH S1BC with a grade of B or better.

Overlaps with SPANISH S2AB, SPANISH S2BC, SPANISH 2A, SPANISH 2AB, SPANISH 2B, SPANISH 2C.

Restriction: SPANISH 2 and SPANISH S2AB and SPANISH S2BC and SPANISH 2AB and SPANISH 2B and SPANISH 2C may not be taken for full credit. Approval of Spanish Undergraduate Director required. Open to sophomores, juniors, and seniors only. Course will be confirmed or cancelled at the end of the second week of the enrollment window period, depending on enrollment.

(VIII)

SPANISH 2A. Intermediate Spanish. 4 Units.
Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: SPANISH 1C or SPANISH S1BC or placement into SPANISH 2A. SPANISH 1C with a grade of C or better. SPANISH S1BC with a grade of C or better.

Overlaps with SPANISH 2AB, SPANISH S2AB, SPANISH 2.

Restriction: SPANISH 2A and SPANISH S2AB and SPANISH 2 may not be taken for full credit. School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

SPANISH 2AB. Intermediate Intensive Spanish. 8 Units.
Intensive intermediate course designed to improve student's abilities in reading, writing, speaking, and comprehension, including a thorough introduction to Hispanic cultures. Throughout the course the grammatical component of the language is gradually reviewed and tested.

Prerequisite: SPANISH 1C or SPANISH S1BC or placement into SPANISH 2A. SPANISH 1C with a grade of C or better. SPANISH S1BC with a grade of C or better.

Overlaps with SPANISH 2A, SPANISH 2B, SPANISH S2AB, SPANISH 2.

Restriction: SPANISH 2AB and SPANISH 2A and SPANISH 2B and SPANISH S2AB and SPANISH 2 may not be taken for full credit.

(VIII)

SPANISH 2B. Intermediate Spanish. 4 Units.
Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: SPANISH 2A or placement into SPANISH 2B. SPANISH 2A with a grade of C or better.

Overlaps with SPANISH 2AB, SPANISH S2AB, SPANISH 2.

Restriction: SPANISH 2B and SPANISH 2AB and SPANISH S2AB and SPANISH 2 may not be taken for full credit. School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

SPANISH 2C. Intermediate Spanish. 4 Units.
Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: SPANISH 2AB or SPANISH 2B or SPANISH S2AB or placement into SPANISH 2C. SPANISH 2AB with a grade of C or better. SPANISH 2B with a grade of C or better. SPANISH S2AB with a grade of B or better.

Overlaps with SPANISH S2BC, SPANISH 2.

Restriction: SPANISH 2C and SPANISH S2BC and SPANISH 2 may not be taken for full credit. School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

SPANISH S2AB. Intermediate Spanish. 6 Units.
First half of second-year Spanish in an intensified form. Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: SPANISH 1C or SPANISH S1BC or placement into SPANISH 2A. SPANISH 1C with a grade of C or better. SPANISH S1BC with a grade of C or better.

Overlaps with SPANISH 2A, SPANISH 2B, SPANISH 2AB, SPANISH 2.

Restriction: SPANISH S2AB and SPANISH 2A and SPANISH 2B and SPANISH 2AB and SPANISH 2 may not be taken for full credit.

(VIII)

SPANISH S2BC. Intermediate Spanish. 6 Units.
Second half of second-year Spanish in an intensified form. Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: (SPANISH 2B) or (SPANISH S2AB) or (placement into SPANISH 2B) or (placement into SPANISH 2C) or (SPANISH 2A). SPANISH 2B with a grade of C or better. SPANISH S2AB with a grade of C or better. SPANISH 2A with a grade of B or better.

Overlaps with SPANISH 2B, SPANISH 2C, SPANISH 2AB, SPANISH 2.

Restriction: SPANISH S2BC and SPANISH 2B and SPANISH 2C and SPANISH 2AB and SPANISH 2 may not be taken for full credit.

(VIII)

SPANISH 3A. Grammar and Composition. 4 Units.
Focuses on intermediate to advanced grammar and composition in an orderly fashion. Emphasis is placed on key elements of grammar, to constitute about 70 percent of the course, and composition writing, to constitute about 30 percent of the workload.

Corequisite: May take SPANISH 3A and SPANISH 3B at the same time.
Prerequisite: SPANISH 2 or SPANISH 2C or SPANISH S2BC.

(VIII)

SPANISH 3B. Composition and Grammar. 4 Units.
Focuses on intermediate to advanced grammar and composition in an orderly fashion. Emphasis is placed on key elements of grammar, to constitute about 30 percent of the course, and composition writing, to constitute about 70 percent of the workload.

Corequisite: May take SPANISH 3A and SPANISH 3B at the same time.
Prerequisite: SPANISH 2 or SPANISH 2C or SPANISH S2BC.

(VIII)

SPANISH 15. Advanced Spanish Conversation. 4 Units.
Designed to improve the fluency of non-native speakers of Spanish. Concentrates on the expansion of vocabulary, as well as listening and speaking skills. Not open to native or semi-native speakers of Spanish.

Prerequisite: SPANISH 2 or Spanish 2C or Spanish 2BC. SPANISH 2 with a grade of C or better. SPANISH 2C with grade of C or better. SPANISH 2BC with a grade of C or better.

SPANISH 44. Hispanic Literatures for Nonmajors. 4 Units.
Focuses on major Spanish and Latin American literary texts within a historical and theoretical perspective. Taught in English with literary texts read in the original language.

Prerequisite: SPANISH 2 or SPANISH 2C or SPANISH S2BC.

Restriction: Non-Spanish majors only.

(VIII)

SPANISH 50. Latin America, U.S. Latino, and Iberian Cultures. 4 Units.
Introduction (for non-majors) to the culture of the Spanish- and Portuguese-speaking worlds (Europe, Latin America, U.S., Africa). May focus on any time period. Taught in english.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

SPANISH 97. Fundamentals of Spanish (with Emphasis on Reading). 4 Units.
Designed for students interested in acquiring a solid reading knowledge of Spanish, and to facilitate the understanding and translating of Spanish texts covering a variety of disciplines. Does not fulfill any undergraduate foreign language requirement. Taught in English.

Prerequisite: Does not serve as prerequisite for any higher-level Spanish courses.

Restriction: Non-Spanish majors only.

SPANISH 101A. Introduction to Iberian Literature and Culture. 4 Units.
Introduction to the major authors and movements of Iberian literature and culture from the Middle Ages to the present.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 101B. Introductory Studies to Latin America Literature and Culture. 4 Units.
A historical overview of Latin American literature and culture mainly focused on canonical texts. Among topics: colonialism and postcolonialism, the nation, indigenismo, gender, literary movements. Also introduces literary analysis, research methods and cultural critique.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 104. Writing in Spanish. 4 Units.
Focuses on the use of writing as a medium to encourage critical thinking and the practical analysis of literary texts as well as the study of historical and social issues in the Spanish-speaking world.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 105. Spanish Communication. 4 Units.
Designed to help students develop Spanish oral skills by exposing them to different verbal Spanish language registers. Special emphasis placed on abilities essential to professional or academic careers. Intended for Spanish majors as an important component of their overall education.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 107. Advanced Spanish Grammar. 4 Units.
Designed for students who have demonstrated a substantial level of proficiency in their studies of the Spanish language. Takes thorough approach to advanced grammatical problems, in order to assist students in their mastery of the elements of the Spanish language.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 110A. Peninsular Literature and Cultures. 4 Units.
Topics in Peninsular literature and culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 110B. Latin American Literature and Cultures. 4 Units.
Topics in Latin American literature and culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 110C. U.S. Latino Literature and Cultures. 4 Units.
Focuses on aspects of literature, art, cultural production, and history of the multifaceted Latino cultures that have developed within the United States. Focuses on one group, such as Caribbean Americans, Chicanos, Central Americans, or a comparative perspective of several groups.

Same as CHC/LAT 134.

SPANISH 113A. Spanish Phonetics. 4 Units.
Introduction to fundamental notions of Spanish phonetics. Particular attention paid to problems of pronunciation that arise in native and non-native speakers of Spanish due to interference between Spanish and English. Phonology (the system that underlies phonetics) and Spanish dialectology included.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 113B. Introduction to Spanish Linguistics. 4 Units.
Application of basic notions of linguistics to Spanish, Spanish phonology, morphology, syntax, and semantics. Special attention to the application of linguistics to the teaching of Spanish.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 116. Medieval Spanish Literature and Culture. 4 Units.
Medieval literature in Spain from ninth century to 1500. Works of lyric and epic poetry, prose fiction, and nonfiction. Substantial historical and cultural background explored.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 119. Textual Analysis and Interpretation. 4 Units.
Focus on analysis and interpretation of literary texts. Emphasis on narrative, poetry, theater/performance, and visual media. Introduces students to major currents in theoretical thought, such as cultural studies, postmodernism, and others. Oral presentations and short essays required. Taught in Spanish.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 121. Golden Age Literature and Culture. 4 Units.
Golden Age Literature in Spain including the Renaissance and Baroque periods. Works of poetry, narrative, and theater. Historical and cultural background.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: May be taken for credit 3 times as topics vary.

SPANISH 122. Eighteenth- and Ninetheenth-Century Spanish Literature and Culture. 4 Units.
The main literary and ideological trends in eighteenth and nineteenth-century Spain, including the enlightenment, romanticism, realism, and naturalism.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: May be taken for credit 3 times as topics vary.

SPANISH 123. Twentieth- and Twenty-First-Century Spanish Literature and Culture. 4 Units.
Twentieth-century Spanish authors. Works of poetry, narrative, or theater. Historical context of the period and principles of literary theory.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: May be taken for credit 3 times as topics vary.

SPANISH 130A. Latin American Colonial Literature and Culture. 4 Units.
Latin American Colonial Literature and Culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 130B. Latin American Literature and Culture of the Nineteenth Century. 4 Units.
Latin American literature and culture of the nineteenth century.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 130C. Latin American Literature and Culture of the Twentieth Century. 4 Units.
Latin American literature and culture of the twentieth century.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 140. Chicano Literature and Culture. 4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter. Taught in English.

Repeatability: May be taken for credit 4 times as topics vary.

Same as CHC/LAT 110.

SPANISH 150. Literature in Translation. 4 Units.
Study of texts by modern and contemporary Peninsular, Latin American, and/or U.S. Latino writers in translation. Taught in English. Not applicable toward Spanish major or minor requirements.

Repeatability: Unlimited as topics vary.

SPANISH 151. Introduction to Translation. 4 Units.
Introduction to basic techniques of Spanish-English written translation. The skills needed for translation are developed through the analysis of pertinent aspects of language structure, such as syntax, vocabulary, and style.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 160. Topics in Luso-Hispanic Film Studies. 4 Units.
Study of Peninsular, Latin-American, and/or U.S. Latino film. Taught in English or Spanish.

Prerequisite: SPANISH 3A and SPANISH 3B when course is taught in Spanish.

Repeatability: Unlimited as topics vary.

SPANISH 185. Selected Topics in Peninsular Literature and Culture. 4 Units.
Selection of representative topics in Spanish and/or Portuguese literature and culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 186. Selected Topics in Latin American Literature and Culture. 4 Units.
Selection of representative topics in the history of Latin American Literature and Culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 187. Selected Topics in Spanish Linguistics. 4 Units.
Major topics in Spanish linguistics.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 190. Colloquium. 4 Units.
Specialized, discussion-based course dealing primarily with a research topic that reflects the instructor's current intellectual interests. Required oral presentation(s) and final research paper. Limited to 15 students.

Prerequisite: SPANISH 107 or SPANISH 113A.

Restriction: Upper-division Spanish majors only.

SPANISH 199. Independent Study. 1-4 Units.
Research paper required.

Repeatability: May be repeated for credit unlimited times.

SPANISH 201. History of the Spanish Language. 4 Units.
Diachronic survey of phonological changes from Latin to Old Spanish to Modern Spanish. Focuses in Castilian including Romance languages and other peninsula dialects for comparative purposes. Morphological changes.

SPANISH 204. Spanish in Contact. 4 Units.
Sociohistorical and linguistic overview of Spanish in contact with Basque, Catalan, English, German, American Indian, and African languages in Spain, Latin America, and the United States. Examines theories about language contact, and linguistic changes in Spanish phonology and grammar.

SPANISH 205. Spanish Dialectology. 4 Units.
Phonological, morphological, and syntactic variations in Spanish as spoken in the Hispanic world, from synchronic and diachronic points of view. The study of Spanish as spoken in the United States.

SPANISH 212. Topics in Medieval Iberia. 4 Units.
Topics in medieval Spanish literature.

Repeatability: Unlimited as topics vary.

SPANISH 214. Topics in Golden Age Literature and Culture. 4 Units.
Topics in Golden Age literature and culture.

Repeatability: Unlimited as topics vary.

SPANISH 218. Topics in Enlightenment and Romanticism. 4 Units.
Topics in Enlightenment and Romanticism.

Repeatability: Unlimited as topics vary.

SPANISH 219. Topics in Nineteenth Century. 4 Units.
Topics in nineteenth-century Spanish literature and culture.

Repeatability: Unlimited as topics vary.

SPANISH 220. Topics in Twentieth Century. 4 Units.
Topics in twentieth-century Spanish literature and culture.

Repeatability: Unlimited as topics vary.

SPANISH 221. Topics in Iberian Studies. 4 Units.
Cross-cultural connections and interactions between different ethnicities in the Iberian Peninsula.

Repeatability: Unlimited as topics vary.

SPANISH 231. Topics in Colonial Latin America. 4 Units.
Topics in Colonial Latin America.

Repeatability: Unlimited as topics vary.

SPANISH 232. Topics in Nineteenth-Century Latin America. 4 Units.
Topics in nineteenth-century Latin America.

Repeatability: Unlimited as topics vary.

SPANISH 233. Topics in Twentieth-Century Latin America. 4 Units.
Topics in twentieth-century Latin America.

Repeatability: Unlimited as topics vary.

SPANISH 234. Topics in Latin America. 4 Units.
Topics in Latin America.

Repeatability: Unlimited as topics vary.

SPANISH 235. Topics in Trans-Oceanic Studies. 4 Units.
Focuses on meaningful connections between different geographical and cultural areas.

Repeatability: Unlimited as topics vary.

SPANISH 239A. Topics in Literary Theory I. 4 Units.
Traces the development of Western literary critical principles from Aristotle to the twentieth century through selected readings of key figures in intellectual history (Aristotle, St. Augustine, Descartes, Kant, Hegel, Marx, Nietzsche, William James, Freud).

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SPANISH 239B. Topics in Literary Theory II. 4 Units.
Study of major critical movements of the twentieth century, from Modernism's varied trends to those of the Postmodern/Postcolonial period. Emphasis on the development of prior critical discourses as well as revisionary theories.

Prerequisite: SPANISH 239A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SPANISH 239C. Special Topics in Theory. 4 Units.
Focus on issues related to critical theory, theory of literature, cultural criticism and visual arts as they pertain specifically to Latin America, Spain, Portugal, and Brazil. Topics vary. Examples: Latin American cultural studies; theory, film, and media in post-war Spain.

Repeatability: Unlimited as topics vary.

SPANISH 245. Topics in Luso-Hispanic Film. 4 Units.
Topics in Luso-Hispanic Film.

Repeatability: Unlimited as topics vary.

SPANISH 251. Topics in Chicano Literature and Culture. 4 Units.
Topics in Chicano Literature and Culture.

Repeatability: Unlimited as topics vary.

SPANISH 252. Topics in U.S. Latino Literature and Culture. 4 Units.
Topics in U.S. Latino Literature and Culture.

Repeatability: Unlimited as topics vary.

SPANISH 260. Seminar in Spanish . 4 Units.
Topics in Spanish.

Repeatability: Unlimited as topics vary.

SPANISH 270. Creative Writing Workshop in Spanish/English. 4 Units.
Discussion of theory and practice of creative writing. Focus on critical analysis of participant's work in progress. Texts may be written in Spanish and/or English and may be written in poetry or prose format.

Repeatability: Unlimited as topics vary.

SPANISH 290. Individual Study. 4 Units.
Individual Study.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SPANISH 291. Directed Reading. 4 Units.
Directed Reading in Spanish.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SPANISH 292. Teaching Practicum. 4 Units.
Teaching Practicum.

Grading Option: Satisfactory/unsatisfactory only.

SPANISH 299. Dissertation Research. 4-12 Units.
Dissertation Research.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

SPANISH 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Vietnamese Courses

VIETMSE 1A. Fundamentals of Vietnamese. 5 Units.
Designed for students with little or no exposure to Vietnamese. Natural approach with emphasis on four fundamental skills of listening, speaking, reading, and writing. Conducted in Vietnamese.

Prerequisite: Placement into VIETMSE 1A.

Overlaps with VIETMSE S1AB.

Restriction: VIETMSE 1A and VIETMSE S1AB may not be taken for full credit.

VIETMSE 1B. Fundamentals of Vietnamese. 5 Units.
Designed for students with little or no exposure to Vietnamese. Natural approach with emphasis on four fundamental skills of listening, speaking, reading, and writing. Conducted in Vietnamese.

Prerequisite: VIETMSE 1A or placement in VIETMSE 1B. VIETMSE 1A with a grade of C or better.

Overlaps with VIETMSE S1AB, VIETMSE S1BC.

Restriction: VIETMSE 1B and VIETMSE S1AB and VIETMSE S1BC may not be taken for full credit.

VIETMSE 1C. Fundamentals of Vietnamese. 5 Units.
Designed for students with little or no exposure to Vietnamese. Natural approach with emphasis on four fundamental skills of listening, speaking, reading, and writing. Conducted in Vietnamese.

Prerequisite: VIETMSE 1B or VIETMSE S1AB or placement in VIETMSE 1C. VIETMSE 1B with a grade of C or better. VIETMSE S1AB with a grade of C or better.

Overlaps with VIETMSE S1BC.

Restriction: VIETMSE 1C and VIETMSE S1BC may not both be taken for credit.

(VI)

VIETMSE S1AB. Fundamentals. 7.5 Units.
First half of first-year Vietnamese. Designed for students with little or no exposure to Vietnamese. Emphasis is on mastery of the basic language skills of understanding, speaking, reading, and writing.

Overlaps with VIETMSE 1A, VIETMSE 1B.

Restriction: VIETMSE S1AB and VIETMSE 1A and VIETMSE 1B may not be taken for full credit.

VIETMSE S1BC. Fundamentals. 7.5 Units.
Second half of first-year Vietnamese. Designed for students with little or no exposure to Vietnamese. Emphasis is on mastery of the basic language skills of understanding, speaking, reading, and writing.

Prerequisite: VIETMSE S1AB or VIETMSE 1B or placement into VIETMSE 1B or VIETMSE 1C. VIETMSE 1B with a grade of C or better. VIETMSE S1AB with a grade of C or better.

Restriction: VIETMSE S1BC and VIETMSE 1B and VIETMSE 1C may not be taken for full credit.

(VI)

VIETMSE 2A. Intermediate Vietnamese. 4 Units.
Designed for students to advance their Vietnamese language skills from introductory to intermediate level. Designed to develop writing and reading skills and communicative skills in authentic situations. Students are introduced to aspects of Vietnamese culture relating to lesson topics.

Prerequisite: VIETMSE 1C or VIETMSE S1BC or placement into VIETMSE 2A. VIETMSE 1C with a grade of C or better. VIETMSE S1BC with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

VIETMSE 2B. Intermediate Vietnamese. 4 Units.
Designed for students to advance their Vietnamese language skills from introductory to intermediate level. Designed to develop writing and reading skills and communicative skills in authentic situations. Students are introduced to aspects of Vietnamese culture relating to lesson topics.

Prerequisite: VIETMSE 2A or placement into VIETMSE 2B. VIETMSE 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

VIETMSE 2C. Intermediate Vietnamese. 4 Units.
Designed for students to advance their Vietnamese language skills from introductory to intermediate level. Designed to develop writing and reading skills and communicative skills in authentic situations. Students are introduced to aspects of Vietnamese culture relating to lesson topics.

Prerequisite: VIETMSE 2B or placement into VIETMSE 2C. VIETMSE 2B with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

VIETMSE 10A. Vietnamese Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. VIETMSE 10A is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

VIETMSE 10B. Vietnamese Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. VIETMSE 10B is for language mentees.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

VIETMSE 150. Vietnamese Literature and Culture in Translation. 4 Units.
Major works in Vietnamese literature and culture in context.

Repeatability: Unlimited as topics vary.

Visual Studies Courses

VIS STD 290A. Art History:Theories and Methods. 4 Units.
Examines canonical texts and explores current directions in Art History.

VIS STD 290B. Film & Media Studies: Theories and Methods. 4 Units.
Examines canonical texts and explores current directions in Film and Media Studies.

VIS STD 290C. Visual Studies: Theories and Methods. 4 Units.
Examines canonical texts and explores current directions in Visual Studies.

VIS STD 294. Getty Consortium Seminar. 4 Units.
Special graduate seminar offered at the Getty Research Institute in Los Angeles, involving faculty and graduate students from the five graduate programs in Art History or Visual Studies located in southern California (UCI, UCLA, UCR, UCSB, and USC).

Repeatability: Unlimited as topics vary.

VIS STD 295. Graduate Seminar in Visual Studies. 4 Units.
Studies in selected areas of Visual Studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

VIS STD 296. Directed Reading. 4 Units.
Directed reading on a specific topic agreed upon by student and instructor.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

VIS STD 297. Writing Practicum. 4 Units.
Offered winter quarter each year and taught in a workshop format. Assists students with the preparation and revision of the dissertation prospectus so that they may advance to candidacy.

Prerequisite: VIS STD 290A and VIS STD 290B and VIS STD 290C.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

VIS STD 298A. Reading for the Preliminary Examination. 4-12 Units.
Directed reading in preparation for the preliminary examination. Formerly Visual Studies 298.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

VIS STD 298B. Prospectus Research. 4-12 Units.
Research and writing of the dissertation prospectus.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

VIS STD 299. Dissertation Research. 4-12 Units.
Research and writing of the dissertation.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Women's Studies Courses

WOMN ST 172. Gender, Race, and Nation in Latin America. 4 Units.
Addresses the importance of gender and race to nation-making in Latin America during the 19th and 20th centuries (1810-1945). Considers how hierarchies between men and women shaped ideas about family, the state, and modernity.

Same as INTL ST 177H, WOMN ST 172.

Writing Courses

WRITING 30. The Art of Writing: Poetry. 4 Units.
Beginners' workshop in the writing of poetry, evaluation of student manuscripts, and parallel readings.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Repeatability: May be taken for credit 2 times.

(Ia)

WRITING 31. The Art of Writing: Prose Fiction. 4 Units.
Beginners' workshop in fiction writing, evaluation of student manuscripts, and parallel readings.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Repeatability: May be taken for credit 2 times.

(Ia)

WRITING 37. Intensive Writing. 6 Units.
Offers instruction in the process of writing, rhetorical principles, and sentence-level mechanics. Provides guided practice in writing. Readings selected from current fiction and nonfiction; writing assignments require analysis of readings and demonstration of rhetorical principles.

Prerequisite: Students must have taken the Analytical Writing Placement Examination.

Overlaps with WRITING 39A, WRITING 39B.

Restriction: Enrollment open only to recommended students.

(Ia)

WRITING 39A. Introduction to Writing and Rhetoric. 4 Units.
Deals with the writing of expository essays, principles of rhetoric, paragraph development, and the fundamentals of sentence-level mechanics. Frequent papers, some exercises. Course may be offered online.

Prerequisite: Students must have taken the UC Analytical Writing Placement Examination with placement in Writing 39A.

Overlaps with WRITING 37, WRITING 39A.

WRITING 39B. Critical Reading and Rhetoric. 4 Units.
Guided practice in the critical reading and written analysis of both popular and academic prose. Readings selected from literary, academic, journalistic, and fictional genres; writing topics require rhetorical analysis of readings and demonstration of rhetorical principles in student writing. Course may be offered online.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Overlaps with WRITING 37.

(Ia)

WRITING 39C. Argument and Research. 4 Units.
Guided writing practice in argumentation, logic, and inquiry. Readings are selected from current nonfiction and from materials students select from the University Library. Research strategies emphasized. Course may be offered online.

Prerequisite: WRITING 37 or WRITING 39B.

(Ia)

WRITING 90. Intermediate Poetry Writing. 4 Units.
Intermediate workshop in the writing of poetry, evaluation of student manuscripts, and parallel readings.

Prerequisite: WRITING 30.

Repeatability: May be taken for credit 2 times.

WRITING 91. Intermediate Fiction Writing. 4 Units.
Intermediate workshop in the writing of fiction, evaluation of student manuscripts, and parallel readings.

Prerequisite: WRITING 31.

Repeatability: May be taken for credit 2 times.

WRITING 101W. Undergraduate Seminar: Applications in Literary Theory and Criticism for Creative Writing. 4 Units.
Substitute for ENGLISH 101 for Creative Writing emphasis students.

Prerequisite: ENGLISH 100 or LIT JRN 100. Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: English majors and Literary Journalism majors only.

(Ib)

WRITING 110. Short Story Writing. 4 Units.
Three-hour workshop in short fiction; discussion of student writing and of relevant literary texts.

Repeatability: May be taken for credit 2 times.

WRITING 111. Poetry Writing. 4 Units.
Three-hour advanced poetry writing workshop; discussion of student writing and of relevant literary texts.

Repeatability: May be taken for credit 2 times.

WRITING 113. Novel Writing. 4 Units.
Three-hour advanced workshop in fiction writing; discussion of student writing and of relevant literary texts.

WRITING 115. Conference in Writing. 4 Units.
Primarily for writing emphasis seniors.

Repeatability: May be taken for credit 2 times.

WRITING 139W. Advanced Expository Writing. 4 Units.
Study of rhetorical techniques; practice in writing clear and effective prose. Several essays of varying lengths, totaling at least 4,000 words. May not be counted toward the upper-division requirements for majors or minors.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only.

(Ib)

WRITING 179W. Advanced Composition for Teachers. 4 Units.
Principles of formal composition and problems of teaching. Selecting handbooks and ancillary reading, marking papers, making assignments, and conducting workshops and tutorials.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as EDUC 179W.

Restriction: Upper-division students only.

(Ib)

WRITING 197. Writing Internship . 2-4 Units.
Internships focused on writing. In consultation with a faculty advisor, students create a course from response essays, research essays, and assessment project data. Internships may include editing and publication projects, supervised teaching and tutoring assignments, community literacy projects.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

WRITING 250A. Graduate Writers' Workshop (Fiction). 4 Units.
Graduate fiction workshop open to students enrolled in the MFA program in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

WRITING 250B. Graduate Writers' Workshop (Fiction). 4 Units.
Graduate fiction workshop open to students enrolled in the MFA program in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

WRITING 250C. Graduate Writers' Workshop (Poetry). 8 Units.
Graduate poetry workshop open to students enrolled in the MFA Programs in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Humanities graduate students only.

WRITING 251A. Writing in Conference (Fiction). 4 Units.
Graduate fiction workshop open to students enrolled in the MFA program in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

WRITING 251B. Writing in Conference (Fiction). 4 Units.
Graduate fiction workshop open to students enrolled in the MFA program in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

WRITING 251C. Writing in Conference (Poetry). 8 Units.
Graduate poetry workshop open to students enrolled in the MFA Programs in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

WRITING 252. Graduate Workshop in Nonfiction. 4 Units.
Reading and critique of student manuscripts in creative nonfiction. The instructor leads discussions and meets with students on an individual basis.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

Program in African American Studies

3000 Humanities Gateway; (949) 824-2376
http://www.humanities.uci.edu/afam/
Jared Sexton, **Director**

Undergraduate Program

African American Studies is an interdisciplinary program which offers undergraduate students an opportunity to study those societies and cultures established by the people of the African diaspora. The program's curriculum encourages students to investigate the African American experience from a variety of disciplinary perspectives and theoretical approaches. Among the topics explored in the course offerings are the process of colonization and the forced migration of African people, the positionality of African people in the racialized symbolic and social orders of the western hemisphere, the rhetoric produced by and about African people, and the cultural and aesthetic values associated with "blackness" and "Africanness." The Program offers a B.A. degree program in African American Studies and a minor.

Career Opportunities

UCI graduates with a B.A. degree in African American Studies enhance their chances of success in the job market and in the highly competitive arena of graduate and professional school admissions, especially in the fields of medicine and other health professions, law, and business. Employers and admissions officers understand that many of their employees and graduates will one day work in communities with significant African American populations, and for this reason they give due consideration to applicants who have in-depth knowledge of African American culture.

Requirements for the B.A. Degree in African American Studies

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Requirements for the Major

A. African American Studies introductory series:	
AFAM 40A	African American Studies I
AFAM 40B	African American Studies II
AFAM 40C	African American Studies III
B. Select three courses, with one from three of the following five rubrics:	
Humanities (AFAM 110–119)	
Gender/Sexuality (AFAM 120–129)	
History (AFAM 130–139)	
Fine Arts (AFAM 140–149)	
Social Sciences (AFAM 150–159)	
C. Select five additional upper-division electives from AFAM 110–159, 163.	
D. Complete:	
AFAM 162W	The Black Protest Tradition

Residence Requirement for the Major: A minimum of five upper-division courses required for the major must be completed successfully at UCI.

Requirements for the Minor in African American Studies

A. African American Studies introductory series:	
AFAM 40A	African American Studies I
AFAM 40B	African American Studies II
AFAM 40C	African American Studies III
B. Select three courses, with one from three of the following five rubrics:	
Humanities (AFAM 110–119)	
Gender/Sexuality (AFAM 120–129)	
History (AFAM 130–139)	
Fine Arts (AFAM 140–149)	
Social Sciences (AFAM 150–159)	
C. Select one additional upper-division elective from AFAM 110–159, 163.	

Residence Requirement for the Minor: Four upper-division courses required for the minor must be completed successfully at UCI. Two of the four may be taken through the UC Education Abroad Program, provided course content is approved in advance by the appropriate department chair.

Faculty

Alex Borucki, Ph.D. Emory University, *Assistant Professor of History; African American Studies* (African diaspora, early modern Atlantic world, slave trade, colonial Latin America)

Nahum D. Chandler, Ph.D. University of Chicago, *Associate Professor of African American Studies; Comparative Literature; Culture and Theory; European Languages and Studies* (modern intellectual history, history of the human sciences)

Bridget R. Cooks Cumbo, Ph.D. University of Rochester, *Associate Professor of African American Studies; Art History; Culture and Theory* (African American art and culture, Black visual culture, museum criticism, film, feminist theory, postcolonial theory)

Sohail Daulatzai, Ph.D. University of Southern California, *Associate Professor of Film and Media Studies; African American Studies; Culture and Theory* (Black radicalism, Muslim studies, cultural studies, race, postcolonial theory, U.S. imperial culture, cinema, hip-hop culture)

Sora Han, Ph.D. University of California, Santa Cruz, *Assistant Professor of Criminology, Law and Society; African American Studies; Culture and Theory* (law and popular culture, critical race theory, philosophies of punishment, feminism and psychoanalysis)

Douglas M. Haynes, Ph.D. University of California, Berkeley, *Associate Vice Provost for Equity and Diversity and Professor of History; African American Studies; Culture and Theory; European Languages and Studies* (social and cultural history of modern Britain, social history of modern medicine)

Jessica Millward, Ph.D. University of California, Los Angeles, *Assistant Professor of History; African American Studies; Culture and Theory* (U.S., African American gender and women)

Belinda B. Robnett-Olsen, Ph.D. University of Michigan, *Professor of Sociology; African American Studies; Culture and Theory* (social movements, race and ethnicity, gender, social change, African Americans)

Jared Charles Sexton, Ph.D. University of California, Berkeley, *Program Director and Associate Professor of African American Studies; Culture and Theory; Film and Media Studies* (race and sexuality, policing and imprisonment, contemporary U.S. cinema and political culture, multiracial coalition, critical theory)

Darryl G. Taylor, D.M.A. University of Michigan, *Professor of Music; African American Studies*

Frank B. Wilderson III, Ph.D. University of California, Berkeley, *Professor of African American Studies; Culture and Theory; Drama; Film and Media Studies* (film theory, Marxism, dramaturgy, black political theory)

Tiffany Willoughby-Herard, Ph.D. University of California, Santa Barbara, *Assistant Professor of African American Studies; Culture and Theory* (South Africa, poor whites, race in foreign policy, diaspora, comparative racial politics, third world feminisms, feminist pedagogy, black political thought)

Sheron C. Wray, M.A. Middlesex University, *Assistant Professor of Dance; African American Studies* (jazz, choreography, improvisation)

Courses

AFAM 40A. African American Studies I. 4 Units.
Discusses main contours of African American experience from the forced importation of Africans into the Americas in the late fifteenth century to the development of social movements in post-emancipation societies of the late nineteenth and twentieth centuries.

((III or IV) and VII).

AFAM 40B. African American Studies II. 4 Units.
Introduction to the history of modern racial thinking in Western society and its relationship to the material contexts of racial oppression, with emphasis on its development in British colonies and U.S.

((III or IV) and VII).

AFAM 40C. African American Studies III. 4 Units.
Introduction to theories of racial blackness in the modern world, with emphasis on developments in British colonies and U.S. Traces emergence of blackness as term of collective identity, social organization, and political mobilization.

((III or IV) and VII).

AFAM 50. Introductory Topics in African American Studies. 4 Units.
Introduction to a broad range of topics in African American studies, exploring history, literature, art, culture, politics, and contemporary social issues. Topical organization of courses addresses issues that have been of importance historically and are reshaping the African diaspora today.

Repeatability: Unlimited as topics vary.

AFAM 111A. Modern African American Art. 4 Units.
Investigates the history of modern African American art; emphasis on the politics of representation. Examines art in a variety of media from material culture and textiles to painting and photography. Issues of migration, nationalism, gender, sexuality, and hybridity are discussed.

Same as ART HIS 164A.

AFAM 111B. Contemporary African American Art. 4 Units.
Investigates the history of contemporary African American art; emphasis on the politics of representation. Explores art in a variety of media: painting, sculpture, photography, installation, and new media. Cultural politics, appropriation, identity, gender, sexuality, hybridity and civil rights issues discussed.

Same as ART HIS 164B.

AFAM 112A. Early African American Literature. 4 Units.
Examines the earliest forms of black literary practices, including the jeremiad, the slave narrative, the pamphlet, poetry, the short story, and how these literary forms are related to the historical experiences of enslavement and emancipation.

Repeatability: Unlimited as topics vary.

AFAM 112B. African American Literature 1900-Present. 4 Units.
Examines individual literary forms and/or authors, as well as movements such as the Harlem Renaissance and the Black Arts Movement. Explores how black literary practices represent the conditions of modern subjectivities and environments.

Repeatability: Unlimited as topics vary.

AFAM 113. African American Cinema and Media. 4 Units.
Explores the diversity of Black creative production and the historical, social, and economic forces that shaped their emergence. May include Black film, hip-hop culture, fine art, photography, and others.

Repeatability: Unlimited as topics vary.

AFAM 114. International Cultures. 4 Units.
Explores the various cultures of the African diaspora and their impacts on a global scale. Examines a diverse range of media, including music (reggae, hip-hop), literature, film, and others and the links between culture and social movements throughout the diaspora.

Repeatability: Unlimited as topics vary.

AFAM 115. Race and Visual Representation. 4 Units.
Examines film, documentary, fine art, photography, and other visual media to explore the multiple ways in which ideas about race are projected and woven through the visual landscape and the impacts this has on perpetuating social inequalities.

Repeatability: Unlimited as topics vary.

AFAM 116. African Literatures. 4 Units.
Examines literary figures, forms, and movements of African societies. Explores how these literatures represent indigenous cultural practices, the conditions of modernity, and the relations between both.

Repeatability: Unlimited as topics vary.

AFAM 117. Asian American and African American Relations. 4 Units.
Addresses relationships of Asian American and African American communities in the United States. Topics include race, class, gender, labor, economic systems, political mobilization, community, civil rights, activism, cultural expression.

Same as HISTORY 152B, ASIANAM 167.

AFAM 118. Topics in African American Humanities. 4 Units.
Provides students with an opportunity to pursue advanced work in African American studies from one or more humanities approaches (literature, film and media studies, art history, and others).

Repeatability: Unlimited as topics vary.

AFAM 123. African American Queer Theory. 4 Units.
Explores intersections of African American studies, women's studies, gay and lesbian studies, and queer theory to challenge dominant views of race, gender, and sexuality. Considers historical and social scientific approaches to topic as well as arts and humanities.

AFAM 124. Race and Gender. 4 Units.
Examines the social construction of the categories of race and gender in international and national contexts of African American communities. Texts address the intersection of economic, social, and scientific theories of difference that formed each category in various historical contexts.

Repeatability: Unlimited as topics vary.

AFAM 125. African American Women in Art. 4 Units.
Examines depictions of and by African American women in art and popular culture through a variety of media including textiles, painting, sculpture, photography, and installation. Focuses on African American women's experiences, perspectives, and strategies for contemporary representation.

Same as ART HIS 164D.

AFAM 128. Topics in Gender/Sexuality. 4 Units.
Expressions of genders and sexualities across the spectrum of African American experience and creativity.

Repeatability: Unlimited as topics vary.

AFAM 134A. Caribbean History: Colonization to Emancipation. 4 Units.
Exploration of the history of the archipelago from pre-Columbian times to the end of slavery; examining the impact of European colonization, decimation of the indigenous populations, African slavery, resistance, and emancipation; the unity and diversity of experience in region.

Same as HISTORY 164A.

AFAM 134B. Caribbean History: Emancipation to Independence. 4 Units.
Post-emancipation and anti-colonial struggles ending with political independence for most of the region. Examines social, political, economic, cultural dimensions of post-emancipation period, including large-scale migration to Central America, the U.S., and Britain; the region's global cultural and political contribution.

Same as HISTORY 164B.

AFAM 137. History of the African Diaspora. 4 Units.
Examines the causes and consequences of the multiple diasporas of African peoples since the sixteenth century in the Atlantic world, especially the Americas and Europe.

Same as HISTORY 134E.

AFAM 138. Topics in African American History. 4 Units.
Studies in selected areas of African American history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as HISTORY 150.

AFAM 142. Topics in African American Drama. 4 Units.
Considers African American theatrical performance and production, including acting, design and production, dramaturgy, criticism and theory, and stagecraft.

Repeatability: Unlimited as topics vary.

AFAM 143. Topics in African American Music. 4 Units.
Examines African American musical forms and traditions, such as blues, jazz, and reggae, in performance and/or critical and theoretical contexts.

Repeatability: Unlimited as topics vary.

AFAM 144. Topics in Expressive Forms. 4 Units.
Examines various forms of aesthetic expression in the African diaspora, including dance, music, and the plastic arts, as well as artistic visions of black cyberspace, digital activism, film, video, and aesthetic conceptions of the future.

Repeatability: Unlimited as topics vary.

AFAM 145. African Americans and Photography. 4 Units.
Explores depictions of and by African Americans through photography. Examines the history of photography in relationship to African American culture through a variety of media from early daguerreotype processes to digital imagery.

Same as ART HIS 164E.

AFAM 148. Advanced Studio Topics. 4 Units.
Provides an intensive and specialized working environment for practice of a variety of fine arts as practiced in African American traditions: painting, drawing, sculpture, photography, video, music, digital arts, and performance.

Repeatability: Unlimited as topics vary.

AFAM 151. Comparative Minority Politics. 4 Units.
Examines the political experiences of Blacks, Latinos, and Asian Americans in the United States from roughly 1950 to the present. Focuses on how each group has pursued political empowerment via both conventional political channels and social movements.

Same as ASIANAM 132, CHC/LAT 147, POL SCI 124C.

AFAM 152. African American Politics. 4 Units.
Examines politics of African Americans in order to gain a broader perspective of the American political process. Major developments in African American politics (including the civil rights movement, Black presidential bids), continuing problem of racism, responsiveness of key governing institutions.

Same as POL SCI 124E.

AFAM 153. African American Psychology. 4 Units.
Historical overview of the development of black psychology and the African American frame of reference. Topics include personality development, psychological assessment, issues in education, black mental health, and the role of the African American psychologist in the community.

Same as PSYCH 174E.

AFAM 154. African American Social Formations. 4 Units.
Topics which promote critical investigation into the historical, political, and social formations associated with the Black Diaspora.

Repeatability: Unlimited as topics vary.

AFAM 155. Intercultural Studies. 4 Units.
Studies relationships between various cultural formations within the Black Diaspora and the exchange, amalgamations, and tensions between Black Diasporic formations and non-Black formations. Examines expressions of racialization as representation, adaption, and resistance.

Repeatability: Unlimited as topics vary.

AFAM 156. African Societies and Politics. 4 Units.
Examines the violent incorporation of Africa within European modernity. Places the discourse of Pan-Africanism, African Nationalisms, Negritude, African Marxism, and/or African Socialism in juxtaposition to the forces of capitalism, colonialism, and imperialism that restructure African history.

Repeatability: Unlimited as topics vary.

AFAM 157. Critical Race Theory. 4 Units.
Introduction to Critical Race Theory and key American cases on racial inequality. Using this literature, examines the possibilities and pitfalls of legal claims of race, gender, and sexuality discrimination in the age of colorblindness.

Same as CRM/LAW C178.

Restriction: Upper-division students only.

AFAM 158. Topics in African American Social Sciences. 4 Units.
Provides students with an opportunity to pursue advanced work in African American studies from one or more social science approaches (psychology, sociology, anthropology, economics, and others).

Repeatability: Unlimited as topics vary.

AFAM 162W. The Black Protest Tradition. 4 Units.
History and discourses of the black protest tradition. Traces emergence of black protest against racial slavery and white supremacy from the early colonial period to present and the complex elaboration of identity politics within black communities in the twentieth century.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only.

(Ib)

AFAM 163. Seminar in African American Studies. 4 Units.
Explores theoretical and methodological issues in Black Studies via concentrated work on a specific ensemble of questions. Emphasis is on generating student responses to the material covered through oral and written reports.

Repeatability: Unlimited as topics vary.

AFAM 198. Directed Group Study. 1-4 Units.
Special topics through directed reading. Paper required.

Repeatability: May be taken for credit for 24 units.

AFAM 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading. Paper required.

Repeatability: May be repeated for credit unlimited times.

AFAM 399. University Teaching. 4 Units.
Limited to teaching assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Art History

2000 Humanities Gateway; 949-824-6635
http://www.humanities.uci.edu/arthistory/
Bert Winther-Tamaki, **Department Chair**

Undergraduate Program

The Department of Art History offers a major and minor in Art History. Art History is the study of works of art and other visual artifacts from all regions of the world and all periods of history. Consequently, the undergraduate curriculum in Art History, with its global perspective, is one of the most diverse disciplines in the humanities. Through Art History students learn how to describe and interpret a range of objects including sculpture, painting, photography, architecture, and “new media” such as video and performance art. These skills, along with the program’s intense focus on writing and verbal expression, prepare students to think critically and to express themselves clearly at a time when visual communication is becoming ever more important. Because works of art are always created within a larger cultural context, Art History courses are a good way to understand what other places or times were like. Students may explore, for example, ancient Greece, nineteenth-century Japan, or even the twenty-first century United States. Majors in Art History are thus welcome to take related courses in other fields of the humanities. Students are encouraged to pursue the study of language beyond the minimum requirements, and because of its international perspective, Art History is a particularly good major for students interested in studying abroad. There are many study centers throughout the world associated with the University’s Education Abroad Program. Special scholarships are available for the Pacific region program.

Careers for the Art History Major

Following their graduation, students with a B.A. in Art History have found employment in art galleries, auction houses, and museums, and they have entered graduate programs with a view to careers in university teaching, curatorial work, and art conservation. Moreover, with its strong emphasis on developing critical skills in writing, speaking, and analysis, Art History also provides an excellent preparation for many other careers. UCI graduates have pursued professional paths ranging from medicine and law, to business and education, to information technologies and architecture. As in the case of arts administration or intellectual property law, some of these professional pursuits have depended on and continue to make use of training in the arts.

Requirements for the B.A. Degree in Art History

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Departmental Requirements for the Major

A. Select three courses from the following:

ART HIS 40A	Ancient Egyptian, Greek, and Roman Art and Architecture
ART HIS 40B	Arts of Europe: Medieval and Renaissance
ART HIS 40C	Early Modern and Modern Art in Europe and America
ART HIS 42A	History of Asian Art: Arts of India
ART HIS 42B	History of Asian Art: Arts of China
ART HIS 42C	History of Asian Art: Arts of Japan
ART HIS 42D	History of Asian Art: Arts of Islam

B. Eight upper-division Art History courses, with at least one course in each of the following geographical regions: [1]

Americas: Art History 140, 156, 163–167	
Europe: Art History 100–140	
Asia: Art History 150–163	
and at least one course in each of the following five historical periods: [1]	
Ancient:	
Art History 100–107	
ART HIS 151A	Ancient China
ART HIS 155A	Ancient India

Medieval:	
ART HIS 110	Studies in Medieval Art
ART HIS 111A	Later Roman and Byzantine Art: ca. 300-650
ART HIS 111B	Byzantine Art: 650-1450
ART HIS 112	Studies in Early Christian and Byzantine Art
ART HIS 114	Studies in Western Medieval Art
ART HIS 151A	Ancient China
ART HIS 155B	Medieval India
Early Modern:	
Art History 120–128	
ART HIS 134A	Early Modern European Art: Age of Absolutism
ART HIS 151B	Later Imperial China
ART HIS 162A	Early Modern Japan
ART HIS 165A	Early American Art
Modern:	
ART HIS 134B	Modern European Art: From Revolution to Realism
ART HIS 134C	Modern European Art: From Impressionism to the Fauves
ART HIS 134D	Modern European Art: From Cubism to Surrealism
ART HIS 134E	Topics in Modern European Art
ART HIS 145A	Studies in Modern Architecture
ART HIS 151C	Modern China
ART HIS 155C	Modern India
ART HIS 156	Art and Globalization, Modern
ART HIS 162B	Modern Japan
ART HIS 164A	Modern African American Art
ART HIS 164E	African Americans and Photography
ART HIS 165B	Nineteenth Century American Art
ART HIS 165C	Modern American Art
ART HIS 183B	Twentieth-Century Photographic History
ART HIS 183C	Selected Topics in Photographic History
Contemporary:	
ART HIS 140A	History of Contemporary Art
ART HIS 140B	Topics in Contemporary Art
ART HIS 145B	Studies in Architecture after 1945
ART HIS 162C	Contemporary Japan
ART HIS 163	Asian American Art, Contemporary
ART HIS 164B	Contemporary African American Art
ART HIS 164D	African American Women in Art
ART HIS 183B	Twentieth-Century Photographic History
ART HIS 183C	Selected Topics in Photographic History
C. Complete:	
ART HIS 190W	Practicum for Majors
D. Select one of the following options:	
1. Two quarters of	
ART HIS 198	Advanced Seminar: Topics in Art History
2. or one quarter of	
ART HIS 198	Advanced Seminar: Topics in Art History

and one additional uppper-division course selected from the list in requirement B above.

[1] NOTE: A course may apply as both one Geographical Region *and* one Historical Period, but no course may be used to satisfy more than one Geographical Region or more than one Historical Period.

Students should enroll in ART HIS 190W (for upper-division writing) as early as possible in their junior year, after successfully completing UCI's lower-division writing requirement. It is strongly recommended that students complete ART HIS 190W before taking ART HIS 198.

Residence Requirement for the Major: Five upper-division courses required for the major must be completed successfully at UCI.

Departmental Requirements for the Minor in Art History

A. Select three courses from the following:

ART HIS 40A	Ancient Egyptian, Greek, and Roman Art and Architecture
ART HIS 40B	Arts of Europe: Medieval and Renaissance
ART HIS 40C	Early Modern and Modern Art in Europe and America
ART HIS 42A	History of Asian Art: Arts of India
ART HIS 42B	History of Asian Art: Arts of China
ART HIS 42C	History of Asian Art: Arts of Japan
ART HIS 42D	History of Asian Art: Arts of Islam

B. Select four upper-division Art History courses from 100–198, excluding ART HIS 190W.

Residence Requirement for the Minor: Four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the department chair.

Graduate Study

In conjunction with the Department of Film and Media Studies, the Department of Art History offers a graduate program in Visual Studies. A program description and graduate courses may be found in the Program in Visual Studies (p. 969) section.

Faculty

George C. Bauer, Ph.D. Princeton University, *Professor Emeritus of Art History* (Renaissance and Baroque)

Linda F. Bauer, Ph.D. New York University, *Professor Emerita of Art History* (Renaissance and Baroque)

Roland Betancourt, Ph.D. Yale University, *Assistant Professor of Art History* (Byzantine and Medieval Art, Critical Theory)

Bridget R. Cooks Cumbo, Ph.D. University of Rochester, *Associate Professor of African American Studies; Art History; Culture and Theory* (African American art and culture, Black visual culture, museum criticism, film, feminist theory, postcolonial theory)

Aglaya Glebova, Ph.D. University of California, Berkeley, *Acting Assistant Professor of Art History; Film and Media Studies* (history and theory of photography and film, European avant-garde, Russian and Soviet art)

Anna Gonosová, Ph.D. Harvard University, *Professor Emerita of Art History* (Byzantine art, Medieval art)

James D. Herbert, Ph.D. Yale University, *Associate Dean of Curricular and Student Affairs and Professor of Art History; Culture and Theory; European Languages and Studies* (modern European art)

Judy H. Ho, Ph.D. Yale University, *Professor Emerita of Art History* (Chinese art, archaeology, common religion, Buddhist art)

Shanna J. Kennedy-Quigley, Ph.D. University of California, Los Angeles, *Lecturer of Art History*

Philip Leider, M.A. University of Nebraska, *Senior Lecturer with Security of Employment Emeritus of Art History*

Lyle Massey, Ph.D. University of California, Los Angeles, *Associate Professor of Art History* (Renaissance and early modern art)

Daniel W. Maze, Ph.D. University of California, Los Angeles, *Lecturer of Art History*

Margaret Miles, Ph.D. Princeton University, *Professor of Art History* (Greek and Roman art, archaeology)

James P. Nisbet, Ph.D. Stanford University, *Assistant Professor of Art History* (modern and contemporary art)

Alka Patel, Ph.D. Harvard University, *Associate Professor of Art History* (Asian art, South Asian architecture, Islamic architecture, India-Iran-Central Asia connections)

Amy Powell, Ph.D. Harvard University, *Associate Professor of Art History; European Languages and Studies* (Northern European art and visual culture, 1300–1700)

Sally A. Stein, Ph.D. Yale University, *Professor Emerita of Art History* (American art, history of photography, feminist theory)

Dickran L. Tashjian, Ph.D. Brown University, *Professor Emeritus of Art History* (American art and literature, American and European avant-garde, art and technology)

Cécile Marie Whiting, Ph.D. Stanford University, *UCI Chancellor's Professor of Art History* (American art and visual culture)

Bert Winther-Tamaki, Ph.D. New York University, *Professor of Art History; Asian American Studies* (Modern Japanese art and visual culture, Asian American art, art and globalization)

Roberta Wue, Ph.D. New York University, *Assistant Professor of Art History* (late imperial and modern Chinese art, photography, visual culture)

Courses

ART HIS 40A. Ancient Egyptian, Greek, and Roman Art and Architecture. 4 Units.
An overview of Prehistoric, Egyptian, Greek, and Roman art. Considers how and why the peoples of antiquity created art and architecture, as well as the significance of these works within their social, religious, and historical contexts.

(IV, VIII)

ART HIS 40B. Arts of Europe: Medieval and Renaissance. 4 Units.
Focuses on the art of the Mediterranean area and Europe between ca. A.D. 350 and 1600. By means of movements and artists, examines the cultural identities of the Christian, Islamic, and Early Modern worlds.

(IV, VIII)

ART HIS 40C. Early Modern and Modern Art in Europe and America. 4 Units.
The visual arts from the seventeenth to the twenty-first centuries. Explores the purposes and meaning of painting, sculpture, and architecture in relation to artists, viewers, and historical events.

(IV, VIII)

ART HIS 42A. History of Asian Art: Arts of India. 4 Units.
Emphasizing Hindu, Buddhist, and Islamic art of greater India (Pakistan, Bangladesh, Sri Lanka) from proto-historic to modern times. Themes include art as a source of history, commercial and religious pan-Asian connections, nationalism, and modern versus historical identities.

(IV, VIII)

ART HIS 42B. History of Asian Art: Arts of China. 4 Units.
An introduction to the arts and visual culture of China from Neolithic to modern times. Themes includes the representation of power, death and the afterlife, popular culture and elite arts, landscape and women's painting, and concludes with contemporary China.

(IV, VIII)

ART HIS 42C. History of Asian Art: Arts of Japan. 4 Units.
Examines compelling images and objects of spirit and power created in Japan over many centuries. Themes include Buddhist icons, narative illustration, popular prints, architecture, manga, and the avant-garde. Japanese interactions with Korean, Chinese, and European culture are emphasized.

(IV, VIII)

ART HIS 42D. History of Asian Art: Arts of Islam. 4 Units.
Examines past and present Islamic art, spanning 1,500 years and extending from the Americas through Indonesia. Themes include Islam as a globalizing force, the definition of "Islamic," and the competing roles of religion and politics in making art.

(IV, VIII)

ART HIS 100. Studies in Ancient Art . 4 Units.
Topics in Egyptian, Prehistoric, and Etruscan art of the Mediterranean area treated with specific reference to relevant cultural and historical settings. Specialized courses in Greek and Roman art are also taught.

Repeatability: Unlimited as topics vary.

ART HIS 103. Studies in Greek Art. 4 Units.
Topics in Greek art, architecture, and topography from the Prehistoric period through the end of the fourth century B.C.E.

Repeatability: Unlimited as topics vary.

ART HIS 107. Studies in Roman Art. 4 Units.
Topics in Hellenistic and Roman art and architecture; stresses historical and political background.

Repeatability: Unlimited as topics vary.

ART HIS 110. Studies in Medieval Art. 4 Units.
Specialized topics in Medieval art and architecture in Europe, the Mediterranean area, and the Near East between the fourth and fifteenth centuries. Examples: the Art of the Migration Period, Medieval City.

Repeatability: Unlimited as topics vary.

ART HIS 111A. Later Roman and Byzantine Art: ca. 300-650. 4 Units.
Studies in the development of the art and architecture of the Late Roman and Byzantine Empires between ca. 300 and 650.

ART HIS 111B. Byzantine Art: 650-1450. 4 Units.
Studies in the development of the art and architecture of the Byzantine Empire between ca. 650 and 1450.

ART HIS 112. Studies in Early Christian and Byzantine Art. 4 Units.
Selected topics on the development of the art and architecture of the Later Roman and Byzantine Empires between ca. 300 and 1453. Examples: Early Christian architecture, Byzantine painting.

Repeatability: Unlimited as topics vary.

ART HIS 114. Studies in Western Medieval Art. 4 Units.
Selected topics on the development of art and architecture in Western Europe between ca. 700 and 1400. Examples: Romanesque painting, Gothic architecture.

Repeatability: Unlimited as topics vary.

ART HIS 120. Studies in Renaissance and Baroque Art. 4 Units.
Selected topics on the art and architecture of Europe between the fifteenth and eighteenth centuries. Examples: Renaissance and Baroque prints, Bruegel to Rubens.

Repeatability: Unlimited as topics vary.

ART HIS 121. Studies in Southern Renaissance Art. 4 Units.
Selected topics determined by individual faculty members exploring historical developments and individual artists of the fifteenth and sixteenth centuries in Italy and Spain. Examples: Renaissance Venice, Age of Michelangelo.

Repeatability: Unlimited as topics vary.

ART HIS 123. Studies in Northern Renaissance Art. 4 Units.
Selected topics determined by individual faculty members exploring historical developments and individual artists of the fifteenth and sixteenth centuries in Northern Europe. Examples: Late Medieval art, painting from Van Eyck to Bosch.

Repeatability: Unlimited as topics vary.

ART HIS 125. Studies in Southern Baroque Art. 4 Units.
Selected topics determined by individual faculty members exploring historical developments and individual artists of the seventeenth and eighteenth centuries in Italy and Spain. Example: Rome in the seventeenth century.

Repeatability: Unlimited as topics vary.

ART HIS 128. Studies in Northern Baroque Art. 4 Units.
Selected topics determined by individual faculty members exploring historical developments and individual artists of the seventeenth and eighteenth centuries in Northern Europe. Example: the Age of Rembrandt.

Repeatability: Unlimited as topics vary.

ART HIS 134A. Early Modern European Art: Age of Absolutism. 4 Units.
History of European painting, sculpture, and architecture from 1643 to 1789, during the emergence of nation states dominated by kings and court.

ART HIS 134B. Modern European Art: From Revolution to Realism. 4 Units.
History of European painting and other arts from 1789 to 1851, as the continent lurched through revolution, reaction, and the birth of modern societies and sensibilities.

ART HIS 134C. Modern European Art: From Impressionism to the Fauves. 4 Units.
History of European painting and urban transformation from 1851 to 1907, when Paris stood strong as the unquestioned cultural capital of the nineteenth century.

ART HIS 134D. Modern European Art: From Cubism to Surrealism. 4 Units.
History of European painting, sculpture, and design from 1907 to 1940, when Paris and painting lost their dominance as other cultural centers and other media claimed renewed importance.

ART HIS 134E. Topics in Modern European Art. 4 Units.
Selected topics within the period 1643 to 1940.

Repeatability: Unlimited as topics vary.

ART HIS 140A. History of Contemporary Art. 4 Units.
Selected topics exploring historical developments of contemporary art from 1945 to the present. Examples: American Art 1945-1989, European Art 1945-1989, Art After 1989. Works of art are studied as cultural, social, and political practices.

Repeatability: Unlimited as topics vary.

ART HIS 140B. Topics in Contemporary Art. 4 Units.
Selected topics exploring artistic movements, artists, and/or issues in contemporary art from 1945 to the present. Examples: Junk Art, Countercultures, Art and Politics Now. Works of art are studied as cultural, social, and political practices.

Repeatability: Unlimited as topics vary.

ART HIS 145A. Studies in Modern Architecture. 4 Units.
Architecture and related design practices from the late eighteenth century through 1945 are studied in relation to social, aesthetic, technological, and political questions.

Repeatability: Unlimited as topics vary.

ART HIS 145B. Studies in Architecture after 1945. 4 Units.
Architecture and related design practices from 1945 through present are studied in relation to social, aesthetic, technological, and political questions.

Repeatability: Unlimited as topics vary.

ART HIS 145C. Topics in the History of Modern and Contemporary Architecture. 4 Units.
Varying topics from the late eighteenth century to the present. Architecture and related design practices are studied in relation to social, aesthetic, technological, and political questions.

Repeatability: Unlimited as topics vary.

ART HIS 150. Studies in Asian Art. 4 Units.
Topics include visual studies in China, Japan, Korea and India.

Repeatability: Unlimited as topics vary.

ART HIS 151A. Ancient China. 4 Units.
Examines the early history of Chinese art, focusing on the development and uses of art and material culture to express political, social, and religious beliefs, particularly in art made for the court, tomb, and temple.

ART HIS 151B. Later Imperial China. 4 Units.
Investigates the uses, subjects, styles, and social contexts of art made in the later Imperial dynasties, whether court art, religious art, women's painting, scholar painting, or art for the market.

ART HIS 151C. Modern China. 4 Units.
Examines the evolution and media of Chinese art and visual culture in the context of modern China's sweeping historical, social, and political changes.

ART HIS 155A. Ancient India. 4 Units.
Examines the visual history of the region defined as "India" today, but necessarily encompassing modern Bangladesh and Pakistan. Culminates with the supposed Golden Age of the Gupta empire and its far-reaching legacies.

ART HIS 155B. Medieval India. 4 Units.
Begins with the Gupta Period's aesthetic legacies in South Asia's architecture, sculpture, and painting. Explores the dispersal of Islam throughout South Asia, including the Muslim communities of southern India.

ART HIS 155C. Modern India. 4 Units.
Examines the imperial patronage of the Mughal emperors, covering their territorial holdings extending from Afghanistan through western Bangladesh. Continues with the "aftermath" of the Mughal empire and the rise of British commercialism and colonialism.

ART HIS 155D. Topics in the Art and Architecture of India. 4 Units.
Studies in selected areas of Art and Architecture of India. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ART HIS 156. Art and Globalization, Modern. 4 Units.
Study of modern art as a cause and expression of increasing contacts between cultures. Focusing on regions in Asia and the Americas, adoption of European oil painting, indigenous art movements, and national capital architecture are explored.

ART HIS 162A. Early Modern Japan. 4 Units.
Focuses on the Edo Period (1615-1868), an enormously productive time in the early modern development of Japanese art in woodblock prints, painting, and crafts. Topics include the image of the beautiful woman, kabuki actor prints, and intoxicated ink painting.

ART HIS 162B. Modern Japan. 4 Units.
Explores artistic developments during the tumultuous modernization of Japan from 1868-1945, with a focus on painting, commercial art, and architecture. Topics include arts of the Japanese Empire, neo-traditional arts, responses to European modernism, and war propaganda.

ART HIS 162C. Contemporary Japan. 4 Units.
Study of various media of Japanese art from the time of war defeat in 1945 until the present. Topics include artists' responses to the nuclear bomb, the aesthetics of the "economic miracle," avant-garde groups, manga, and innovations in architecture.

ART HIS 163. Asian American Art, Contemporary. 4 Units.
Study of the Asian American experience in contemporary art and visual culture. Art by Asian Americans of diverse backgrounds as well as the history of visualization of Asian identities in American art/visual culture.

ART HIS 164A. Modern African American Art. 4 Units.
Investigates the history of modern African American art; emphasis on the politics of representation. Examines art in a variety of media from material culture and textiles to painting and photography. Issues of migration, nationalism, gender, sexuality, and hybridity are discussed.

Same as AFAM 111A.

ART HIS 164B. Contemporary African American Art. 4 Units.
Investigates the history of contemporary African American art; emphasis on the politics of representation. Explores art in a variety of media: painting, sculpture, photography, installation, and new media. Cultural politics, appropriation, identity, gender, sexuality, hybridity and civil rights issues discussed.

Same as AFAM 111B.

ART HIS 164C. Topics in African American Art. 4 Units.
Studies in selected areas of African American Art. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ART HIS 164D. African American Women in Art. 4 Units.
Examines depictions of and by African American women in art and popular culture through a variety of media including textiles, painting, sculpture, photography, and installation. Focuses on African American women's experiences, perspectives, and strategies for contemporary representation.

Same as AFAM 125.

ART HIS 164E. African Americans and Photography. 4 Units.
Explores depictions of and by African Americans through photography. Examines the history of photography in relationship to African American culture through a variety of media from early daguerreotype processes to digital imagery.

Same as AFAM 145.

ART HIS 165A. Early American Art. 4 Units.
An examination of American visual culture from 1620 to 1860 from the era of European exploration and colonization of the New World to the beginning of the Civil War.

ART HIS 165B. Nineteenth Century American Art. 4 Units.
An exploration of American visual culture from 1860 to 1900, including paintings, sculpture, and photographs produced during the Civil War and during the decades of prosperity that followed.

ART HIS 165C. Modern American Art. 4 Units.
Focusing on the period from 1900 until 1965, this course considers the emergence and institutionalization of modern art in the United States.

ART HIS 165D. Topics in American Art. 4 Units.
Varying topics within the period 1620 to 1970. Works of art are studied in their cultural, social, and political contexts.

Repeatability: Unlimited as topics vary.

ART HIS 167. Latin American Art History. 4 Units.
Historical periods vary with each offering and may range from pre-Columbian societies, through the colonial era, to developments in modern and contemporary art.

Repeatability: Unlimited as topics vary.

ART HIS 175. Studies in Native and Tribal Art. 4 Units.
Varying topics on the art and culture of native and tribal societies. For example, North American Indians.

Repeatability: Unlimited as topics vary.

ART HIS 180. Topics in the Criticism of Art. 4 Units.
Selected topics discussed on the theoretical and/or practical dimensions of art historical criticism.

Repeatability: Unlimited as topics vary.

ART HIS 181. Topics in Museum Studies. 4 Units.
Addresses the historical and contemporary function of the museum as an instructional device. The function of exhibitions in the public sphere, and the roles of curators, educators, and the public are analyzed.

Repeatability: Unlimited as topics vary.

ART HIS 183B. Twentieth-Century Photographic History. 4 Units.
Varying topics within the history of photography in the twentieth century. Photographic practice studied in relation to art history, cultural history, and social history.

Repeatability: Unlimited as topics vary.

ART HIS 183C. Selected Topics in Photographic History. 4 Units.
Varying topics within the history of photography from the early nineteenth century to the present. Photographic practice studied in relation to art history, cultural history, and social history. Examples: documentary; pictorialism and art photography; photomontage, photographic books.

Repeatability: Unlimited as topics vary.

ART HIS 185. Topics in Visual Studies. 4 Units.
Interdisciplinary topics on the cultural analysis of visual artifacts and practices.

Repeatability: Unlimited as topics vary.

ART HIS 190W. Practicum for Majors. 4 Units.
Theory and practice of art history with emphasis on formal and social models of analyzing and writing about art.

Prerequisite: Satisfactory completion of the Lower-division Writing requirement.

Restriction: Art History majors only. Upper-division students only.

(Ib)

ART HIS 198. Advanced Seminar: Topics in Art History. 4 Units.
Discussion and report-oriented seminar with emphasis on reading, writing, and thinking about problems in art history. Topics vary according to the faculty/instructor. Examples: Gothic Cathedral, Portraiture East and West.

Prerequisite: Recommended: ART HIS 190W.

Repeatability: Unlimited as topics vary.

Restriction: Art History majors have first consideration for enrollment. Upper-division students only.

ART HIS 199. Independent Study in Art History. 1-4 Units.
Supervised, but independent reading or research on art historical topics.

Repeatability: May be taken for credit 4 times.

Restriction: Art History majors only.

ART HIS 399. University Teaching. 4 Units.
Limited to teaching assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Asian American Studies

3000 Humanities Gateway; (949) 824-2376
http://www.humanities.uci.edu/aas/
James Kyung-Jin Lee, **Chair**

The Department of Asian American Studies examines the historical and contemporary experiences of Asians in the United States and in a global context. The curriculum seeks to provide an analysis of the cultural, political, and economical organization of Asian American communities. Students are invited to participate and partake in broadening their understanding of multicultural perspectives within U.S. society. The Department offers a B.A. degree program in Asian American Studies, a minor, and a graduate emphasis.

The Department also contributes to the Culture and Theory Ph.D. program, which uses the strengths of interdisciplinary programs and departments, particularly African American Studies, Chicano/Latino Studies, Asian American Studies, Critical Theory, and Women's Studies. This degree uses a problem-oriented rather than a disciplinary approach to issues of race, gender, and sexuality in relation to diasporas, transnational, and postcolonial contexts, all of which are broadly based in the humanities, social sciences, and arts.

Scholarship Opportunities. The Ching-Suei Su Endowed Memorial Scholarship is awarded annually to sophomores or juniors who are majoring in Asian American Studies, East Asian Languages and Literatures, or Linguistics (with an emphasis on an East Asian language) and who demonstrate academic excellence and campus or community service.

Undergraduate Program

Career Opportunities

Many career opportunities exist for students who graduate with a B.A. degree in Asian American Studies, such as service with national and international organizations which seek knowledge of American multicultural society in general, and of Asian American peoples and cultures in particular; positions as area specialists with state and federal government agencies; careers in the private sector with corporations or private organizations which have a significant portion of their activities in the U.S. and the Pacific Rim; and positions of service and leadership within Asian American communities. Students may also continue their education and pursue professional or graduate degrees.

Requirements for the B.A. Degree in Asian American Studies

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Department Requirements for the Major

A. Three introductory Asian American Studies core courses:

ASIANAM 50	Asian American Histories
or ASIANAM 51	The U.S. and Asia
and	
ASIANAM 52	Asian American Communities
or ASIANAM 53	Asian Americans and Comparative Race Relations
and	
ASIANAM 54	Asian American Stories
or ASIANAM 55	Asian Americans and the Media

B. Complete:

ASIANAM 100W	Research Methodologies for Asian American Studies

C. Select one course from each of the following areas:

Humanities/Arts: Asian American Studies 110–129	
Social Science/Social Ecology: Asian American Studies 130–149	
Asian American Sub-groups: Asian American Studies 151–160	
Ethnic/Race/Gender Relations: Asian American Studies 161–170	

D. Select four additional upper-division elective Asian American Studies courses. Students may request, by petition, one lower-division course to count as an elective. This course must be primarily focused on issues relevant to Asian American Studies.

Residence Requirement for the Major: A minimum of five upper-division courses required for the major must be completed successfully at UCI.

Requirements for the Minor in Asian American Studies

A. Three introductory Asian American Studies core courses:

ASIANAM 50	Asian American Histories
or ASIANAM 51	The U.S. and Asia
and	
ASIANAM 52	Asian American Communities
or ASIANAM 53	Asian Americans and Comparative Race Relations
and	
ASIANAM 54	Asian American Stories
or ASIANAM 55	Asian Americans and the Media

B. Four upper-division courses selected from Asian American Studies 100W–169, ASIANAM 199.

Residence Requirement for the Minor: Four upper-division courses required for the minor must be completed successfully at UCI. Two of the four may be taken through the UC Education Abroad Program, provided course content is approved in advance by the Department.

Graduate Emphasis in Asian American Studies

The Department of Asian American Studies offers a graduate emphasis in Asian American Studies, which is available in conjunction with selected departmental graduate programs. Students in the graduate emphasis complete a minimum of four courses, including ASIANAM 200A and ASIANAM 200B (offered every other year), and two electives, one of which is selected from the student's own department or area of interest, and the other from a discipline outside that department or area.

Subject to the requirements of participating academic units, Ph.D. students in the emphasis should have at least one Asian American Studies core faculty member on their qualifying examination and dissertation committees. With the approval of the Asian American Studies Graduate Committee, affiliated faculty members can sit in place of the core faculty. (There are no requirements concerning qualifying examinations or theses for master's students.)

Applicants to the emphasis must be admitted to a participating UCI graduate program. For complete information about application policies and procedures, as well as the requirements of the emphasis, see one of the Asian American Studies faculty members.

Faculty

Kei Akagi, B.A. International Christian University, *UCI Chancellor's Professor of Music; Asian American Studies*

Christine Bacarez Balance, Ph.D. New York University, *Assistant Professor of Asian American Studies; Culture and Theory* (performance studies, critical race and ethnic studies, Filipino American studies, queer theory, popular culture)

Yong Chen, Ph.D. Cornell University, *Associate Professor of History; Asian American Studies*

Julie G. Cho, M.F.A. University of California, Los Angeles, *Lecturer of Film and Media Studies; Asian American Studies*

Dorothy B. Fujita-Rony, Ph.D. Yale University, *Associate Professor of Asian American Studies; Culture and Theory; History* (U.S. history, Asian American studies)

Laura H. Kang, Ph.D. University of California, Santa Cruz, *Department Chair and Associate Professor of Gender and Sexuality Studies; Asian American Studies; Comparative Literature; Culture and Theory* (feminist epistemologies and theories, cultural studies, ethnic studies)

Claire J. Kim, Ph.D. Yale University, *Associate Professor of Asian American Studies; Culture and Theory; Political Science*

Kyung Hyun Kim, Ph.D. University of Southern California, *Professor of Korean Culture; Asian American Studies; Film and Media Studies* (East Asian cinema, modern Korea, critical theory)

James K. Lee, Ph.D. University of California, Los Angeles, *Department Chair and Director of the Graduate Program in Culture and Theory* and *Associate Professor of Asian American Studies; Culture and Theory* (Asian American literature and culture, contemporary U.S. literature, race and ethnic studies, urban studies, religious studies)

Jee-Young J. Lee, Ph.D. Columbia University, *Professor of Sociology; Asian American Studies* (immigration, race/ethnicity, social inequality, Asian American studies)

Julia Hyoun Joo Lee, Ph.D. University of California, Los Angeles, *Assistant Professor of Asian American Studies; Culture and Theory*

Stephen Lee, J.D. University of California, Berkeley, *Professor of School of Law; Asian American Studies*

Daphne Pi-Wei Lei, Ph.D. Tufts University, *Professor of Drama; Asian American Studies* (Asian theatre, Asian American theatre, intercultural theatre, gender theory, performance theory)

Simon Leung, B.A. University of California, Los Angeles, *Professor of Art; Asian American Studies*

John M. Liu, Ph.D. University of California, Los Angeles, *Senior Lecturer with Security of Employment Emeritus of Asian American Studies*

Sanjoy Mazumdar, Ph.D. Massachusetts Institute of Technology, *Professor of Planning, Policy, and Design; Asian American Studies*

Glen M. Mimura, Ph.D. University of California, Santa Cruz, *Associate Professor of Film and Media Studies; Asian American Studies; Culture and Theory* (minority, diasporic, and third cinemas, popular culture and social movements, media, race, and sexuality)

Yong Soon Min, M.F.A. University of California, Berkeley, *Professor of Art; Asian American Studies; Culture and Theory* (minority, diasporic, and third cinemas; media, nationalism, and globalization; race, sexuality, and popular culture)

Genevieve Erin O'Brien, M.A. School of the Art Institute of Chicago, *Lecturer of Asian American Studies*

Beheroze F. Shroff, M.F.A. University of California, Los Angeles, *Lecturer of Asian American Studies; Gender and Sexuality Studies*

Linda T. Võ, Ph.D. University of California, San Diego, *Associate Professor of Asian American Studies; Culture and Theory; Planning, Policy, and Design; Sociology* (race and ethnic relations, immigrants and refugees, gender relations, community and urban studies)

Bert Winther-Tamaki, Ph.D. New York University, *Professor of Art History; Asian American Studies* (Modern Japanese art and visual culture, Asian American art, art and globalization)

Courses

ASIANAM 50. Asian American Histories. 4 Units.
Examines and compares diverse experiences of major Asian American groups since the mid-nineteenth century. Topics include origins of emigration; the formation and transformation of community; gender and family life; changing roles of Asian Americans in American society. Formerly ASIANAM 60A.

Same as SOC SCI 78A, HISTORY 15C.

((III or IV) and VII).

ASIANAM 51. The U.S. and Asia. 4 Units.
Explores the historical and contemporary transnational linkages between the U.S. and regions in Asia and their resultant flows of people, goods, and ideas. Attention given to the role of militarism and processes of globalization, and the histories of cultural contact/conflict.

((III or IV) and VIII).

ASIANAM 52. Asian American Communities. 4 Units.
Examines the renewal of Asian immigration following World War II. Explores contemporary Asian American populations and communities in the U.S., and the impact of contemporary Asian immigration on the U.S. political economy and social order.

Same as SOC SCI 78B.

(III, VII)

ASIANAM 53. Asian Americans and Comparative Race Relations. 4 Units.
Analyzes the Asian American experience in comparative perspective, which includes comparisons of different ethnic and racial groups, and across gender and class. Possible topics include labor, economy, politics, migration, nation, popular culture, gender, family, sexuality, and multiraciality.

Same as SOC SCI 78C.

(III, VII)

ASIANAM 54. Asian American Stories. 4 Units.
Examines stories from Asian American communities through literary texts and other media. Selected themes may include the following: dislocation/relocation, finding/inventing a usable past, poetics/politics in language, identities/ethnicities.

(IV, VII)

ASIANAM 55. Asian Americans and the Media. 4 Units.
Investigates popular representations of and cultural productions by Asian Pacific Americans and Asians in the Americas from the late-nineteenth century to the present. Cultural media may include political cartoons, film/television, popular music, visual art, blogs/Web sites, and performance.

(IV, VII)

ASIANAM 100W. Research Methodologies for Asian American Studies. 4 Units.
Explores various research methodologies for Asian American Studies combining theoretical knowledge with field research. Goals: conduct field research about immigrants and refugees from Asia. Topics vary: migration and labor, assimilation and cultural preservation, cultural expressions in the diaspora.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

ASIANAM 110. Asian American Writers. 4 Units.
Literary analysis of Asian American writers' representations of issues of identity, class, history among others. Variety of literary forms—novel, poem, drama, essay—included in a study of a variety of Asian American ethnic groups.

Repeatability: Unlimited as topics vary.

ASIANAM 111. Asian American History. 4 Units.
Introduction to important themes in the history of people of Asian ancestry in the United States from the nineteenth century to the present.

Repeatability: Unlimited as topics vary.

ASIANAM 112. Asian American Art History. 4 Units.
Investigation of Asian American experience expressed by art and visual culture throughout the twentieth century. Art by Asian Americans of diverse backgrounds as well as the history of cultural visualization of Asian identities in American art/visual culture.

Repeatability: Unlimited as topics vary.

ASIANAM 114. Asian American Film and Video. 4 Units.
Topics include histories of Asian American film and video, including documentaries, experimental, short subjects, feature-length independent film, and other forms of cinematic expression. Explores issues of identity (national, racial, gendered, among others).

Repeatability: Unlimited as topics vary.

ASIANAM 115. Asian American Media and Arts. 4 Units.
Includes the study of Asian American history and society through the analysis of a variety of media forms such as painting, music, cinema, video, and other artistic representations.

Repeatability: Unlimited as topics vary.

ASIANAM 116. Asian Americans and Popular Culture. 4 Units.
Focuses on Asian Americans' relationship to popular culture as both producers and consumers. Topics include consumer cultures and subcultures, cyberspace and public space, popular music, indy comics and other print media.

Repeatability: Unlimited as topics vary.

ASIANAM 117. Sexuality in Asian and Asian American Film and Video. 4 Units.
Analyzes sexuality and gender roles in specific social, historical, and political contexts represented in selected Asian and Asian American films and videos, in terms of feminine/masculine constructions, the body, family roles.

ASIANAM 118. Asian American Performance and Writing. 4 Units.
Intensive performing workshop producing work inspired by community, personal experience, international issues. Focuses on new ways of understanding ethnicity, class, and gender issues through performance.

ASIANAM 131. Asian American Politics. 4 Units.
Provides various overviews of politics within Asian American communities. May compare with African American and/or Latino politics.

Repeatability: Unlimited as topics vary.

ASIANAM 132. Comparative Minority Politics. 4 Units.
Examines the political experiences of Blacks, Latinos, and Asian Americans in the United States from roughly 1950 to the present. Focuses on how each group has pursued political empowerment via both conventional political channels and social movements.

Same as AFAM 151, CHC/LAT 147, POL SCI 124C.

ASIANAM 134. Asian American Community Public Health. 4 Units.
Focuses on major issues and concepts of community health and their application to public health programs for Asian American populations. Analyzes individual, institutional, community, and policy factors that influence a person's health status within a larger environmental context.

Same as PUBHLTH 134.

ASIANAM 135. Special Topics in Asian American Social Sciences and Social Ecology. 4 Units.
Explores a broad range of issues in Asian American social sciences and social ecology.

Repeatability: Unlimited as topics vary.

ASIANAM 137. Asian American Labor. 4 Units.
Explores history of Asian Americans and work from the nineteenth century to the present. Areas of study include migration, colonialism, family, social organization, and work culture.

Same as HISTORY 152A.

ASIANAM 138. Race and Urban Space. 4 Units.
Examines how ethnic and racial processes shape and structure interactions in urban settings, such as schools, housing, employment, and public spaces, with attention to the international impact of globalization and postcolonial forces.

ASIANAM 139. Asian Americans and Education. 4 Units.
Introduces students to the major issues facing Asian Americans in K-16 education and schooling experiences through scientific, historical, and interdisciplinary approaches, in both mainstream and minority education.

ASIANAM 141. Asian American Psychology. 4 Units.
Examines the social and psychological concerns of Asian Americans; e.g., coping with racial prejudice, maintaining bicultural identities, dealing with cross-cultural conflicts in interracial relationships, and trying to reconcile generational differences between immigrant parents and their American-born children.

Same as PSYCH 174A.

ASIANAM 142. Muslim Identities in North America. 4 Units.
Explores multiple identities of Muslims in North America, including indigenous Muslims and immigrants of many national origins. Explores religious, political, cultural, ethnic, class differences among American Muslims, turning to Islamic institutions or events near UCI to conduct fieldwork projects.

Same as ANTHRO 125Z.

ASIANAM 143. Religious Traditions of Asian Americans. 4 Units.
Studies the religious traditions of Asian Americans, focusing on the transplantation of religious institutions, establishment of sacred spaces, celebration of religious holidays, socialization of children, as well as birth, marriage, gender relations, death, family.

Same as SOCIOL 136.

ASIANAM 144. The Politics of Protest. 4 Units.
Examines the Civil Rights, Black Power, and women’s movements in relationship to the Asian American movement. Uses social movement theories to illuminate the cases, and the cases to critique and revise the theories.

Same as POL SCI 124A.

(VII)

ASIANAM 150. Special Topics in Asian American Studies. 4 Units.
Analyzes a variety of themes in Asian American Studies—identity, history, culture—from various interdisciplinary perspectives in humanities, arts, social sciences.

Repeatability: Unlimited as topics vary.

ASIANAM 151. Asian American Ethnic Groups. 4 Units.
Topics include study of the history, culture, and social formations of diverse Asian American subgroups such as Pacific Islanders, Hmong, Thai, Indonesian, Indian subcontinental, among others.

Repeatability: Unlimited as topics vary.

ASIANAM 151C. The Korean American Experience. 4 Units.
Explores the factors that have distinctly shaped the Korean American experience, including patterns of racial domination, the profile of immigrant flow, immigrant roles in the urban political economy, politics in Korea, and the role of the church.

Same as SOC SCI 178C.

ASIANAM 151D. The Vietnamese American Experience. 4 Units.
Studies the resettlement of Vietnamese in the United States following their exodus from Southeast Asia. Topics discussed include the Vietnam War, the 1975 evacuation, boat and land refugees, the shaping of Vietnamese communities, and Vietnamese American literature.

Same as SOC SCI 178D.

ASIANAM 151E. The Japanese American Experience. 4 Units.
Studies the settlement of Japanese in Hawaii and the continental United States since the late nineteenth century. Topics covered include sugar plantations, development of rural Japanese America, World War II internment, post-War community development, and persistence of Japanese American identity.

Same as SOC SCI 178E.

ASIANAM 151F. South Asian American Experience. 4 Units.
Examines and compares the experiences of South Asian immigrants in the U.S. over time. Looks at the economic, political, and social positions of the immigrants, with special emphasis on religious changes and the changes in the second and later generations.

Same as SOC SCI 178F.

Restriction: Asian American Studies and Social Policy and Public Service majors have first consideration for enrollment.

ASIANAM 151H. Southeast Asian American Experience. 4 Units.
Analyzes experiences of refugees and immigrants from Southeast Asia, which may include those from Cambodia, Laos, Vietnam, and the Philippines. Examines political and economic factors for their exodus and how they reconstruct their identities, histories, and communities.

Same as SOC SCI 178H.

ASIANAM 151J. Chinese American Experience. 4 Units.
Analyzes the experiences of Chinese in the United States. Immigration, Chinese exclusion, racial and gender identity. Historical overview and contemporary issues covered.

Same as SOC SCI 178J.

ASIANAM 151K. Filipina/Filipino American Experience. 4 Units.
Explores the experience of Filipina/Filipino Americans from the era of Spanish colonization of the Philippines to present-day community formations in the United States, with special emphasis on the twentieth century. Topics include colonialism, nation, migration, gender, and culture.

Same as SOC SCI 178K.

ASIANAM 161. Ethnic and Racial Communities. 4 Units.
Examines various theoretical analyses of race and ethnicity, particularly as they apply to Asian Americans. Also explores the relationship of Asian Americans to other racialized minorities in the U.S.

Same as SOC SCI 175B.

ASIANAM 162. Asian American Women. 4 Units.
Examines the representations and experiences of Asian American women from diverse perspectives. Explores the commonalities and differences among various groups of Asian American women, with particular focus on history, culture, values, and family roles.

Same as SOC SCI 177B.

ASIANAM 163. Asian American Women's Film. 4 Units.
Explores the significance of film and video made by Asian American women in relation to race, representation, and social change. These film and video makers use media to raise complex issues of class, politics, and race interacting with gender.

Repeatability: Unlimited as topics vary.

ASIANAM 164. Special Topics in Ethnicity, Gender, and Race. 4 Units.
Topics include analysis and comparison of various themes related to ethnicity, gender, and race within Asian American communities.

Repeatability: Unlimited as topics vary.

ASIANAM 166. Asian Americans and Race Relations. 4 Units.
Analyzes Asian American race relations and racialized interconnections, as well as Asian Americans in racial hierarchy. Topics include racial categorization, citizenship, immigration, equity.

ASIANAM 167. Asian American and African American Relations. 4 Units.
Addresses relationships of Asian American and African American communities in the United States. Topics include race, class, gender, labor, economic systems, political mobilization, community, civil rights, activism, cultural expression.

Same as AFAM 117, HISTORY 152B.

ASIANAM 168. Politics of Animal Rights. 4 Units.
Examines animal rights/welfare movement’s efforts to transform moral, practical, and legal standing of nonhuman animals in contemporary U.S. Explores intersection of racism, sexism, and speciesism informed by theories of race and ethnicity, including Asian American Studies.

Same as POL SCI 126F.

Restriction: Political Science majors and Asian American Studies majors have first consideration for enrollment.

ASIANAM 171A. Migration Destinations. 4 Units.
Examines the migration patterns to the three largest nations that receive immigrants (i.e., permanent settlers): Australia, Canada, and the United States.

Same as SOCIOL 175D, INTL ST 117B.

ASIANAM 199. Independent Study. 1-4 Units.
Directed reading and research in consultation with a faculty member. Substantial written work required.

Repeatability: May be repeated for credit unlimited times.

ASIANAM 200A. Theory and Methods in Asian American Studies. 4 Units.
Introduction to the intersection of the social sciences, humanities, and other fields that constitute the theory and methodology of Asian American Studies. Focuses on the interventions and contestations within Asian American Studies that have transformed the discipline in recent years.

Restriction: Graduate students only.

ASIANAM 200B. Contemporary Issues in Asian American Studies. 4 Units.
Examines the interrelations between history, theory, and race in the aftermath of the twentieth-century decolonial movements, offering an account of race through postcolonial and postnationalist approaches in comparative contexts. Considers the interventions made by transnational feminist and racialized queer critiques.

Restriction: Graduate students only.

ASIANAM 201. Graduate Topics in Asian American Studies. 4 Units.
Seminars on various topics in Asian American Studies.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ASIANAM 250. Advanced Topics in Asian American Studies. 4 Units.
Seminar covering various areas of research within Asian American Studies as an interdisciplinary field. Recommended for advanced graduate students.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ASIANAM 290. Directed Research. 4-12 Units.
Directed graduate study/research in Asian American Studies.

Repeatability: May be taken for credit for 24 units.

Restriction: Graduate students only.

ASIANAM 291. Directed Reading. 4 Units.
Readings focused on specialized topics in consultation with, and with the consent of, a faculty member.

Repeatability: May be taken for credit for 12 units.

Restriction: Graduate students only.

ASIANAM 399. University Teaching. 4 Units.
Limited to teaching assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Emphasis in Asian American Studies graduate students only.

Department of Classics

400 Murray Krieger Hall; 949-824-6735
http://www.humanities.uci.edu/classics/
Maria Pantelia, **Department Chair**

Undergraduate Program

The Department of Classics aims to provide the undergraduate student with a working knowledge of the origins and heritage of Graeco-Roman civilization. The Department is committed to a twofold purpose: (1) disseminating interest in and knowledge of Classical Civilization through the teaching of Greek and Latin language and literature; and (2) helping students, through courses in Classical literature, history, civilization, mythology, and religion taught through English translations, to appreciate the achievements of Greek and Roman culture and their pervasive influence on our own civilization.

The Department offers a major in Classics with three possible emphases. Students may choose an emphasis in Greek and Latin Language and Literature, Latin Language and Literature, or Classical Civilization. Students are encouraged to consult with the Classics faculty regarding the appropriate choice of major and design of their programs.

For the emphasis in Greek and Latin Language and Literature, study of the Classics must be based on competence in both Greek and Latin. This emphasis is designed to provide the student with language competence as rapidly as possible, so that by the end of first-year Greek or Latin the student has already been introduced to some of the major Classical authors in the original language. From then on, courses are devoted to reading and interpreting the literature of ancient Greece and Rome. In addition to their training in the languages, students increase their knowledge of the literature, history, and thought of the ancient world through the close study of some of its finest writers.

The Latin Language and Literature emphasis is designed for those students who want to focus on Rome and the Latin language as their area of study. By the end of first-year Latin, students will be reading and analyzing some of the most influential works in Latin literature. In addition to gaining an expertise in Latin, students also devote a portion of their study to an examination of the history and culture of ancient Rome by taking upper-division Classical Civilization courses with Rome as their focus and/or additional Latin courses. Courses from other departments in the School of Humanities with a focus on later historical periods heavily influenced by Roman culture (such as the medieval period) may be used to satisfy some of the degree requirements, with prior approval of the Department of Classics.

The emphasis in Classical Civilization is designed for students who do not plan to concentrate on the Classical languages or pursue graduate study in the Classics, yet wish to obtain an undergraduate degree based on a sound knowledge of the Classical world. This major requires one year of study (or its equivalent) of either Greek or Latin and courses taught in English translation concerning such topics as Classical literature, civilization, history, archaeology, art, drama, and philosophy.

Students entering UCI with previous Greek or Latin training may be given advanced standing. Usually, one year of high school work is equated with one quarter of UCI work. For example, students with one, two, or three years of high school Latin (or Greek) will enroll in Latin (or Greek) 1B, 1C, and 100, respectively. Placement may vary, depending on the extent of the student's preparation. Students with transfer credit for Greek and/or Latin may *not* repeat those courses for credit. Students with high school training in the Classical languages are encouraged to consult with the Classics faculty before enrolling in Classics courses.

The Department adheres to the policy of giving its students an opportunity to participate in the departmental decision-making process. Student representatives, elected from and by the undergraduate majors, participate in all open departmental meetings. Representatives are responsible for

maintaining close liaison with their constituency, for representing the students' interest in curriculum and personnel matters, and for the evaluation of both the academic program and the academic staff.

Inquiries regarding language placement, prerequisites, planning a program of study, or other matters related to the Department's offerings should be directed to the Office of the Chair, 400 Murray Krieger Hall, telephone 949-824-6735.

Requirements for the B.A. Degree in Classics

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

All students are subject to the Language Other Than English Placement and Progression (p. 625) **policies.**

Departmental Requirements for the Major

The B.A. program in Classics is devoted to the study of languages, literature, and culture of ancient Greece and Rome. Students select one of three emphases: (1) Greek and Latin Language and Literature; (2) Latin Language and Literature; or (3) Classical Civilization.

Emphasis in Greek and Latin Language and Literature	
A. Choose either Greek Focus or Latin Focus:	
1. Greek Focus:	
CLASSIC 36A- 36B- 36C	The Formation of Ancient Greek Society: Early Greece and The Formation of Ancient Greek Society: Late Archaic and Classical Greece and The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece
and select six upper-division courses in Greek 100–104, GREEK 120	
and select three upper-division courses in Latin 100–104	
or	
2. Latin Focus:	
CLASSIC 37A- 37B- 37C	The Formation of Ancient Roman Society: Origins to Roman Republic and The Formation of Ancient Roman Society: Roman Empire and The Formation of Ancient Roman Society: The Fall of Rome
and select six upper-division courses in Latin 100–104	
and select three upper-division courses in Greek 100–104	
B. One additional upper-division course in Greek or Latin. One upper-division Classics class (CLASSIC 140, CLASSIC 150, CLASSIC 160, CLASSIC 170, CLASSIC 176) may be substituted for the upper-division Greek or Latin course with prior approval of the departmental undergraduate advisor.	
C. Senior Capstone Requirement:	
CLASSIC 192A-CLASSIC 192B (or equivalent) taken during the senior year. Under the guidance of a faculty mentor, students design and execute a senior project. Students may plan a project centering on an area of strong interest and may write a research paper, design a creative project, a primary or secondary school curriculum, or other similar projects. All project proposals must be approved by the end of CLASSIC 192A. Six units of CLASSIC 198, CLASSIC 199, or GREEK 199 may be substituted for CLASSIC 192A-CLASSIC 192B with prior approval of the departmental undergraduate advisor.	
Emphasis in Latin Language and Literature	
A. Complete:	
CLASSIC 37A- 37B- 37C	The Formation of Ancient Roman Society: Origins to Roman Republic and The Formation of Ancient Roman Society: Roman Empire and The Formation of Ancient Roman Society: The Fall of Rome
B. Select six upper-division courses in Latin 100–104.	
C. Select four upper-division courses from the following:	
LATIN 103	Seminar in Latin Prose
LATIN 104	Seminar in Latin Poetry
CLASSIC 140	Classics and History: The Ancient World
CLASSIC 150	Classical Mythology
CLASSIC 160	Topics in Classical Literature in English Translation
CLASSIC 170	Topics in Classical Civilization
CLASSIC 176	International Studies and the Classics
Courses taken in another UCI department may be substituted with prior approval of the departmental undergraduate advisor; three of these courses must be Roman in topic (the fourth course may have a Greek topic).	
D. Senior Capstone Requirement:	

CLASSIC 192A-CLASSIC 192B (or equivalent) taken during the senior year. Under the guidance of a faculty mentor, students design and execute a senior project. Students may plan a project centering on an area of strong interest and may write a research paper, design a creative project, a primary or secondary school curriculum, or other similar projects. All project proposals must be approved by the end of CLASSIC 192A. Six units of CLASSIC 198, CLASSIC 199, LATIN 198, or LATIN 199 may be substituted for CLASSIC 192A- CLASSIC 192B with prior approval of the departmental undergraduate advisor.

Emphasis in Classical Civilization	
A. Select one of the following:	
LATIN 1A- 1B- 1C	Fundamentals of Latin and Fundamentals of Latin and Fundamentals of Latin
GREEK 1A- 1B- 1C	Fundamentals of Greek and Fundamentals of Greek and Fundamentals of Greek
or equivalent	
and select one of the following:	
CLASSIC 36A- 36B- 36C	The Formation of Ancient Greek Society: Early Greece and The Formation of Ancient Greek Society: Late Archaic and Classical Greece and The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece
CLASSIC 37A- 37B- 37C	The Formation of Ancient Roman Society: Origins to Roman Republic and The Formation of Ancient Roman Society: Roman Empire and The Formation of Ancient Roman Society: The Fall of Rome
CLASSIC 45A- 45B- 45C	Classical Mythology: The Gods and Classical Mythology: The Heroes and Classical Mythology: Ancient and Modern Perspectives of Classical Mythology
B. Select five upper-division Classics courses.	
C. Select two additional upper-division Classics courses. These courses may be in related fields such as Classical history, Classical philosophy, or Classical art and if so, may be taken in another UCI department with prior approval of the departmental undergraduate advisor.	
D. Senior Capstone Requirement:	
CLASSIC 192A-CLASSIC 192B (or equivalent) taken during the senior year. Under the guidance of a faculty mentor, students design and execute a senior project. Students may plan a project centering on an area of strong interest and may write a research paper, design a creative project, a primary or secondary school curriculum, or other similar projects. All project proposals must be approved by the end of CLASSIC 192A. Six units of CLASSIC 198 or CLASSIC 199 may be substituted for CLASSIC 192A-CLASSIC 192B with prior approval of the departmental undergraduate advisor.	

Residence Requirement for the Major: At least five upper-division courses required for the major must be completed successfully at UCI.

Planning a Program of Study

The Department believes in close consultation with students on academic advising and program planning. Students planning to major in Classics or minor in Greek, Latin, or Classical Civilization are strongly urged to consult with the departmental faculty at the earliest moment to learn about the various programs.

Study Abroad

The Department of Classics encourages students to take advantage of educational opportunities abroad while making progress toward their UCI degree. Classics majors and minors can benefit from a broader perspective of the field by studying for periods ranging from one quarter to one year at any number of universities all over the world through the UC Education Abroad Program. Students can also augment their exposure to Greek, Latin, and Classical civilizations by studying for a summer or during the academic year in Greece or Italy at programs sponsored by other academic institutions through the International Opportunities Program. To determine how study abroad can fit into a Classics major, visit the UCI Study Abroad Center's Study Abroad in Your Major (http://www.cie.uci.edu/academics/academicplanning.html) website. See the Department of Classics Undergraduate Program Director for additional information.

Career Opportunities

The study of the ancient world is a valuable possession for modern life. The discipline of Classics is an important part of a well-rounded education. Greek and Latin language and literature, history and philosophy, mythology and religion make an excellent basis for exploring all periods of Western culture down to the present day. Classics is an interdisciplinary study, exploring human culture by a variety of methods from a variety of points of view. For this reason, the student who chooses to major in Classics may find many professional opportunities open.

Graduate and professional schools in medicine, law, management, and other fields welcome students with training in Classics. So do many business corporations. Business, industry, and technology are well acquainted with the value of an education in Classics. They are aware that students with a strong background in a respected and challenging major such as Classics are disciplined thinkers who can express themselves in clear, coherent, and cogent language, capabilities that are considered valuable in future physicians, lawyers, and managers.

There are also specific vocational opportunities open to the graduate in Classics. A major in this field may lead to a career in high school teaching, or (after appropriate further study) in college or university teaching. It is also an excellent preparation for advanced study in other academic disciplines such as archaeology, history, comparative literature, philosophy, and linguistics, as well as for theological studies and for work in a wide range of the humanities and social sciences.
The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on résumé preparation, job search, and interview techniques. See the Career Center (p. 124) section for additional information.

Departmental Requirements for the Minors

The Department offers minors in Greek, Latin, Classical Civilization, and Archaeology (p. 791).

Greek	
GREEK 1A- 1B- 1C	Fundamentals of Greek and Fundamentals of Greek and Fundamentals of Greek
Select six upper-division courses in Greek 100–104. Greek 120 may be substituted for one course at the 100 level.	
Latin	
LATIN 1A- 1B- 1C	Fundamentals of Latin and Fundamentals of Latin and Fundamentals of Latin
Select six upper-division courses in Latin 100–104.	
Classical Civilization	
Select one of the following:	
CLASSIC 36A- 36B- 36C	The Formation of Ancient Greek Society: Early Greece and The Formation of Ancient Greek Society: Late Archaic and Classical Greece and The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece
CLASSIC 37A- 37B- 37C	The Formation of Ancient Roman Society: Origins to Roman Republic and The Formation of Ancient Roman Society: Roman Empire and The Formation of Ancient Roman Society: The Fall of Rome
CLASSIC 45A- 45B- 45C	Classical Mythology: The Gods and Classical Mythology: The Heroes and Classical Mythology: Ancient and Modern Perspectives of Classical Mythology
Select five upper-division Classics courses, one of which may be in a related field such as history, art history, or philosophy.	

Residence Requirement for the Minor: Four upper-division courses must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department chair.

Minor in Archaeology

The interdisciplinary minor in Archaeology introduces students to modern archaeological theory and practice. Students are exposed to different approaches and theoretical frameworks used in the reconstruction of cultures based on their material remains and examine the use of such approaches and frameworks in a comparative context that emphasizes one geographic area. Students also become familiar with the importance of understanding the historical, geographic, and environmental contexts in which a particular material culture develops and transforms. The minor helps to prepare students for advanced training in art history, the archaeology of specific geographical regions, cultural resource management, museum studies, and historical preservation. It emphasizes classical and historical archaeology of the last 5,000 years of human history.

Requirements for the Minor in Archaeology

Completion of seven courses (28 units). Only one course from requirements D–F may be lower division. Courses that are listed in the Catalogue as “topics vary” must be approved by the Department of Classics undergraduate advisor.

A. Complete:	
ANTHRO 2C	Introduction to Archaeology
B. Select one lower-division survey course on the pre-modern world from the following:	
ANTHRO 41A	Global Cultures and Society

ART HIS 40A	Ancient Egyptian, Greek, and Roman Art and Architecture
ART HIS 42A	History of Asian Art: Arts of India
HISTORY 21A	World: Innovations
C. Select one upper-division social theory course from the following:	
ANTHRO 125B	Ecological Anthropology
ANTHRO 136B	History of Anthropological Theory
HISTORY 102B	Topics in Environmental History
D. Select one course on the social study of scientific inquiry from the following:	
ANTHRO 128A	Science, Technology, Controversy
HISTORY 60	The Making of Modern Science
GEN&SEX 50A	Gender and Feminism in Everyday Life
GEN&SEX 50B	Gender and Power
GEN&SEX 60A	Gender and Science
E. Geographic specialty:	
Select two courses focusing on one particular area from the requirement F list.	
F. Geographic subspecialty:	
Select one course on an area outside the student's geographic specialty from the following:	
Africa and Asia:	
ART HIS 150	Studies in Asian Art
ART HIS 151A	Ancient China
ART HIS 175	Studies in Native and Tribal Art
HISTORY 130A	Jewish History, Ancient to Early Modern Times
HISTORY 131A	History of Zoroastrianism (or HISTORY 131B, 131C, 131D, 131E)
HISTORY 134A	Africa: Societies and Cultures
HISTORY 170D	Premodern East Asia
Greece and Rome:	
ART HIS 100	Studies in Ancient Art
ART HIS 103	Studies in Greek Art
ART HIS 107	Studies in Roman Art
CLASSIC 36A	The Formation of Ancient Greek Society: Early Greece
CLASSIC 36B	The Formation of Ancient Greek Society: Late Archaic and Classical Greece
CLASSIC 36C	The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece
CLASSIC 37A	The Formation of Ancient Roman Society: Origins to Roman Republic
CLASSIC 37B	The Formation of Ancient Roman Society: Roman Empire
CLASSIC 37C	The Formation of Ancient Roman Society: The Fall of Rome
CLASSIC 140	Classics and History: The Ancient World
CLASSIC 170	Topics in Classical Civilization
HISTORY 105B	Later Roman Empire
Americas:	
ANTHRO 141A	Ancient Civilization of Mexico and the Southwest
ANTHRO 149	Special Topics in Archaeology
ANTHRO 162A	Peoples and Cultures of Latin America
ANTHRO 162B	Indian North America
ART HIS 164A	Modern African American Art
ART HIS 175	Studies in Native and Tribal Art
HISTORY 151A	Chicana/Chicano History: Pre-Colonial to 1900
HISTORY 161A	Indian and Colonial Societies in Mexico

Residence Requirement for the Minor

Four upper-division courses required for the minor must be completed successfully at UCI. Two of the Four may be taken through the UC Education Abroad Program provided course content is approved in advance by the Humanities Undergraduate Study Office.

The University of California Tri-Campus Graduate Program in Classics

UC Irvine, UC Riverside, and UC San Diego

Michele Salzman, **Chair, Joint Executive Committee**

Faculty

Luci Berkowitz, Ph.D. Ohio State University, *Professor Emerita of Classics,* UCI (Greek literary history, computer application to literature)

Cynthia L. Claxton, Ph.D. University of Washington, *Senior Lecturer in Classics*, Undergraduate Program Director, and Humanities Language Learning Director, UCI (Greek prose, historiography)

Anthony Edwards, Ph.D. Cornell University, *Professor of Classics and Comparative Literature,* UCSD (epic, Greek comedy, critical theory)

Richard I. Frank, Ph.D. University of California, Berkeley, *Professor Emeritus of History and Classics,* UCI (Roman history, Latin elegy and satire, classical tradition)

Zina Giannopoulou, Ph.D. University of Illinois, *Associate Professor of Classics,* UCI (literary theory and Platonic hermeneutics, Classical and Hellenistic philosophy, Greek tragedy and epic)

David Glidden, Ph.D. Princeton University, *Professor Emeritus of Philosophy,* UCR (Greek and Roman philosophy)

Anna Gonosová, Ph.D. Harvard University, *Professor Emerita of Art History,* UCI (Byzantine and Medieval art)

Denver Graninger, Ph.D. Cornell University, *Assistant Professor of History,* UCR (social and political implications of Greek religion)

Monte Johnson, Ph.D. University of Toronto, *Associate Professor of Philosophy*, UCSD (ancient philosophy)

Dayna Kalleres, Ph.D. Brown University, *Associate Professor of Literature and the Study of Religion*, UCSD (early to late antique Christian literature and culture)

Andromache Karanika, Ph.D. Princeton University, *Associate Professor of Classics,* UCI (Greek epic poetry, Greek lyric, folklore)

Marianne McDonald, Ph.D. University of California, Irvine, *Professor of Theatre and Classics,* UCSD (Greek and Roman theatre, ancient drama in modern plays, film, and opera)

Margaret M. Miles, Ph.D. Princeton University, *Professor of Art History and Classics,* UCI (Greek and Roman art and archaeology, ancient Sicily, Greek religion)

Jozef Müller, Ph.D. Princeton University, *Assistant Professor of Philosophy,* UCR (Aristotle, Plato, Hellenistic Philosophy, and Neoplatonism)

Sheldon Nodelman, Ph.D. Yale University, *Associate Professor of Visual Arts,* UCSD (Classical art and architecture, Roman portraiture, critical theory)

Maria C. Pantelia, Ph.D. Ohio State University, *Department Chair* and *Professor of Classics*, *Director, Thesaurus Linguae Graecae®,* UCI (Greek epic, Hellenistic poetry, digital technologies in the humanities)

James I. Porter, Ph.D. University of California, Berkeley, *Professor of Classics and Comparative Literature and Graduate Advisor,* UCI (philosophy, literary and cultural criticism and aesthetics, history of the classical disciplines, reception of Homer)

Lisa Raphals, Ph.D. University of Chicago, *Professor of Chinese/Comparative Literature,* UCR (comparative philosophy, religion, history of science, and gender, with other interests in poetics and science fiction and media studies)

Wendy Raschke, Ph.D. State University of New York, Buffalo, *Lecturer in Classics,* UCR (Roman satire, Greek art and archaeology)

Michele Salzman, Ph.D. Bryn Mawr College, *Chair, Joint Executive Committee, UC Tri-Campus Graduate Program in Classics and Professor of History,* UCR (Late antiquity; Roman history and literature, religion, women's studies)

Gerasimos Santas, Ph.D. Cornell University, *Professor Emeritus of Philosophy,* UCI (ancient philosophy, history of philosophy, ethics)

Thomas F. Scanlon, Ph.D. Ohio State University, *Professor of Classics,* UCR (Greek and Roman historiography, ancient athletics)

Patrick Sinclair, Ph.D. Northwestern University, *Professor Emeritus of Classics,* UCI (Roman historiography, rhetoric)

Dana F. Sutton, Ph.D. University of Wisconsin, *Professor Emeritus of Classics,* UCI (Greek and Latin drama, Greek poetry, Anglo-Latin literature)

Edward Watts, Ph.D. Yale University, *Professor of History,* UCSD (intellectual and religious history of the Early Byzantine Empire)

Nicholas White, Ph.D. Harvard University, *Professor Emeritus of Philosophy and Classics,* UCI (ancient philosophy, ethics, epistemology/metaphysics)

Andrew Zissos, Ph.D. Princeton University, *Associate Professor of Classics,* UCI (Latin epic, medieval Latin, Roman culture)

The UC Tri-Campus Graduate Program in Classics is a joint venture that combines faculty in Classics and related disciplines from the three southernmost University of California campuses—UC Irvine, UC Riverside, and UC San Diego.

Students accepted into the program may enroll at any of the three campuses, but normally apply for admission through UCI, which is the main location for instruction and administration. Applications are reviewed by an admissions committee composed of faculty members from all three campuses.

The goal of the program is to provide a graduate education that unites the main currents of modern literary, cultural, and social theory with the traditional skills and methodologies of classical philology. Candidates for degrees are expected to exhibit facility in Greek and Latin, competence in research, including theoretical approaches to texts and objects, digital skills for research and teaching, and experience in teaching. These goals are realized through the four core courses (CLASSIC 200A, CLASSIC 200B, CLASSIC 200C and CLASSIC 201) and seminars (CLASSIC 220).

All entering students are admitted into the Ph.D. program. With the exception of those granted advanced standing because they hold the M.A. degree in Classics from another institution, entering students may be awarded an M.A. along the way.

Master of Arts in Classics

The requirements for the M.A. degree are two years (six quarters) of course work, followed by a comprehensive examination or completion of a Master's thesis. A reading knowledge of either German, French, Italian, or an equivalent language, demonstrated by examination or appropriate course work, is also required. M.A. students must successfully complete a minimum of 12 approved, seminar-level courses. The normal course load is three 200-level courses each quarter distributed as follows: nine quarters of CLASSIC 220; three quarters of CLASSIC 200A, CLASSIC 200B, CLASSIC 200C, and CLASSIC 201; a fourth quarter may be substituted for a CLASSIC 220. Up to one quarter of CLASSIC 290 for research and writing of the Master's thesis may be substituted for a CLASSIC 220. If remedial work is required in Greek or Latin, with the Graduate Advisor's approval, one enhanced upper-division Greek or Latin course (enrolled as a CLASSIC 280) may be substituted for a CLASSIC 220. With the Graduate Advisor's approval, M.A. students may substitute one external graduate seminar in a relevant area outside of Classics (at any of the three participating campuses) for a CLASSIC 220. At the end of a student's M.A. studies, a positive vote of the program faculty is necessary for continuation in the Ph.D. program. The expected time for completion of the M.A. degree is two years.

Doctor of Philosophy in Classics

The requirements for the Ph.D. degree are three years (nine quarters) of course work. Minimum course requirements are four quarters of CLASSIC 200A, CLASSIC 200B, CLASSIC 200C, and CLASSIC 201; 12 quarters of CLASSIC 220; two external graduate seminars, from departments or programs outside of Classics. These may be taken from the offerings of any of the three campuses. Students may take up to two quarters of enhanced upper-division Greek or Latin courses (enrolled as 280s) in place of CLASSIC 220s with permission of the Graduate Advisor if remedial work is required in Greek or Latin. Where appropriate, in the third year of course work, a second CLASSIC 200A, CLASSIC 200B, or CLASSIC 200C, may be substituted for a CLASSIC 220. CLASSIC 280, Independent Study (supervised research), may be substituted for CLASSIC 220s *only* with the permission of the Graduate Advisor. Up to 12 equivalent graduate-level courses completed elsewhere may be substituted for Tri-Campus Program courses with approval of the Joint Executive Committee. CLASSIC 280 may be used, normally in the fourth year, to provide time to work on the Greek and Latin reading lists and to prepare for Qualifying Examinations, but these courses do not count toward the required 18 courses. Students are encouraged to take courses and seminars in relevant areas outside the program at any of the three campuses. At this stage, and during the fourth year of study, students are expected to have read extensively in the primary texts, in literary history and theory, and in ancient history. In addition, experience in supervised teaching and/or research activity is normally required. In order to qualify as a candidate for the Ph.D. and enter the dissertation stage, a student must pass a set of five written qualifying examinations, including Greek translation and Latin translation; Greek history and Roman history; history of Greek and Roman literature. Once these examinations have been passed, a student must submit a substantial dissertation prospectus, comparable to a research paper in scope and detail, and pass an oral examination administered by the candidacy committee. Ph.D. students must also demonstrate reading proficiency in one modern research language (normally German and French or Italian) by the end of their second year either through appropriate course work or by examination. Proficiency in a second modern research language is expected by the end of the third year. The normative time for advancement to candidacy is four years. The normative time for completion of the Ph.D. is six years, and the maximum time permitted is eight years.

The facilities, course offerings, programs, and individual faculty mentorship of all three campuses are available to students in the UC Tri-Campus Graduate Program in Classics. In addition, program resources are enhanced through a cooperative teaching arrangement among the Tri-Campus Program and the Classics graduate program at UC Los Angeles, UC Santa Barbara, and the University of Southern California.

Thesaurus Linguae Graecae ®

The Thesaurus Linguae Graecae® (TLG®) is a research center at UCI. TLG has created a digital library of Greek literature, a unique resource for research in Greek literary and linguistic studies. Although administratively separate, TLG is closely affiliated with the Department of Classics. Information is available in the Office of Research (p. 131) section of this *Catalogue.*

Faculty

Luci B. Berkowitz, Ph.D. Ohio State University, *Professor Emerita of Classics* (Greek literary history, computer applications to literature)

Cynthia L. Claxton, Ph.D. University of Washington, *Senior Lecturer of Classics* (Greek prose, historiography)

Richard I. Frank, Ph.D. University of California, Berkeley, *Professor Emeritus of History; Classics* (Roman history, Classical tradition)

Zina Giannopoulou, Ph.D. University of Illinois at Urbana-Champaign, *Associate Professor of Classics; European Languages and Studies* (literary theory and Platonic hermeneutics, Classical and Hellenistic philosophy, Greek tragedy and epic)

Jared I. Hammad, Ph.D. University of California, Irvine, *Lecturer of Classics*

Andromache Karanika, Ph.D. Princeton University, *Associate Professor of Classics* (Greek epic poetry, Greek lyric, folklore)

Maria C. Pantelia, Ph.D. Ohio State University, *Director, Thesaurus Linguae Graecae®* and *Professor of Classics; Classics* (Greek epic, Hellenistic poetry, digital technologies in the humanities)

James Porter, Ph.D. University of California, Berkeley, *Graduate Advisor and Professor of Classics; Comparative Literature; European Languages and Studies* (philosophy, literary and cultural criticism and aesthetics, history of the classical disciplines, reception of Homer)

Patrick J. Sinclair, Ph.D. Northwestern University, *Professor Emeritus of Classics* (rhetoric, Latin prose, lexicography)

Dana Sutton, Ph.D. University of Wisconsin-Madison, *Professor Emeritus of Classics* (Greek and Latin drama, Greek poetry, Anglo-Latin literature)

Paul A. Zissos, Ph.D. Princeton University, *Associate Professor of Classics* (Latin epic, medieval Latin, Roman culture)

Classics Courses

CLASSIC 5. Building English Vocabulary through Greek and Latin Roots. 4 Units.
Formation and use of English words from Greek and Latin derivatives. Particularly useful for first-year students who wish to augment their vocabulary systematically.

CLASSIC 10. Scientific and Specialized Terminology. 4 Units.
A study of English terms derived from Greek and Latin and important to contemporary medicine, science, and other professions, with emphasis on development of word-building skills. No prior knowledge of Greek or Latin required.

CLASSIC 36A. The Formation of Ancient Greek Society: Early Greece. 4 Units.
A survey of ancient Greek civilization from its origins in the Bronze Age to the mid-Archaic period. Examines political and social history, as well as literature, art, religion, and archaeological remains.

Same as HISTORY 36A.

(IV)

CLASSIC 36B. The Formation of Ancient Greek Society: Late Archaic and Classical Greece. 4 Units.
A survey of ancient Greek civilization from the Late Archaic period to the Classical period. Focuses on major institutions and cultural phenomena as seen through the study of ancient Greek literature, history, archaeology, and religion.

Same as HISTORY 36B.

(IV)

CLASSIC 36C. The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece. 4 Units.
A survey of ancient Greek civilization from the fourth century BCE through to the Hellenistic period. Focuses on major institutions and cultural phenomena as seen through the study of ancient Greek literature, history, archaeology, and religion.

Same as HISTORY 36C.

(IV)

CLASSIC 37A. The Formation of Ancient Roman Society: Origins to Roman Republic. 4 Units.
A survey of the development of Roman civilization from its eighth century BCE beginnings to the civil wars of the first century BCE. Examines political and social history, as well as literature, art, architecture, and religion.

Same as HISTORY 37A.

(IV)

CLASSIC 37B. The Formation of Ancient Roman Society: Roman Empire. 4 Units.
A survey of Roman civilization from Augustus's consolidation of power following the civil wars of the first century BCE to the crisis of the third century CE. Includes social history, literature, art, architecture, and religion.

Same as HISTORY 37B.

(IV)

CLASSIC 37C. The Formation of Ancient Roman Society: The Fall of Rome. 4 Units.
A survey of Roman civilization from the crisis of the third century CE to the so-called "fall of Rome" in 476 CE. Examines political and social history, as well as literature, art, architecture, and religion.

Same as HISTORY 37C.

(IV)

CLASSIC 45A. Classical Mythology: The Gods. 4 Units.
An overview of the main myths of the gods of the ancient Greeks and Romans and their influence in contemporary and later literature and art. Includes readings from both ancient and modern sources. Course may be offered online.

(IV)

CLASSIC 45B. Classical Mythology: The Heroes. 4 Units.
An overview of the main myths of the heroes of the ancient Greeks and Romans and their influence in contemporary and later literature and art. Includes readings from both ancient and modern sources.

(IV)

CLASSIC 45C. Classical Mythology: Ancient and Modern Perspectives of Classical Mythology. 4 Units.
Detailed examination of key Greek and Roman myths, their interpretations, and the influence they have exerted on literature, art, and popular culture in subsequent periods.

(IV)

CLASSIC 99. Special Studies in Classics. 1-4 Units.
Lower-division level independent research with Classics faculty.

Repeatability: May be repeated for credit unlimited times.

CLASSIC 140. Classics and History: The Ancient World. 4 Units.
Selected topics in society and culture of the Graeco-Roman world. Readings in translation.

Repeatability: Unlimited as topics vary.

CLASSIC 150. Classical Mythology. 4 Units.
Selected myths and legends as used in Classical literature, and their modern interpretations.

CLASSIC 151. The Olympians. 4 Units.
Examination of the origins and development of the Greek Olympian divinities with emphasis upon those who became central figures in pre-Christian religious cults.

CLASSIC 160. Topics in Classical Literature in English Translation. 4 Units.
Studies in selected areas of Classical literature. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

CLASSIC 160W. Topics in Classical Literature in English Translation. 4 Units.
Studies in selected areas of Classical literature. Topics addressed vary each quarter.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

(Ib)

CLASSIC 170. Topics in Classical Civilization. 4 Units.
Studies in selected areas of Classical civilization. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

CLASSIC 176. International Studies and the Classics. 4 Units.
Develops a broader understanding of the formation of different cultures and countries of Classical times and their impact on the modern world.

Repeatability: Unlimited as topics vary.

CLASSIC 192A. Senior Capstone. 2 Units.
Under the guidance of a faculty mentor, majors design and execute a senior project. This project may be a research paper, dramatic production, school curriculum, etc. All projects must be approved by the faculty mentor.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Grading Option: In progress only.

CLASSIC 192B. Senior Capstone. 4 Units.
Under the guidance of a faculty mentor, majors design and execute a senior project. This project may be a research paper, dramatic production, school curriculum, etc. All projects must be approved by the faculty mentor.

Prerequisite: CLASSIC 192A. Satisfactory completion of the Lower-Division Writing requirement.

CLASSIC 198. Directed Group Study. 4 Units.
Special topics in Classical studies through directed reading and research.

Repeatability: May be repeated for credit unlimited times.

CLASSIC 199. Independent Study in Classics. 1-4 Units.
Independent research with Classics faculty.

Repeatability: May be repeated for credit unlimited times.

CLASSIC 200A. Contemporary Literary Theory and the Classics. 4 Units.
An introduction to contemporary literary theory focusing on important critical approaches; topics vary from year to year.

Repeatability: Unlimited as topics vary.

CLASSIC 200B. Diachronic Perspectives on Classical Antiquity. 4 Units.
Examines ways in which Classical texts and ideas have been received and appropriated for the diverse purposes of ancient and subsequent cultures.

Repeatability: Unlimited as topics vary.

CLASSIC 200C. Greece and Rome in Their Contemporary Cultural Contexts. 4 Units.
An introduction to the methods and perspectives of social scientific theory which can be used to study the material and social dimensions of the ancient cultures of Greece and Rome.

Repeatability: Unlimited as topics vary.

CLASSIC 201. Research and Pedagogical Tools for Classicists. 4 Units.
Covers various technical skills essential for successful research and pedagogy in Classics, including use of digital resources (e.g., bibliographical databases). Introduction to important disciplinary subfields, such as textual criticism and epigraphy. Selection of topics will be at instructor's discretion.

CLASSIC 205. CONCURRENT READING. 2 Units.
Special Instance.

Repeatability: May be repeated for credit unlimited times.

Restriction: Grad students only

CLASSIC 220. Classics Graduate Seminar. 4 Units.
Subject matter variable; mainly but not exclusively major literary topics.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

CLASSIC 280. Independent Study. 4-12 Units.
Supervised independent research. Subject varies.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate only.

CLASSIC 290. Research in Classics. 4-12 Units.
Research under Classics faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CLASSIC 299. Dissertation Research. 4-12 Units.
Dissertation research with Classics faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CLASSIC 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Greek Courses

GREEK 1A. Fundamentals of Greek. 5 Units.
Elements of Classical Greek grammar, syntax, and vocabulary.

Overlaps with GREEK S1AB.

Restriction: GREEK 1A and GREEK S1AB may not be taken for full credit.

GREEK 1B. Fundamentals of Greek. 5 Units.
Elements of Classical Greek grammar, syntax, and vocabulary.

Prerequisite: GREEK 1A. GREEK 1A with a grade of C or better.

Overlaps with GREEK S1AB, GREEK S1BC.

Restriction: GREEK 1B and GREEK S1AB and GREEK S1BC may not be taken for full credit.

GREEK 1C. Fundamentals of Greek. 5 Units.
Introduction to reading texts.

Prerequisite: GREEK 1B. GREEK 1B with a grade of C or better.

Overlaps with GREEK S1BC.

Restriction: GREEK 1C and GREEK S1BC may not be taken for full credit.

(VI)

GREEK S1AB. Fundamentals of Greek. 7.5 Units.
First half of first- year Greek in an intensified form.

Overlaps with GREEK 1A, GREEK 1B.

Restriction: GREEK S1AB and GREEK 1A and GREEK 1B may not be taken for full credit.

GREEK S1BC. Fundamentals of Greek. 7.5 Units.
Second half of first- year Greek in an intensified form.

Prerequisite: GREEK S1AB or GREEK 1B. GREEK S1AB with a grade of C or better. GREEK 1B with a grade of C or better.

Overlaps with GREEK 1C, GREEK 1B.

Restriction: GREEK S1BC and GREEK 1B and GREEK 1C may not be taken for full credit.

(VI)

GREEK 2. Introduction to Biblical Greek. 4 Units.
An inductive approach to learning to read Biblical Greek texts. Basic grammar, syntax, morphology, and vocabulary presented within the context of reading. Course is not a substitute for GREEK 1A, GREEK 1B, and GREEK 1C series.

GREEK 99. Special Studies in Greek. 1-4 Units.
Lower-division level independent research with Greek faculty.

Repeatability: May be repeated for credit unlimited times.

GREEK 100. Topics in Attic Greek. 4 Units.
Selected readings in Attic Greek prose and poetry. Authors may include Xenophon, Lysias, Antiphon, Euripides, and others. Selections from prose and poetry will be read each quarter. Grammar and syntax review included.

Prerequisite: GREEK 1C or placement into GREEK 100. GREEK 1C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GREEK 103. Seminar in Greek Prose. 4 Units.
Specialized and focused study of a particular Greek prose author or topic.

Prerequisite: GREEK 100.

Repeatability: Unlimited as topics vary.

GREEK 104. Seminar in Greek Poetry. 4 Units.
Specialized and focused study of a particular topic or author of Greek poetry.

Prerequisite: GREEK 100.

Repeatability: Unlimited as topics vary.

GREEK 120. Reading of Selected Portions of the New Testament. 4 Units.
Studies in selected areas of the New Testament. Topics addressed vary each quarter.

Prerequisite: GREEK 1C or GREEK S1BC.

Repeatability: Unlimited as topics vary.

GREEK 198. Directed Group Study. 4 Units.
Special topics in Greek culture and civilization through directed reading and research.

Repeatability: May be repeated for credit unlimited times.

GREEK 199. Independent Studies in Greek. 1-4 Units.
Independent research with Greek faculty.

Repeatability: May be repeated for credit unlimited times.

Latin Courses

LATIN 1A. Fundamentals of Latin. 5 Units.
Elements of Latin grammar, syntax, and vocabulary.

Overlaps with LATIN S1AB.

Restriction: LATIN 1A and LATIN S1AB may not be taken for full credit.

LATIN 1B. Fundamentals of Latin. 5 Units.
Elements of Latin grammar, syntax, and vocabulary.

Prerequisite: LATIN 1A. LATIN 1A with a grade of C or better.

Overlaps with LATIN S1AB, LATIN S1BC.

Restriction: LATIN 1B and LATIN S1AB and LATIN S1BC may not be taken for full credit.

LATIN 1C. Fundamentals of Latin. 5 Units.
Introduction to reading texts, including study of the poetry of Catullus and selected readings.

Prerequisite: LATIN 1B. LATIN 1B with a grade of C or better.

Overlaps with LATIN S1BC.

Restriction: LATIN 1C and LATIN S1BC may not be taken for full credit.

(VI)

LATIN S1AB. Fundamentals of Latin. 7.5 Units.
First half of first-year Latin in an intensified form.

Overlaps with LATIN 1A, LATIN 1B.

Restriction: LATIN S1AB and LATIN 1A and LATIN 1B may not be taken for full credit.

LATIN S1BC. Fundamentals of Latin . 7.5 Units.
Second half of first-year Latin in an intensified form.

Prerequisite: LATIN S1AB or LATIN 1B. LATIN S1AB with a grade of C or better. LATIN 1B with a grade of C or better.

Overlaps with LATIN 1B, LATIN 1C.

Restriction: LATIN S1BC and LATIN 1B and LATIN 1C may not be taken for full credit.

(VI)

LATIN 99. Special Studies in Latin. 1-4 Units.
Lower-division level independent research with Latin faculty.

Repeatability: May be repeated for credit unlimited times.

LATIN 100. Topics in Classical Latin. 4 Units.
Selected readings in Classical Latin prose and poetry. Authors may include Cicero, Caesar, Ovid, Catullus, and others. Selections from prose and poetry will be read each quarter. Grammar and syntax review included.

Prerequisite: LATIN 1C or placement into Latin 100. LATIN 1C with a grade of C or better.

Repeatability: Unlimited as topics vary.

LATIN 103. Seminar in Latin Prose. 4 Units.
Specialized and focused study of a particular Latin prose author or topic.

Prerequisite: LATIN 100.

Repeatability: Unlimited as topics vary.

LATIN 104. Seminar in Latin Poetry. 4 Units.
Specialized and focused study of a particular topic or author in Latin poetry.

Prerequisite: LATIN 100.

Repeatability: Unlimited as topics vary.

LATIN 198. Directed Group Study. 1-4 Units.
Special topics in Roman culture and civilization through directed reading and research.

Repeatability: May be repeated for credit unlimited times.

LATIN 199. Independent Studies in Latin. 1-4 Units.
Independent research with Latin faculty.

Repeatability: May be repeated for credit unlimited times.

Department of Comparative Literature

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http://www.humanities.uci.edu/complit/
Gabriele M. Schwab, **Department Chair**

Undergraduate Program

Comparative Literature is the study of the world through its literatures and cultures. Critical theory and translation provide frameworks for making moves: across languages, media, geographic borders, and political visions. In the Department of Comparative Literature, graduate and undergraduate students immerse themselves in national and regional literatures—of Asia, Africa, Latin America, North America, and Europe—while simultaneously placing those cultural practices within dynamic global exchanges, both historical and contemporary. Through courses, conferences, collaborative projects, and digital media, Comparative Literature at UCI advances critical cosmopolitanism—a kind of worldliness cultivated by creative engagements with power, peoples, and their symbolic practices. From novel to poetry, drama to film, monuments to political protest, comics to audio, urban space to visual culture—Comparative Literature introduces students to global cultures in the widest sense, and to the theoretical lenses essential for putting them in perspective. Writing, speaking, visualizing, blogging, social networking: through multiple media Comparative Literature students at every level interpret and engage with other academics and publics outside the academy. Together, students of Comparative Literature strive for a continually evolving practice of critical awareness and political action: a global literacy and citizenship through which to face the challenges of life and work in the twenty-first century.

The Department of Comparative Literature offers a major with three emphases: Comparative Literature and Critical Theory, Cultural Studies, and World Literature. It also offers a minor. The Department seeks to foster and maintain a lively community that includes undergraduates, graduates, and faculty, and to that end holds a variety of meetings and activities so that majors can get to know one another and other members of the Department.

Careers for the Comparative Literature Major

Courses in Comparative Literature train students to read critically, to think and write analytically in a variety of genres and media, to learn languages, and to do independent research, always in a global context. This course of study helps qualify majors for careers in education, international relations, law, government, technology, communications and media, nonprofit organizations, and publishing. In recent years graduates from the Department of Comparative Literature have won Fulbrights, gone on to law school, nursing school, and master's programs in social work or psychology, and found jobs in public relations firms, done editorial work, and conducted clinical research in pharmaceutical firms. The Comparative Literature major is also excellent preparation for an academic career. Graduates have gone on to Ph.D. programs at Michigan, Cambridge, Harvard, Princeton, UCLA, UC Berkeley, and other schools. Many also teach English, world literature, and modern foreign languages at the high-school level.

Requirements for the B.A. Degree in Comparative Literature

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Department Requirements for the Major

Students must fulfill the following requirements for the major:

A. Complete:	
COM LIT 60A	World Literature
COM LIT 60B	Reading with Theory
COM LIT 60C	Cultural Studies
B. Complete:	
COM LIT 190W	Advanced Seminar in Comparative Literature and Theory (capstone seminar)
C. Select two additional upper-division Comparative Literature courses or other upper-division courses offered in the School of Humanities.	
D. Completion of one of the three emphases:	
1. Emphasis in Comparative Literature and Critical Theory	
(a) Select five upper-division courses in Comparative Literature.	
(b) Competence in a foreign language sufficient for reading and understanding literature and culture in that language may be demonstrated through course work in one of the following ways:	
(1) Select two upper-division courses in a foreign literature or culture in which texts are read in the original, or	

(2) Select one upper-division course in a foreign literature or culture in which texts are read in the original, plus one upper-division course in a literature or culture in translation, or	
(3) Students of Chinese, Japanese, Korean, and Vietnamese take three years of language training plus one approved upper-division course in a foreign literature or culture in which texts are read in the original language or in translation, or	
(4) Students who study Greek and Latin fulfill the entire requirement by successfully completing two years of college-level language training.	
An Independent Study course may substitute for any part (i.e., either a language or literature course) of the foreign language requirement upon petition to the undergraduate studies director in Comparative Literature.	
2. Emphasis in Cultural Studies	
(a) Select five upper-division courses in Comparative Literature (three of which must be from the following list):	
COM LIT 105	Comparative Multiculturalism
COM LIT 130	Gender, Sexuality, Race, Class
COM LIT 132	Discourse, Ideologies, and Politics
COM LIT 141	Popular Culture
COM LIT 142	The Metropolis and Other Cultural Geographies
COM LIT 143	Literature, Arts, and Media
COM LIT 144	Literature, History, and Society
(b) and complete:	
COM LIT 140	Critical Cultural Studies
3. Emphasis in World Literature	
Select six upper-division courses in Comparative Literature (three of which must be from the following list):	
COM LIT 100A	Nations, Regions, and Beyond
COM LIT 105	Comparative Multiculturalism
COM LIT 107	Colonialisms and Postcolonialisms
COM LIT 108	Diasporic Literatures and Cultures
COM LIT 123	Literatures in Dialogue
COM LIT 150	Literature in Translation [1]

[1] COM LIT 150 may be replaced with other approved foreign literature-in-translation courses offered in the Humanities.

Residence Requirement for the Comparative Literature Major: COM LIT 190W and four additional upper-division courses in Comparative Literature or other upper-division courses offered in the School of Humanities must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved by the appropriate program advisor or chair.

Departmental Requirements for the Comparative Literature Minor

A. Complete:	
COM LIT 60A	World Literature
COM LIT 60B	Reading with Theory
COM LIT 60C	Cultural Studies
B. Select three upper-division courses in Comparative Literature.	
C. Select one additional upper-division course in Comparative Literature or another upper-division course offered in the School of Humanities.	

Residence Requirement for the Comparative Literature Minor: Four upper-division courses must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved by the appropriate program advisor or chair.

Planning a Program of Study

The Department offers close consultation for academic planning. All students should plan courses of study with faculty advisors. Students who wish to pursue double majors, special programs, or study abroad are urged to seek advising as early as possible.

Graduate Program

Comparative Literature faculty at UCI Irvine are particularly well equipped to guide students in Critical Theory, Cultural Studies, Rhetorical Studies, Postcolonial Theory, Critical Race Theory, Theory of the Novel, Gender and Queer Theory, and Political Theory; the faculty also have expertise in African literature, Persian literature, Irish literature, Caribbean literature, Indigenous literatures, East Asian film, Latin American literature and film, Digital Culture, and Sound Studies, and offer seminars that deal with some of the major figures and issues in contemporary theoretical debates, including Deleuze, Foucault, Gramsci, Derrida, as well as object relations theory/psychoanalysis, theories of sovereignty, state formation, and subaltern studies, and the study of the everyday. The M.A. degree is considered to be a step toward the Ph.D.; only students intending to complete the doctorate are admitted to the program. Applicants must hold a B.A. or equivalent degree and should normally have majored in Comparative Literature, English, or a

foreign literature. Majors in other disciplines (e.g., philosophy, history, visual studies, women's studies, ethnic studies) will be considered, provided that a sufficient background in literary and cultural studies and in at least one foreign language is demonstrated.

The Department offers a track in (1) Comparative Literature with an emphasis in a literary tradition, (2) Comparative Literature with an emphasis in Translation Studies, and (3) Comparative Literature with an emphasis in Critical Theory. (See the departmental graduate student handbook for a description of these emphases.) Graduate students in Comparative Literature may also complete an emphasis in Chinese Language and Literature, Classics, East Asian Cultural Studies, French, German, Japanese Language and Literature, or Spanish. Emphases in Asian American Studies, Critical Theory, Feminist Studies, and Visual Studies are available through the School of Humanities. Within these emphases, students enroll in sequences of courses that highlight individual interests and expertise. In consultation with advisors, students may also develop individualized curricula that cut across these and other offerings in the Department and School.

A minor field specialization is recommended. This optional component promotes engagement with a field or methodology outside the student's specialization. It may be of a national, historical, disciplinary, or methodological nature, with the student of western postmodern literary theory and forms engaging in a focused study of ancient Greek or Roman philosophy and culture, for example, or the student of East Asian languages and diasporic literatures may work in anthropology or ethnography. This optional component of the student's program may be fulfilled through course work, independent studies, or a Qualifying Examination topic.

Graduate students in Comparative Literature must demonstrate a command of two foreign languages consistent with their particular focus of study within the program. Competence in two foreign languages is required for the Ph.D. and is verified through examination, a longer translation project, and/or course work.

The Department recognizes that most of its graduate students intend to become teachers, and believes that graduate departments should be training college teachers as well as scholars—indeed, that teaching and scholarship complement one another. Thus candidates for the Ph.D. are expected to acquire experience in teaching, and all Ph.D. candidates gain supervised training as part of the seminar work required for the degree.

Several substantial fellowships are available to graduate students.

The Schaeffer Fellowship provides $20,000 plus fees for up to two years to Ph.D. students in Comparative Literature for whom translation will be a crucial element of their dissertation work. Scholars translating literary or historical texts or archival materials not previously reliably available in English as part of their dissertation research are eligible. Multiple fellowships per year may be awarded. Students interested in the Schaeffer Fellowship should contact the Department prior to applying to the Ph.D. program.

The Murray Krieger Fellowship in Literary Theory is intended for an outstanding entering graduate student pursuing the Ph.D. in Comparative Literature or English who demonstrates a primary interest in theory as theory relates to literary texts.

A range of other fellowships is also available to students in the Department.

Master of Arts in Comparative Literature

Entering students are assigned a faculty advisor who usually serves as the chair of the student's M.A. examination committee (which consists of at least two other members of the faculty). Nine courses and an examination are required to complete the degree. The normal academic load for both M.A. and Ph.D. candidates is three courses a quarter; teaching assistants take two courses in addition to earning credit for University teaching. Only in exceptional circumstances will students be permitted to undertake programs of less than six full courses during the academic year.

The M.A. examination is normally taken during the quarter in which the student completes course work. For the examination, the candidate submits an M.A. paper and a statement of purpose outlining past and future course work and preliminary plans for the Ph.D. qualifying examination. The M.A. examination consists of a discussion of the student's paper and the statement of purpose. In practice, it resembles an extended advising session, but with particularly close attention to the student's paper.

Doctor of Philosophy in Comparative Literature

The doctoral program in Comparative Literature prepares the student for a professional career in the research and teaching of comparative literary and cultural studies. Some students also choose to enter professions (e.g., specialized research, nonprofit organizations, international cultural exchange) in which the specialized work in a specific field indicated by an advanced degree is highly desirable.

Normally, students who have not done graduate work at another university must complete at least 18 courses. Upon completion of the course work, the student takes a qualifying examination on four areas formulated by the student in consultation with the four faculty members who make up the examination committee. The four areas are to cover a major field, a secondary field, a special topic, and theory. All four areas are to be related to each other and to work toward the dissertation. The examination is part written, part oral, according to a formula decided by the student and the committee. The examination as a whole should reflect the student's ability to work in at least two languages.

After passing the qualifying examination, the student forms a dissertation committee of three faculty members, formulates a dissertation topic in consultation with them, and submits a prospectus for the dissertation along with a preliminary bibliography. Study toward the Ph.D. culminates in the dissertation. The normative time for advancement to candidacy is four years. The normative time for completion of the Ph.D. is seven years, and the maximum time permitted is nine years.

Faculty

M. Ackbar Abbas, M.Phil. University of Hong Kong, *Professor of Comparative Literature; Culture and Theory; Film and Media Studies* (Hong Kong culture and postcolonialism, visual culture, architecture and cinema, cultural theory, globalization)

Eyal Amiran, Ph.D. University of Virginia, *Associate Professor of Comparative Literature; Film and Media Studies* (digital media theory, twentieth-century literature, narrative and textual theory, psychoanalysis, modern and postmodern intellectual history)

Luis Avilés, Ph.D. Brown University, *Associate Professor of Spanish and Portuguese; Comparative Literature; Culture and Theory; European Languages and Studies* (Golden Age literature and critical theory)

Etienne Balibar, Ph.D. Catholic University of Nijmegen, *Professor Emeritus of French; Comparative Literature* (political philosophy, critical theory, epistemology of the social sciences, ethics)

Ellen S. Burt, Ph.D. Yale University, *Professor of English; Comparative Literature; European Languages and Studies* (eighteenth-century French literature and nineteenth-century poetry)

Nahum D. Chandler, Ph.D. University of Chicago, *Associate Professor of African American Studies; Comparative Literature; Culture and Theory; European Languages and Studies* (modern intellectual history, history of the human sciences)

James A. Fujii, Ph.D. University of Chicago, *Associate Professor of Japanese; Comparative Literature* (modern Japanese literature, human-animal relations, cultural studies)

Alexander Gelley, Ph.D. Yale University, *Professor Emeritus of Comparative Literature* (eighteenth- and nineteenth-century European novel, critical theory)

David Theo Goldberg, Ph.D. The Graduate Center, City University of New York, *Director of the UC Humanities Research Institute and Professor of Comparative Literature; Anthropology; Culture and Theory* (race, racism, race and the law, political theory, South Africa, digital humanities)

Susan C. Jarratt, Ph.D. University of Texas at Austin, *Professor of Comparative Literature; Culture and Theory; Education* (histories and theories of rhetoric, ancient Greek rhetoric, writing studies)

Adriana M. Johnson, Ph.D. Duke University, *Associate Professor of Comparative Literature; Film and Media Studies; Spanish and Portuguese* (Latin American literature and film, subaltern studies, postcolonial studies, politics and culture)

Laura H. Kang, Ph.D. University of California, Santa Cruz, *Department Chair and Associate Professor of Gender and Sexuality Studies; Asian American Studies; Comparative Literature; Culture and Theory* (feminist epistemologies and theories, cultural studies, ethnic studies)

Ketu H. Katrak, Ph.D. Bryn Mawr College, *Professor of Drama; Comparative Literature* (drama and performance, African drama and Ancient Sanskrit drama [from India], postcolonial literature and theory, women writers and feminist theory)

Arlene Keizer, Ph.D. University of California, Berkeley, *Associate Professor of English; Comparative Literature; Culture and Theory* (African American and Caribbean literature, critical race and ethnic studies, feminist and psychoanalytic theory, cultural studies)

Rodrigo Lazo, Ph.D. University of Maryland, College Park, *Associate Professor of English; Comparative Literature* (hemispheric American studies, nineteenth century, Latino studies and the Americas, Cuba, immigrant literature)

Catherine Liu, Ph.D. Yale University, *Professor of Film and Media Studies; Comparative Literature* (Hou Hsiao-Hsien, labor history and theory, U.S. intellectual history and educational/cultural/media policy, culture wars, Frankfurt School, historiography and psychoanalysis, surveillance, spaces of private life, Cold War culture, neoliberalism, science fiction studies, political economy and aesthetic education)

Julia R. Lupton, Ph.D. Yale University, *Professor of English; Comparative Literature; Education* (Renaissance literature, literature and psychology)

Steven J. Mailloux, Ph.D. University of Southern California, *Professor Emeritus of English; Comparative Literature* (rhetoric, critical theory, American literature, law and literature)

J. Hillis Miller, Ph.D. Harvard University, *UCI Endowed Chair* and *Professor Emeritus of Comparative Literature; English* (Victorian literature, critical theory)

Jane O. Newman, Ph.D. Princeton University, *Department Chair and Professor of Comparative Literature; Culture and Theory; European Languages and Studies* (comparative Renaissance and early modern literature and culture [English, French, German, Italian, neo-Latin], Mediterranean Renaissance studies, Baroque, afterlives of antiquity, Walter Benjamin, Erich Auerbach, pre-modern lessons for the modern and post-modern)

Carrie J. Noland, Ph.D. Harvard University, *Professor of French; Comparative Literature* (twentieth-century poetry and poetics, avant-garde movements in art and literature, critical theory, performance studies)

Margot Norris, Ph.D. State University of New York College at Buffalo, *Professor Emerita of English; Comparative Literature* (modern Irish, British, American and continental modernism, literature and war)

Laura B. O'Connor, Ph.D. Columbia University, *Associate Professor of English; Comparative Literature* (Irish literature, twentieth-century poetry, Anglo-American modernism)

Kavita S. Philip, Ph.D. Cornell University, *Associate Professor of History; Comparative Literature; Informatics* (science and technology studies, South Asian studies, political ecology, critical studies of race, gender, colonialism, new media, globalization)

James Porter, Ph.D. University of California, Berkeley, *Graduate Advisor and Professor of Classics; Comparative Literature; European Languages and Studies* (philosophy, literary and cultural criticism and aesthetics, history of the classical disciplines, reception of Homer)

Rajagopalan Radhakrishnan, Ph.D. Binghamton University, State University of New York, *UCI Chancellor's Professor of English; Comparative Literature; Culture and Theory* (critical theory, postcoloniality, nationalisms and diasporas, poststructuralism, postmodernism, democracy and minority discourse, cultural studies, globalization and transnationalism)

Nasrin Rahimieh, Ph.D. University of Alberta, *Director of the Dr. Samuel M. Jordan Center for Persian Studies and Culture and Maseeh Chair in Persian Studies and Culture* and *Professor of Comparative Literature; Culture and Theory* (Persian literature and culture, diaspora studies, film and media, religious studies)

John C. Rowe, Ph.D. State University of New York College at Buffalo, *Professor Emeritus of English; Comparative Literature*

Annette M. Schlichter, Ph.D. Humboldt University of Berlin, *Associate Professor of Comparative Literature; Culture and Theory; European Languages and Studies* (feminist theory and criticism, queer theory, critiques of heterosexuality, contemporary American literature, gender and literature, voice studies)

Beryl F. Schlossman, Doctorate University of Paris 7, Ph.D. Johns Hopkins University, *Professor of Comparative Literature; European Languages and Studies*

Gabriele J. Schwab, Ph.D. University of Konstanz, *Department Chair and UCI Chancellor's Professor of Comparative Literature; Anthropology; Culture and Theory; European Languages and Studies* (modern literature, critical theory, psychoanalysis, comparative literature)

Martin Schwab, Ph.D. Heidelberg University, *Professor Emeritus of Philosophy; Comparative Literature; European Languages and Studies* (philosophy and aesthetics)

John H. Smith, Ph.D. Princeton University, *Professor of Comparative Literature; German* (eighteenth- and nineteenth-century literature and intellectual history, literary theory)

James Steintrager, Ph.D. Columbia University, *Professor of English; Comparative Literature; European Languages and Studies* (eighteenth-century comparative literature, ethical philosophy and literature, systems theory, amatory and erotic fiction)

Rei Terada, Ph.D. Boston University, *Professor of Comparative Literature* (theory, poststructuralism, nineteenth- and twentieth-century poetry)

Jennifer Terry, Ph.D. University of California, Santa Cruz, *Associate Professor of Gender and Sexuality Studies; Comparative Literature; Culture and Theory; Gender and Sexuality Studies* (cultural studies, social theory; science and technology studies, formations of gender and sexuality, critical approaches to modernity, American studies in transnational perspective, processes of militarization)

Ngugi Wa Thiong'O, B.A. Makerere University, *UCI Distinguished Professor of Comparative Literature; English* (African and Caribbean literatures, theater and film, performance studies, cultural and political theory)

Georges Y. Van Den Abbeele, Ph.D. Cornell University, *Dean of the School of Humanities* and *Professor of Comparative Literature; English; European Languages and Studies; Film and Media Studies*

Hu Ying, Ph.D. Princeton University, *Professor of Chinese; Comparative Literature* (narrative literature, translation theory, feminist theory)

Courses

COM LIT 8. Travels in Comparative Literature. 4 Units.
Readings in English and in English translation on such topics as love, war, cities, travel writing, politics, fantasy and science fiction, violence.

Repeatability: Unlimited as topics vary.

(IV)

COM LIT 9. Introduction to Multiculturalism. 4 Units.
Various themes and forms of literary and cultural production within a multicultural framework, including African American, Asian American, Chicano/Latino, and Native American literatures and cultures.

Repeatability: Unlimited as topics vary.

(IV, VII)

COM LIT 10. Topics in World Literature. 4 Units.
Introduction to texts from across the globe and from different historical periods. Readings in English and English translation.

Repeatability: Unlimited as topics vary.

(IV, VIII)

COM LIT 40B. Development of Drama. 4 Units.
No description.

Prerequisite: COM LIT 40A

Same as DRAMA 40B.

Restriction: Prerequisite required

(IV, VIII)

COM LIT 40C. Development of Drama. 4 Units.
No description.

Prerequisite: COM LIT 40B

Same as DRAMA 40C.

Restriction: Prerequisite required

(IV, VIII)

COM LIT 60A. World Literature. 4 Units.
An introduction to the comparative study of literatures and cultures in a global context. Studies literary texts and other media across the borders of various cultures, historical periods, and traditions. All texts are read in English translation.

(IV, VIII)

COM LIT 60B. Reading with Theory. 4 Units.
Introduction to theory and methods of literary and cultural criticism in a global context. Students read theoretical approaches to literature, culture, and ideas. Marx and Freud, e.g., may be studied alongside readings in narrative poetry, film, song lyrics, novel.

(IV, VIII)

COM LIT 60C. Cultural Studies. 4 Units.
Introduces students to a variety of cultural practices (literature, blogs, films, radio, comics) from across the globe. Focuses on the ways that context, genre, and medium (e.g., written, visual, oral) affect how these practices are produced, circulated, and received.

(IV, VIII)

COM LIT 100A. Nations, Regions, and Beyond. 4 Units.
Intensive study of national and regional cultural and literary traditions from across the globe, among them the literary and cultural production of the Middle East, Africa, Europe, the Americas, and Asia.

Repeatability: Unlimited as topics vary.

COM LIT 102. Comparative Studies in Literature and Theory. 4 Units.
In-depth discussion of special topics.

Repeatability: Unlimited as topics vary.

COM LIT 102W. Comparative Studies in Literature and Theory. 4 Units.
In-depth discussion of special topics.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

(Ib)

COM LIT 105. Comparative Multiculturalism. 4 Units.
Treats the literatures and cultures of one or more minority groups in California and the United States, including African Americans, Asian Americans, Chicano/Latinos, and Native Americans, and their relations to other national literatures.

Repeatability: Unlimited as topics vary.

COM LIT 107. Colonialisms and Postcolonialisms. 4 Units.
Explores topics such as colonialism and race, decolonization, pre- and postcoloniality, globalization, and the cultural dynamics of colonization and subjectivity.

Repeatability: Unlimited as topics vary.

COM LIT 108. Diasporic Literatures and Cultures. 4 Units.
Literatures, cultures, and histories of diasporic groups, e.g., literature of the Persian diaspora; cinema of the African diaspora.

Repeatability: Unlimited as topics vary.

COM LIT 120. Philosophy, Culture, and Literature. 4 Units.
Discusses contemporary and historical philosophical questions and figures--for example, existentialism or debates about artificial intelligence--in interaction with culture and literature.

Repeatability: Unlimited as topics vary.

COM LIT 121. Narrative, Pattern, and Text. 4 Units.
Explores textual patterns, structures, and effects. May include topics such as novel, hypertext, genre, reader responses, intertextuality.

Repeatability: Unlimited as topics vary.

COM LIT 122. Rhetorical Approaches to Literature. 4 Units.
Studies the art and politics of rhetoric and persuasion in connection with cultural works from various times and places, for example, classical political speeches, Internet journalism.

Repeatability: Unlimited as topics vary.

COM LIT 123. Literatures in Dialogue. 4 Units.
Studies how texts interact across time and space in a global context. Uses concepts of influence, imitation, and parody, to ask, for example, how the Homeric epics can help us understand Caribbean novels and U.S. movies such as Troy.

Repeatability: Unlimited as topics vary.

COM LIT 130. Gender, Sexuality, Race, Class. 4 Units.
Discusses the roles of differences such as race, class, gender, and sexuality in society, culture, and literature across the globe, covering topics such as theoretical and literary representations of queer sexuality, gender performance, critical race theory.

Repeatability: Unlimited as topics vary.

COM LIT 131. Psychoanalysis and Culture. 4 Units.
Discusses major psychoanalytic writings of Freud and others in connection with questions of culture.

Repeatability: Unlimited as topics vary.

COM LIT 132. Discourse, Ideologies, and Politics. 4 Units.
Compares ideologies and systems, e.g., nationalism and fundamentalism, as they affect literature and culture in a global context.

Repeatability: Unlimited as topics vary.

COM LIT 140. Critical Cultural Studies. 4 Units.
Introduces a variety of ways of understanding cultural phenomena in relation to different power structures. These cultural phenomena may include comics, film, literature, sports, music, festivals, telling stories, or eating out.

Repeatability: Unlimited as topics vary.

COM LIT 141. Popular Culture . 4 Units.
Critical analyses of popular culture such as comics, oral narratives, films, TV, music, in an internationl framework.

Repeatability: Unlimited as topics vary.

COM LIT 142. The Metropolis and Other Cultural Geographies. 4 Units.
Examines the relationship between space and culture; cultural production in the city, suburb, and/or countryside; spaces in texts and artifacts (film, literature, comics, photographs) in a global context.

Repeatability: Unlimited as topics vary.

COM LIT 143. Literature, Arts, and Media. 4 Units.
Explores literature and other arts and media in a global context. May include film and electronic media, fine arts, oral cultures, architecture, in an international framework.

Repeatability: Unlimited as topics vary.

COM LIT 144. Literature, History, and Society. 4 Units.
Explores the relationship between literary texts and their historical and social contexts in an international framework. Courses may address, for example, literary and cultural expressions in social revolutions or the way literary texts talk back to medicine, religion, and anthropology.

Repeatability: Unlimited as topics vary.

COM LIT 150. Literature in Translation. 4 Units.
The study of literary works in one or more genres in English translation. May be a comparative study of works from several different original languages or a concentration on works from a single cultural/linguistic tradition.

Repeatability: Unlimited as topics vary.

COM LIT 160. World Cinema . 4 Units.
Comparative analysis of contemporary film in languages other than English.

Repeatability: May be taken for credit 2 times as topics vary.

COM LIT 190W. Advanced Seminar in Comparative Literature and Theory. 4 Units.
Capstone seminar for the Comparative Literature major. Deepens understanding of the field through investigation of a special topic and a substantial research and writing project.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Comparative Literature majors have first consideration for enrollment.

(Ib)

COM LIT 198. Special Topics. 1-4 Units.
Directed group study of selected topics.

Repeatability: May be repeated for credit unlimited times.

COM LIT 199. Independent Study in Comparative Literature. 1-4 Units.
To be taken only when the materials to be studied lie outside the normal run of departmental offerings.

Repeatability: May be repeated for credit unlimited times.

COM LIT 200A. History of Comparative Literature and Introduction to Methods and Theories of CL. 4 Units.
Seminar designed to introduce graduate students in Comparative Literature to the discipline of Comparative Literature. Issues and theories of comparative literary and cultural study are covered. Strongly recommended for first and second year students before the M.A. exam and review.

Restriction: Graduate students only.

COM LIT 200B. Theories of Translation. 4 Units.
The reproduction, translation, and transfer of literary and cultural, ideological and political, and symbolic codes and texts have long been the object of study in Comparative Literature. Addresses the diverse ways in which expressive systems interact and intersect.

Repeatability: Unlimited as topics vary.

COM LIT 200C. Theories of Globalization, Inter-Nationalism, and Postcolonialism. 4 Units.
Addresses both theories and the complex history of literary and cultural expression in a national, trans-, inter-, and post-national, global frame. Topics may include: globalism and nationhood, theories of citizenship and political subjecthood, postcolonial literature and theory.

Repeatability: Unlimited as topics vary.

COM LIT 200D. Cultural Rhetoric and Rhetorical Theory. 4 Units.
Surveys contemporary theories of cultural rhetoric and the cultural rhetoric of contemporary theory, and interrogates the intersection of rhetoric, critical theory, and cultural studies. Both historical and contemporary theories of rhetoric and cultural rhetorics are studied.

Repeatability: Unlimited as topics vary.

COM LIT 210. Comparative Studies . 4 Units.
Studies in selected areas of Comparative Literature. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

COM LIT 220. Translation Workshop. 2-4 Units.
Trains students in the methodologies and practice of translation. Students focus on the translating process in a series of case studies and individual projects.

Repeatability: May be taken for credit for 8 units.

COM LIT 290. Reading and Conference. 4-12 Units.
Studies in selected areas. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

COM LIT 291. Guided Reading Course. 4 Units.
Studies in selected areas. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

COM LIT 299. Dissertation Research. 4-12 Units.
A units-only course for students in the dissertation phase.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

COM LIT 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Graduate Program in Culture and Theory

3331 Humanities Gateway; 949-824-8716
http://www.humanities.uci.edu/cultureandtheory/
James Kyung-Jin Lee, **Director**

The Ph.D. program in Culture and Theory provides a strong theoretical and critical approach to race, gender, and sexuality studies. It is the Ph.D. graduate program that is constituted of the interdisciplinary units in African American Studies, Asian American Studies, Chicano/Latino Studies, and Gender and Sexuality Studies, and works integrally with the Critical Theory Emphasis. Interdisciplinary in nature and buttressed by the established

strengths in critical theory at UCI, the program uses a problem-oriented approach to issues of race, gender, and sexuality in diasporic, transnational, and postcolonial contexts, as they are engaged broadly in the humanities, social sciences, and arts.

The Ph.D. program in Culture and Theory is designed to take full advantage of the combined expertise of the nationally and internationally prominent faculty at UCI whose work exemplifies the best in contemporary, critical, interdisciplinary studies in the humanities, social sciences, and the arts.

Admission

For information about admissions, visit the Culture and Theory Program (http://www.humanities.uci.edu/cultureandtheory/program) website or contact the Program Administrator at cultureandtheory@uci.edu, or James Kyung-Jin Lee, Program Director, at jkl@uci.edu.

Applicants must have earned a bachelor's, master's, or equivalent degree in any discipline in the humanities, arts, or social sciences.

Applicants submit official transcripts, statement of purpose, personal history (U.S. citizens and permanent residents only), three letters of recommendation, aptitude scores from the Graduate Record Examination, and a sample of written work. In addition, an interview may be required. Incoming students are admitted for fall quarter only.

To be admitted formally into the doctoral program, students must satisfactorily pass an evaluation at the end of their first year of study; this includes students who entered with an M.A. from another institution.

NOTE: Ph.D. students will receive the M.A. degree after the satisfactory completion of specified requirements, as a step toward the Ph.D. Those students who complete the M.A., but whose committees assess their work as not meeting the standard for the Ph.D., will receive a terminal M.A. degree. Students who enter the program with an M.A. from another institution may receive full or partial credit for the M.A., depending on the assessment of the Executive Committee at the time the student is admitted or on the assessment of the student's faculty advisor and committee during the student's first year. Students who receive full credit for the M.A. will be exempt from writing the master's paper. The procedure for formally requesting course credit is detailed in the Program Handbook.

Requirements

1. CLT&THY 200A, CLT&THY 200B, CLT&THY 200C. Basic to the curriculum, this three-quarter core sequence provides a solid foundation in critical and cultural theories, their philosophical genealogies and institutional histories, and interdisciplinary methodologies. The core sequence also provides the space for an intellectual coherence and cohort building for Culture and Theory graduate students who will be taking most of their other courses in supporting departments and programs.
2. Seven additional theoretical courses drawn from sets of offerings in the core supporting interdisciplinary units, the Critical Theory Emphasis, and other course offerings by core and affiliated faculty, which may include HUMAN 260A-HUMAN 260B-HUMAN 260C and HUMAN 270. One of these courses must be focused on research methods. Working closely with a faculty advisor and committee, students set up a coherent course of study related to one or more of the areas explored in the core courses. Typically the seven courses will revolve around a set of theoretical problems, e.g., feminist theory and practice, critical race studies, sexualities, postcolonialism, transnational circuits, globalization, theorizing the political, philosophical debates on ethics, the intersections of visuality and textuality, to name a few.
   The theoretical problem courses are centered on the philosophical and theoretical approaches that form the basis of much work in critical, cultural, and social theory regarding race, gender, and sexuality studies.
3. Six courses on a focused area of study. This might include concentrations within and across a department, within the Critical Theory emphasis, or in one of the core supporting interdisciplinary units. In the latter case, students will take the dedicated core courses of a Graduate Emphasis. Students could also choose to work on a coherent area of focused study devised with their advisor. The courses in a focused area of study address a particular field in which various forms of critical theory have been applied, as well as a focus on groups, nations, and regions: examples include globalization, racism and the welfare state, diasporas of particular kinds, human rights, anti-colonial resistance movements in particular regions, Muslim women and questions of the veil, the Harlem Renaissance, Asian American feminism, modernity and race.
4. CLT&THY 280. In this independent study course taken during their second year, students expand and develop a seminar paper into the master's paper, with the guidance of their faculty advisor.
5. Students must TA in a Humanities or Social Sciences department or program for a minimum of three quarters. They are also required to take the teaching seminar and workshops associated with the course in which they teach.
6. CLT&THY 290. Students take this two-unit research and prospectus seminar in their third and fourth years to enable systematic progress toward their dissertation.
7. Additionally, students are expected to participate regularly in the Culture and Theory Colloquium, a series of events comprised of lectures, conferences, and performances sponsored by the program and allied units, particularly in the social sciences and the arts. Each year, the Colloquium will also include academic workshops (e.g., faculty and student works-in-progress, as well as on grant writing and on framing the dissertation project) and professionalization workshops (e.g., preparation for conferences and, later, for the job market). In addition to exposure to diverse ideas and development of practical techniques, participation in the Colloquium is intended to strengthen relations among students, and between students and faculty who are otherwise stretched across several units and schools.

Master's Paper and M.A. Degree: During their second year, students work with their faculty advisor to expand and develop a seminar paper into a master's paper. A master's paper expands a seminar paper to a version that is of near-publishable quality. Upon completion of the paper, the faculty advisor and two other core faculty members will participate in an assessment of student's work to date.

Ph.D. students will receive the M.A. degree after the satisfactory completion of the three core courses, seven theoretical problem courses, six courses on a focused area of study, and the master's paper. Those students who complete the M.A. requirements, but whose committees assess their work as not meeting the standards for the Ph.D., will receive a terminal M.A. degree.

Qualifying Examination: Students work with a committee comprised of four faculty members, including one outside member, to draw up reading lists and head notes on four topics, as well as a dissertation prospectus. Three of these topics should relate to the major areas of study outlined in the 200A, B, C core course sequence, and one should relate to the student's area of disciplinary or focused study. The examination itself will be comprised of a written and oral exam. A student shall advance to candidacy upon successful passing of the Qualifying Exam and fulfillment of the language requirement, normally by the end of the third year. For a more detailed explanation of the Qualifying Exam, the timeline for its preparation, and composition of its committee, consult the Program Handbook.

Language Requirement: By the time they qualify for candidacy, students must demonstrate through course work or examination the ability to do research in one ancient or modern language (other than English).

Dissertation: The dissertation topic should be drawn from a focused area of study, chosen in consultation with the dissertation advisor and other committee members. Students will draw up their dissertation committee, which must consist of at least three members, at least two of whom must be drawn from the core faculty in the program whose interests match the topic chosen for the thesis. Dissertations must be approved by the student's dissertation committee and submitted to the executive committee.

Time to Degree: The normative time for advancement to candidacy is four years. The normative time for completion of the Ph.D. is seven years, and the maximum time permitted is eight years.

Faculty

M. Ackbar Abbas, M.Phil. University of Hong Kong, *Professor of Comparative Literature; Culture and Theory; Film and Media Studies* (Hong Kong culture and postcolonialism, visual culture, architecture and cinema, cultural theory, globalization)

Jonathan Alexander, Ph.D. Louisiana State University, *Campus Writing Coordinator and Professor of English; Culture and Theory; Education; Gender and Sexuality Studies* (writing studies, sexuality studies, queer theory, new media studies)

Luis Avilés, Ph.D. Brown University, *Associate Professor of Spanish and Portuguese; Comparative Literature; Culture and Theory; European Languages and Studies* (Golden Age literature and critical theory)

Christine Bacarez Balance, Ph.D. New York University, *Assistant Professor of Asian American Studies; Culture and Theory* (performance studies, critical race and ethnic studies, Filipino American studies, queer theory, popular culture)

Catherine Benamou, Ph.D. New York University, *Associate Professor of Film and Media Studies; Culture and Theory* (Hispanophone and Lusophone cinema and television, transnational media flows and ethnic spectatorship, Orson Welles and post-war maverick cinema, transculturation, cinematic memory and cultures of preservation)

Victoria Bernal, Ph.D. Northwestern University, *Associate Professor of Anthropology; Culture and Theory*

Susan C. Bibler Coutin, Ph.D. Stanford University, *Associate Dean of the Graduate Division and Professor of Criminology, Law and Society; Anthropology; Culture and Theory* (law, culture, immigration, human rights, citizenship, political activism, Central America)

Sharon B. Block, Ph.D. Princeton University, *Associate Professor of History; Culture and Theory*

Thomas D. Boellstorff, Ph.D. Stanford University, *Professor of Anthropology; Culture and Theory* (virtual worlds, sexuality, postcoloniality, HIV/AIDS, mass media and popular culture, language and culture, Indonesia, Southeast Asia)

Nahum D. Chandler, Ph.D. University of Chicago, *Associate Professor of African American Studies; Comparative Literature; Culture and Theory; European Languages and Studies* (modern intellectual history, history of the human sciences)

Vinayak Chaturvedi, Ph.D. Cambridge University, *Associate Professor of History; Culture and Theory*

Bridget R. Cooks Cumbo, Ph.D. University of Rochester, *Associate Professor of African American Studies; Art History; Culture and Theory* (African American art and culture, Black visual culture, museum criticism, film, feminist theory, postcolonial theory)

Sohail Daulatzai, Ph.D. University of Southern California, *Associate Professor of Film and Media Studies; African American Studies; Culture and Theory* (Black radicalism, Muslim studies, cultural studies, race, postcolonial theory, U.S. imperial culture, cinema, hip-hop culture)

Julia Elyachar, Ph.D. Harvard University, *Associate Professor of Anthropology; Culture and Theory*

Raúl A. Fernández, Ph.D. Claremont Graduate University, *Director of the UC-Cuba Academic Initiative* and *Professor Emeritus of Chicano/Latino Studies; Culture and Theory; Social Sciences*

Dorothy B. Fujita-Rony, Ph.D. Yale University, *Associate Professor of Asian American Studies; Culture and Theory; History* (U.S. history, Asian American studies)

David Theo Goldberg, Ph.D. The Graduate Center, City University of New York, *Director of the UC Humanities Research Institute and Professor of Comparative Literature; Anthropology; Culture and Theory* (race, racism, race and the law, political theory, South Africa, digital humanities)

Gilbert G. Gonzalez, Ph.D. University of California, Los Angeles, *Professor Emeritus of Chicano/Latino Studies; Culture and Theory; Social Sciences*

Sora Han, Ph.D. University of California, Santa Cruz, *Assistant Professor of Criminology, Law and Society; African American Studies; Culture and Theory* (law and popular culture, critical race theory, philosophies of punishment, feminism and psychoanalysis)

Douglas M. Haynes, Ph.D. University of California, Berkeley, *Associate Vice Provost for Equity and Diversity and Professor of History; African American Studies; Culture and Theory; European Languages and Studies* (social and cultural history of modern Britain, social history of modern medicine)

James D. Herbert, Ph.D. Yale University, *Associate Dean of Curricular and Student Affairs and Professor of Art History; Culture and Theory; European Languages and Studies* (modern European art)

Winston A. James, Ph.D. University of London, *Professor of History; Culture and Theory* (Caribbean, African American, African diaspora)

Susan C. Jarratt, Ph.D. University of Texas at Austin, *Professor of Comparative Literature; Culture and Theory; Education* (histories and theories of rhetoric, ancient Greek rhetoric, writing studies)

Victoria E. Johnson, Ph.D. University of Southern California, *Associate Professor of Film and Media Studies; Culture and Theory* (history and critical theory of U.S. television, popular film, and media; politics of geography, race, gender, and sexuality in popular culture; cultural studies)

Laura H. Kang, Ph.D. University of California, Santa Cruz, *Department Chair and Associate Professor of Gender and Sexuality Studies; Asian American Studies; Comparative Literature; Culture and Theory* (feminist epistemologies and theories, cultural studies, ethnic studies)

Arlene Keizer, Ph.D. University of California, Berkeley, *Associate Professor of English; Comparative Literature; Culture and Theory* (African American and Caribbean literature, critical race and ethnic studies, feminist and psychoanalytic theory, cultural studies)

Claire J. Kim, Ph.D. Yale University, *Associate Professor of Asian American Studies; Culture and Theory; Political Science*

James K. Lee, Ph.D. University of California, Los Angeles, *Department Chair and Director of the Graduate Program in Culture and Theory* and *Associate Professor of Asian American Studies; Culture and Theory* (Asian American literature and culture, contemporary U.S. literature, race and ethnic studies, urban studies, religious studies)

Julia Hyoun Joo Lee, Ph.D. University of California, Los Angeles, *Assistant Professor of Asian American Studies; Culture and Theory*

Mark A. LeVine, Ph.D. New York University, *Professor of History; Culture and Theory* (modern Middle Eastern history, Islamic studies, histories of empire and globalization)

Felicidad "Bliss" Cua Lim, Ph.D. New York University, *Associate Professor of Film and Media Studies; Culture and Theory* (Philippine cinema, temporality, postcolonial feminist theory, transnational horror and fantastic cinema, film archives)

Lilith Mahmud-Abdelwahab, Ph.D. Harvard University, *Assistant Professor of Gender and Sexuality Studies; Anthropology; Culture and Theory* (elites, race and nationalism, cultural capital, secrecy and conspiracy, feminist ethnography, critical studies of Europe)

William M. Maurer, Ph.D. Stanford University, *Dean of the School of Social Sciences* and *Professor of Anthropology; Criminology, Law and Society; Culture and Theory; School of Law* (anthropology of law, globalization, Caribbean, anthropology of money and finance, gender and kinship)

Jessica Millward, Ph.D. University of California, Los Angeles, *Assistant Professor of History; African American Studies; Culture and Theory* (U.S., African American gender and women)

Glen M. Mimura, Ph.D. University of California, Santa Cruz, *Associate Professor of Film and Media Studies; Asian American Studies; Culture and Theory* (minority, diasporic, and third cinemas, popular culture and social movements, media, race, and sexuality)

Yong Soon Min, M.F.A. University of California, Berkeley, *Professor of Art; Asian American Studies; Culture and Theory* (minority, diasporic, and third cinemas; media, nationalism, and globalization; race, sexuality, and popular culture)

Michael J. Montoya, Ph.D. Stanford University, *UCI Chancellor's Fellow* and *Associate Professor of Anthropology; Chicano/Latino Studies; Culture and Theory; Program in Public Health* (social inequality and health, race and ethnicity, social and cultural studies of science, technology, and medicine, participation of ethnic populations in biomedical research, the U.S./Mexican border, critical bioethics)

Gonzalo Navajas, Ph.D. University of California, Los Angeles, *Professor of Spanish and Portuguese; Culture and Theory; European Languages and Studies* (eighteenth through twentieth-first century Spanish literature and intellectual history, film, critical theory, cultural criticism, creative writing)

Jane O. Newman, Ph.D. Princeton University, *Department Chair and Professor of Comparative Literature; Culture and Theory; European Languages and Studies* (comparative Renaissance and early modern literature and culture [English, French, German, Italian, neo-Latin], Mediterranean Renaissance studies, Baroque, afterlives of antiquity, Walter Benjamin, Erich Auerbach, pre-modern lessons for the modern and post-modern)

Rachel S. O'Toole, Ph.D. University of North Carolina at Chapel Hill, *Associate Professor of History; Culture and Theory* (Colonial Latin America, African Diaspora, colonialisms, race, racism, indigenous histories, Atlantic worlds)

Kevin E. Olson, Ph.D. Northwestern University, *Associate Professor of Political Science; Culture and Theory* (contemporary European political theory, cultural politics, politics of diversity, popular sovereignty, citizenship, nineteenth- and twentieth-century political theory)

Kristin Peterson, Ph.D. William Marsh Rice University, *Associate Professor of Anthropology; Culture and Theory; European Languages and Studies*

Rajagopalan Radhakrishnan, Ph.D. Binghamton University, State University of New York, *UCI Chancellor's Professor of English; Comparative Literature; Culture and Theory* (critical theory, postcoloniality, nationalisms and diasporas, poststructuralism, postmodernism, democracy and minority discourse, cultural studies, globalization and transnationalism)

Nasrin Rahimieh, Ph.D. University of Alberta, *Director of the Dr. Samuel M. Jordan Center for Persian Studies and Culture and Maseeh Chair in Persian Studies and Culture* and *Professor of Comparative Literature; Culture and Theory* (Persian literature and culture, diaspora studies, film and media, religious studies)

Belinda B. Robnett-Olsen, Ph.D. University of Michigan, *Professor of Sociology; African American Studies; Culture and Theory* (social movements, race and ethnicity, gender, social change, African Americans)

Vicki L. Ruiz, Ph.D. Stanford University, *UCI Distinguished Professor of History; Chicano/Latino Studies; Culture and Theory* (Chicana/Latina history, U.S. labor, immigration, gender)

Constance J. Samaras, M.F.A. Eastern Michigan University, *Professor of Art; Culture and Theory* (photography, contemporary visual art, gender studies, culture and technology)

Jeanne Scheper, Ph.D. University of California, Santa Barbara, *Assistant Professor of Gender and Sexuality Studies; Culture and Theory* (feminist performance studies and visual culture, cultural studies, theories of race, gender and sexuality, trans-Atlantic modernism)

Annette M. Schlichter, Ph.D. Humboldt University of Berlin, *Associate Professor of Comparative Literature; Culture and Theory; European Languages and Studies* (feminist theory and criticism, queer theory, critiques of heterosexuality, contemporary American literature, gender and literature, voice studies)

Gabriele J. Schwab, Ph.D. University of Konstanz, *Department Chair and UCI Chancellor's Professor of Comparative Literature; Anthropology; Culture and Theory; European Languages and Studies* (modern literature, critical theory, psychoanalysis, comparative literature)

Jared Charles Sexton, Ph.D. University of California, Berkeley, *Program Director and Associate Professor of African American Studies; Culture and Theory; Film and Media Studies* (race and sexuality, policing and imprisonment, contemporary U.S. cinema and political culture, multiracial coalition, critical theory)

Jennifer Terry, Ph.D. University of California, Santa Cruz, *Associate Professor of Gender and Sexuality Studies; Comparative Literature; Culture and Theory; Gender and Sexuality Studies* (cultural studies, social theory; science and technology studies, formations of gender and sexuality, critical approaches to modernity, American studies in transnational perspective, processes of militarization)

Heidi E. Tinsman, Ph.D. Yale University, *Professor of History; Culture and Theory*

Keith Topper, Ph.D. University of California, Los Angeles, *Associate Professor of Political Science; Culture and Theory* (political theory, critical theory, poststructuralism, theories of power, language and politics, theory and politics of interpretation, politics of culture, philosophy of the social sciences)

Rudolfo D. Torres, Ph.D. Claremont Graduate University, *Professor of Planning, Policy, and Design; Culture and Theory*

Roxanne Varzi, Ph.D. Columbia University, *Associate Professor of Anthropology; Culture and Theory; Film and Media Studies* (Islam, visual anthropology, anthropology of war, media, youth culture, religion and public space, Iran)

Linda T. Võ, Ph.D. University of California, San Diego, *Associate Professor of Asian American Studies; Culture and Theory; Planning, Policy, and Design; Sociology* (race and ethnic relations, immigrants and refugees, gender relations, community and urban studies)

Frank B. Wilderson III, Ph.D. University of California, Berkeley, *Professor of African American Studies; Culture and Theory; Drama; Film and Media Studies* (film theory, Marxism, dramaturgy, black political theory)

Tiffany Willoughby-Herard, Ph.D. University of California, Santa Barbara, *Assistant Professor of African American Studies; Culture and Theory* (South Africa, poor whites, race in foreign policy, diaspora, comparative racial politics, third world feminisms, feminist pedagogy, black political thought)

Mei Zhan, Ph.D. Standford University, *Associate Professor of Anthropology; Culture and Theory* (medical anthropology, cultural and social studies of science, globalization, transnationalism, gender, China and United States)

Courses

CLT&THY 200A. Identity and Difference. 4 Units.
Introduction to scholarship on social movements, institutions, and theories relating to the rise of identities based on race, gender, ethnicity, class, and sexuality.

CLT&THY 200B. Power and Resistance. 4 Units.
Focusing on questions of power and resistance, examines theorists, mostly from the middle twentieth century to the twenty-first century, whose work has led to the study of revolutions and resistance movements and their centrality in cultural theory.

CLT&THY 200C. Movement and Displacement. 4 Units.
Focusing on epistemologies of contemporary cultural theory, probes the genealogies of ideas of movement and settlement. Examines ways in which epistemologies of movement and displacement produce texts and contexts of knowledge formation.

CLT&THY 280. Independent Study. 4 Units.
Limited to students who have not yet received the M.A. degree.

Repeatability: May be repeated for credit unlimited times.

CLT&THY 289. Topics in Culture and Theory. 4 Units.
Seminars on various topics in Culture and Theory.

Repeatability: Unlimited as topics vary.

CLT&THY 290. Research and Prospectus Seminar. 2 Units.
Bi-weekly seminar required for third- and/or fourth-year students. Students make presentations of dissertation prospectus for discussion. All graduate students welcome to attend and participate. Meant especially for students preparing for formal presentation of prospectus.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

CLT&THY 298. Directed Reading. 4-12 Units.
Directed readings on a specific topic agreed upon by students and their instructors. Limited to students who have completed their M.A. degree and are preparing for their qualifying exam.

Prerequisite: Completion of the M.A. degree.

Repeatability: May be repeated for credit unlimited times.

CLT&THY 299. Dissertation Research. 4-12 Units.
Dissertation research in Culture and Theory.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Department of East Asian Languages and Literatures

443 Humanities Instructional Building; 949-824-2227
http://www.humanities.uci.edu/eastasian/
Michael Fuller, **Department Chair**

Contemporary East Asian societies are vibrant and complex, and they are heirs to rich cultural traditions that continue to inform the present. The four majors offered by the Department of East Asian Languages and Literatures provide students the opportunity to explore these societies and cultures in all their diversity, and to pursue their study of East Asia across national and regional boundaries. The Department houses both undergraduate and graduate (Ph.D.) programs.

Undergraduate Program

The Department offers four undergraduate majors: the B.A. degree program in Chinese Studies (with two emphases: Chinese Language and Literature (p. 815), and Chinese Culture and Society (p. 816)); the B.A. degree program in East Asian Cultures (p. 816); the B.A. degree program in

Japanese Language and Literature (p. 817); and the B.A. degree program in Korean Literature and Culture (p. 817). In addition, minors are offered in Chinese Language and Literature, Japanese Language and Literature, and Korean Literature and Culture.

Planning a Program of Study

The student should plan a coherent program that both fulfills the requirements of the major and covers the student's areas of interest in allied fields outside East Asian Languages and Literatures.

Students who plan to enroll in a language course in Chinese, Japanese, Korean, or Vietnamese will be placed on the basis of a written test and oral interview in the respective language, regardless of their language background or proficiency, unless they have taken previous course work in the same language at UCI. (The number of years of high school-level study is taken into account only as a reference.) The written test is typically administered through the Testing Office; the oral interview, by the appropriate faculty, who will evaluate students' oral/aural abilities in the target language and consider results from the written placement test and any prior exposure to the language to determine their proper placement level. In the case of some languages, students in the first-year levels will be placed in either heritage classes (for students who have had exposure to the language in question through family ties) or non-heritage classes (for students with no exposure).

The faculty encourages students who are serious about improving their East Asian language ability in reading, writing, and speaking to take advantage of opportunities to immerse themselves in the relevant language by studying abroad through the University's Education Abroad Program (UCEAP) or through the International Opportunities Program (IOP). Students can gain substantially from first-hand experience of the culture they have studied academically while still making progress toward their UCI degree. Programs are available for one quarter, one semester, or one year. More information is available from academic counselors or at the Study Abroad Program (http://www.studyabroad.uci.edu) website.

Careers for the Majors

Studies in the East Asian programs will give students the preparation needed to pursue a career involving these important Pacific Rim nations. In an era in which the United States is seeking to come to grips with the challenges and opportunities presented by this vital area of the world, the training in language, literature, and culture offered by the departmental majors will serve students well in a variety of endeavors, such as international business, law, government service, journalism, teaching, and other careers involved with public affairs.

Focused undergraduate study in the language and literary and cultural traditions of an East Asian country is also a valuable preparation for those students intent upon pursuing graduate study in any field of East Asian language or culture.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center (p. 124) section for additional information.

Major in Chinese Studies

The major in Chinese Studies offers two emphases: Chinese Language and Literature, and Chinese Culture and Society. The Language and Literature emphasis enables students to understand the extensive and rich literary, historical, social, and aesthetic achievements of China by studying its language, literature, film, religion, and other cultural accomplishments in depth. The Culture and Society emphasis stresses a multidisciplinary examination of modern Chinese culture and society that includes the perspectives of both the humanities and the social sciences. The major emphasizes the complementarity of these approaches in understanding the complexity of the forces that have shaped contemporary China.

Requirements for the B.A. Degree in Chinese Studies

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

All students are subject to the Language Other Than English Placement and Progression (p. 625) **policies.**

Departmental Requirements for the Major in Chinese Studies

Emphasis in Chinese Language and Literature	
A. Complete:	
CHINESE 3C	Advanced Mandarin Chinese
B. Complete:	
CHINESE 100A- 100B- 100C	Classical Chinese and Classical Chinese and Classical Chinese
C. Complete:	
CHINESE 101A- 101B- 101C	Fourth-Year Mandarin Chinese and Fourth-Year Mandarin Chinese and Fourth-Year Mandarin Chinese
D. Complete:	
E ASIAN 190	Junior-Senior Colloquium

E. Select one upper-division course dealing with the literature or culture of another East Asian country.	
F. Select four additional courses in Chinese literature, history, art history, linguistics, comparative literature, film and media, religion, gender studies, or philosophy, of which one may be a lower-division East Asian course offered by the Department.	

Emphasis in Chinese Culture and Society

A. Complete one of the following:	
CHINESE 2C	Intermediate Mandarin Chinese
CHINESE 2DC	Intermediate Mandarin Chinese - Dialect Background Track
CHINESE 2MC	Intermediate Mandarin Chinese - Mandarin Background Track
or equivalent.	
B. Complete:	
HISTORY 171D- 171E	Chinese History to 1800 and Chinese History: 1800-1949
C. Complete:	
E ASIAN 190	Junior-Senior Colloquium
D. Select three upper-division courses on China offered by the Department.	
E. Select two approved upper-division courses dealing with the literature, religion, culture, history, or society of another East Asian country.	
F. Select two approved upper-division courses in the School of Sociall Sciences dealing with China.	
G. Select two additional courses in Chinese language, literature, history, art history, linguistics, comparative literature, film and media, religion, gender studies, or philosophy, of which one may be a lower-division East Asian course offered by the Department. (Courses from the School of Social Sciences may be substituted with departmental approval by petition.)	

Residence Requirement for the Major: At least five upper-division courses required for the major must be completed successfully at UCI. Students are encouraged, however, to complete up to a year of their language study in approved programs of study abroad.

Major in East Asian Cultures

The curriculum for the major in East Asian Cultures focuses on the regional dynamics of cultural and social transformations in East Asia. Students benefit from an multidisciplinary approach to the study of intra-regional relationships between East Asian countries in order to situate them in their broader global contexts. By integrating the study of East Asia with theoretical issues that shape the study of world culture in general, students gain the dual perspectives derived from examining East Asian cultures on their own terms and from recognizing the affinities these civilizations share, and the conflicts they encounter in their interactions with the rest of the world.

Requirements for the B.A. Degree in East Asian Cultures

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

All students are subject to the Language Other Than English Placement and Progression (p. 625) **policies.**

Departmental Requirements for the Major in East Asian Cultures

A. Complete one of the following:	
CHINESE 2C	Intermediate Mandarin Chinese
CHINESE 2DC	Intermediate Mandarin Chinese - Dialect Background Track
CHINESE 2MC	Intermediate Mandarin Chinese - Mandarin Background Track
JAPANSE 2C	Intermediate Japanese
KOREAN 2C	Intermediate Korean
KOREAN 2KC	Intermediate Korean for Students with a Previous Background in Korean
B. Select two quarters of:	
E ASIAN 155	Topics in Cultural Studies in East Asia
C. Complete:	
E ASIAN 190	Junior-Senior Colloquium
D. Select nine additional upper-division courses in the areas of East Asian literature, culture, history, art history, linguistics, film and media, religion, philosophy, gender studies, or comparative literature, at least three of which must pertain to a country other than the one of language specialization. Up to four of these courses (or more by petition) may be taken outside the Department, with the approval of the undergraduate advisor.	

Residence Requirement for the Major: At least five upper-division courses required for the major must be completed successfully at UCI. Students are encouraged, however, to complete up to a year of their language study in approved programs of study abroad.

Major in Japanese Language and Literature

The curriculum for Japanese Language and Literature enables students to understand the extensive and rich literary, historical, social, and aesthetic achievements of Japan by studying its language, literature, film, religion, and other cultural accomplishments in depth.

Requirements for the B.A. Degree in Japanese Language and Literature

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

All students are subject to the Language Other Than English Placement and Progression (p. 625) **policies.**

Departmental Requirements for the Major in Japanese Language and Literature

A. Complete:	
JAPANSE 3C	Advanced Japanese
B. Complete:	
E ASIAN 190	Junior-Senior Colloquium
C. Select one of the following:	
Two upper-division courses dealing with premodern Japanese literature or culture or	
JAPANSE 100A- 100B	Classical Japanese and Classical Japanese
D. Select one of the following:	
One upper-division course dealign with modern Japanese literature and culture	
JAPANSE 101A	Fourth Year Japanese
JAPANSE 101B	Fourth Year Japanese
JAPANSE 101C	Fourth Year Japanese
E. Select one upper-division course dealing with the literature or culture of another East Asian country.	
F. Select six additional courses in Japanese literature, culture, history, art history, linguistics, film and media, religion, philosophy, gender studies, or comparative literature, of which one may be a lower-division East Asian course offered by the Department.	

Residence Requirement for the Major: At least five upper-division courses required for the major must be completed successfully at UCI. Students are encouraged, however, to complete up to a year of their language study in approved programs of study abroad.

Major in Korean Literature and Culture

The curriculum for Korean Literature and Culture enables students to understand the extensive and rich literary, historical, social, and aesthetic achievements of Korea by studying its language, literature, film, religion, and other cultural accomplishments in depth.

Requirements for the B.A. Degree in Korean Literature and Culture

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

All students are subject to the Language Other Than English Placement and Progression (p. 625) **policies.**

Departmental Requirements for the Major in Korean Literature and Culture

A. Complete:	
KOREAN 3C	Advanced Korean
B. Complete:	
E ASIAN 130	Topics in Korean Society and Culture
E ASIAN 140	Topics in Korean Literature and Society
E ASIAN 190	Junior-Senior Colloquium
C. Select five courses in Korean literature, culture, history, art history, linguistics, film and media, religion, philosophy, gender studies, or comparative literature, of which one may be a lower-division East Asian course offered by the Department.	
D. Select three upper-division courses dealing with the literature or culture of another East Asian country.	

Residence Requirement for the Major: At least five upper-division courses required for the major must be completed successfully at UCI. Students are encouraged, however, to complete up to a year of their language study in approved programs of study abroad.

Requirements for the Minors

Three separate minors: Chinese Language and Literature (p. 815), Japanese Language and Literature (p. 817), and Korean Literature and Culture (p. 818).

Requirements for the Chinese Language and Literature Minor

A. Select a three-quarter sequence from the following:

CHINESE 3A- 3B- 3C	Advanced Mandarin Chinese and Advanced Mandarin Chinese and Advanced Mandarin Chinese
CHINESE 100A- 100B- 100C	Classical Chinese and Classical Chinese and Classical Chinese
CHINESE 101A- 101B- 101C	Fourth-Year Mandarin Chinese and Fourth-Year Mandarin Chinese and Fourth-Year Mandarin Chinese

B. Select four courses from the East Asian Languages and Literatures offerings on Chinese topics and/or the upper-division courses in Chinese.

Residence Requirement for the Minor: A minimum of four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department chair.

Requirements for the Japanese Language and Literature Minor

A. Select one sequence from the following:

JAPANSE 3A- 3B- 3C	Advanced Japanese and Advanced Japanese and Advanced Japanese
JAPANSE 100A- 100B	Classical Japanese and Classical Japanese
JAPANSE 101A- 101B- 101C	Fourth Year Japanese and Fourth Year Japanese and Fourth Year Japanese

B. Select four courses (or five courses, if the 100A-B sequence has been chosen) from the East Asian Languages and Literatures offerings on Japanese topics and/or the upper-division courses in Japanese.

Residence Requirement for the Minor: A minimum of four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department chair.

Requirements for the Korean Language and Literature Minor

A. Select a three-quarter sequence from the following:

KOREAN 2A- 2B- 2C	Intermediate Korean and Intermediate Korean and Intermediate Korean
KOREAN 2KA- 2KB- 2KC	Intermediate Korean for Students with a Previous Background in Korean and Intermediate Korean for Students with a Previous Background in Korean and Intermediate Korean for Students with a Previous Background in Korean
or equivalent	

B. Complete:

E ASIAN 130	Topics in Korean Society and Culture
E ASIAN 140	Topics in Korean Literature and Society

C. Select one course dealing with Korean visual culture (examples: Korean cinema, visual art)

D. Select four upper-division courses selected from the East Asian Languages and Literatures offerings on Korean topics.

Residence Requirement for the Minor: A minimum of four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department chair.

Graduate Program

The Department offers a Ph.D. degree program in East Asian Languages and Literatures, with concentrations in Chinese, Japanese, and East Asian Cultural Studies. The M.A. degree may be awarded to Ph.D. students in progress toward the doctoral degree.

The graduate program emphasizes rigorous training in language and textual analysis, with equal attention given to the historical, social, and cultural dimensions of literary study. In addition to more traditional vocabularies of criticism and theory, the curriculum encourages exploration of recent challenges to established conceptual and methodological frameworks. The program builds on the foundation of a faculty whose research interests engage major issues in Chinese, Japanese, and Korean literature and culture, while developing connections with the larger community of scholarship at UCI.

Because the graduate program is designed to prepare students for both college-level teaching and advanced research, each student will be required to serve, under direct faculty supervision, as a teaching assistant in an appropriate undergraduate course offered through the Department. As noted below, one quarter's worth of this teaching may be counted as part of the required course work toward completion of the degree.

Assuming that a student is enrolled full-time and enters the program with no major deficiencies in background or training, the normative time needed to complete the Ph.D. degree is seven years from matriculation. The maximum time permitted is eight years. For students admitted with an M.A. degree or its equivalent from another institution, certain course requirements may be waived upon the approval of a faculty advisory committee, with a consequent reduction in normative time for completion of the Ph.D.

The following graduate emphases are available: Asian American (see the Asian American Studies section); Critical Theory (see the Humanities Special Programs section); Feminist Studies (see the Gender and Sexuality Studies section); Visual Studies (see the Visual Studies section); and Comparative Literature (see below, following the Ph.D. program requirements).

Master of Arts in East Asian Languages and Literatures

Students are not admitted to an M.A.-only degree program but may be granted an M.A. in recognition of progress toward the Ph.D., normally after six quarters of course work and submission of two approved seminar papers, which will serve as the M.A. examination.

Doctor of Philosophy in East Asian Languages and Literatures

Requirements for Admission

In addition to meeting the general requirements for admission to graduate study at UCI, specified by the Graduate Division, all students must present the following for review by an admissions committee composed of members of the faculty in East Asian Languages and Literatures: records of prior scholastic performance, including all college transcripts; three letters of recommendation; samples of written work; and aptitude scores from the Graduate Record Examination. Although the Department does not require entering students to have received an undergraduate degree comparable to its own, it recommends as much preparation in an East Asian language as possible. It also welcomes applications from students whose language training may not be as extensive but who have shown promise in the study of related disciplines. The study of appropriate European languages is encouraged as well.

General Requirements

Upon admission to the program, the student is assigned a graduate advisor, in consultation with whom an advisory committee consisting of two additional faculty members is constituted. The student and committee plan a program of study consisting of 15 graduate courses.

Before advancement to candidacy (normally after three years of graduate study), the student must have (1) completed required course work as detailed below; (2) prepared one paper of publishable quality; (3) completed language requirements as listed below; (4) prepared five research reports on current scholarly articles to be decided upon in consultation with the faculty advisor; and (5) passed the qualifying examinations on four topics to be selected in consultation with the faculty advisory committee no more than two quarters before the examinations are to be taken. At least one of the topics should be related directly to the student's projected area of specialization in dissertation research.

Students who complete the qualifying examinations successfully are advanced to candidacy for the Ph.D. degree. The normative time for advancement to candidacy is four years. They then write their doctoral dissertation on a topic developed in consultation with the faculty advisory committee. Some period of study abroad, for enhancement of language proficiency and/or dissertation research, is strongly encouraged.

Concentration in Chinese

Course Work

Select three courses from Chinese 201-204.	
Select either:	
CHINESE 211A- 211B	Studies in Traditional Chinese Narrative and Prose and Studies in Traditional Chinese Narrative and Prose
or	

CHINESE 212A- 212B	Studies in Traditional Chinese Poetry and Studies in Traditional Chinese Poetry
CHINESE 213A- 213B	Studies in Modern Chinese Literature and Studies in Modern Chinese Literature
CHINESE 214	Studies in Chinese Literature and Cultural Theory
and select seven additional courses (of which one may be in the graduate teaching program) as determined upon consultation with faculty advisors. At least three of these additional courses must be taken outside the Department on a relevant topic in literary or cultural theory. Courses taken to fulfill language requirements may not be counted toward the course work requirement.	

Language Requirements. Before advancement to candidacy, all students must have completed four years of modern Chinese, two years of classical Chinese, and three years of modern Japanese, and have demonstrated reading proficiency in another appropriate language. Much of this work may, of course, have been completed prior to admission. In addition, the requirement for a second year of classical Chinese may be fulfilled by taking three reading courses in classical literature.

Concentration in Japanese

Course Work

Select three courses from Japanese 201-205.	
Select either:	
JAPANSE 211A- 211B	Studies in Traditional Japanese Prose and Studies in Traditional Japanese Prose
or	
JAPANSE 212A- 212B	Studies in Traditional Japanese Poetry or Drama and Studies in Traditional Japanese Poetry or Drama
JAPANSE 213A- 213B	Studies in Modern Japanese Literature and Studies in Modern Japanese Literature
JAPANSE 214	Studies in Japanese Literary and Cultural Theory
and select seven additional courses (of which one may be in the graduate teaching program) as determined upon consultation with faculty advisors. At least three of these additional courses must be taken outside the Department on relevant topics in literary or cultural theory. Courses taken to fulfill language requirements may not be counted toward the course work requirement.	

Language Requirements. Before advancement to candidacy, all students must have completed four years of modern Japanese and one year of classical Japanese, and have demonstrated reading proficiency in another appropriate language. In addition, students emphasizing classical Japanese are required to take one year of classical Chinese. Much of this work may, of course, have been completed prior to admission.

Concentration in East Asian Cultural Studies

Course Work

Select four Theory and Cultural Studies graduate courses
Select four graduate courses in Chinese, Japanese, or Korean
and select seven additional courses (of which one may be in the graduate teaching program) as determined upon consultation with faculty advisors. At least three of these additional courses must be taken outside the Department on relevant topics. Courses taken to fulfill language requirements may not be counted toward the course work requirement.

Other Requirements. Before advancement to candidacy, all students must have completed examinations in four areas as determined upon consultation with faculty advisors. These areas will vary according to the interests of the student; examples might be Colonial and Postcolonial Theories; Modernity and East Asia; Critique of Asian Studies as a field; Gender, Class and East Asia; Visual Culture and Japan; and Theorizing Minority Status in East Asia. All students must have completed four years of Chinese, Japanese, or Korean, or the equivalent. Three years or the equivalent in a second East Asian language is recommended. Much of this work may, of course, have been completed prior to admission.

Graduate Emphasis in Comparative Literature

A student must submit an application for the emphasis to the Graduate Advisor in East Asian Languages and Literatures, and the Department tracks the student's progress and fulfillment of requirements. Upon graduation, students receive a letter from the Graduate Advisor certifying completion of the emphasis.

Course Work

Select at least five graduate courses in the Department of Comparative Literature: [1]
One of the five courses should be:

CRITISM 220A	Studies in Literary Theory and Its History
COM LIT 200A	History of Comparative Literature and Introduction to Methods and Theories of CL (or COM LIT 200B or COM LIT 200C)
At least three of the courses should have a Comparative Literature (CL) designation.	
One of the courses could be:	
HUMAN 270	Advanced Critical Theory

[1] Three of which may be counted toward the seven electives required for the Ph.D. in East Asian Languages and Literatures.

Qualifying Examination and Dissertation. One topic on the Ph.D. Qualifying Examination should be on a Comparative Literature topic and should be prepared with a professor from the Comparative Literature program who will serve as a member of the student's examination committee. The student should be able to demonstrate some expertise in comparative critical methodologies as well as knowledge of a literature and tradition other than those in East Asian. One member of the student's dissertation committee will normally be from the Comparative Literature program.

Faculty

Jessica Chen, B.A. , *Lecturer of Chinese*

Hyunju Choe, M.A. University of Utah, *Lecturer of Korean*

Chungmoo Choi, Ph.D. Indiana University, *Associate Professor of Korean Culture* (modern Korea, postcolonial and colonial discourse, popular culture, anthropology)

Ryuko Flores, M.A. University of California, Los Angeles, *Lecturer of Japanese*

Edward B. Fowler, Ph.D. University of California, Berkeley, *Professor Emeritus of Japanese* (modern Japanese literature, cultural studies, film)

James A. Fujii, Ph.D. University of Chicago, *Associate Professor of Japanese; Comparative Literature* (modern Japanese literature, human-animal relations, cultural studies)

Michael A. Fuller, Ph.D. Yale University, *Department Chair and Professor of East Asian Languages and Literature; Chinese* (Chinese poetry and poetics, the cultural and intellectual contexts for poetry, aesthetic theory, linguistic issues in classical Chinese)

Ruohmei Hsieh, M.A. State University of New York at Stony Brook, *Lecturer of Chinese*

Martin W. Huang, Ph.D. Washington University, *Professor of Chinese* (narrative theories and traditional Chinese fiction)

Hyun Young Chung Hyun, M.A. Yonsei University, *Lecturer of Korean*

Kyung Hyun Kim, Ph.D. University of Southern California, *Professor of Korean Culture; Asian American Studies; Film and Media Studies* (East Asian cinema, modern Korea, critical theory)

Judith F. Kimura, B.A. University of California, Irvine, *Lecturer of East Asian Languages and Literature*

Susan B. Klein, Ph.D. Cornell University, *Associate Professor of Japanese* (premodern and modern theater and dance, Japanese religions, feminist critical theory)

Jung Hwa Lee, M.A. California State University, Fullerton, *Lecturer of Korean*

Ayako Nagai, M.A. University of Illinois at Urbana-Champaign, *Lecturer of Japanese*

Hyun Seon Park, Ph.D. University of California, Irvine, *Lecturer of East Asian Languages and Literature*

Ying Y. Petersen, Ph.D. University of California, Berkeley, *Lecturer of Chinese*

Hidemi Riggs, Ph.D. University of California, Los Angeles, *Lecturer of Japanese*

Bert Scruggs, Ph.D. University of Pennsylvania, *Assistant Professor of Chinese* (contemporary fiction, film, ecocriticism)

Eiko Sithi-Amnuai, B.A. , *Lecturer of Japanese*

Serk Bae Suh, Ph.D. University of California, Los Angeles, *Associate Professor of East Asian Languages and Literature* (Modern Korean and Japanese literary studies and intellectual history)

John D. Swain, Ph.D. University of California, Los Angeles, *Lecturer of East Asian Languages and Literature*

Hu Ying, Ph.D. Princeton University, *Professor of Chinese; Comparative Literature* (narrative literature, translation theory, feminist theory)

Chinese Courses

CHINESE 1A. Fundamental Mandarin Chinese. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with no previous experience in any dialect of Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: Placement into CHINESE 1A.

Overlaps with CHINESE S1AB, CHINESE 1MA, CHINESE 1DA.

Restriction: CHINESE 1A and CHINESE 1DA and CHINESE 1MA and CHINESE S1AB may not be taken for full credit.

CHINESE 1B. Fundamental Mandarin Chinese. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with no previous experience in any dialect of Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1A or placement into CHINESE 1B. CHINESE 1A with a grade of C or better.

Overlaps with CHINESE S1AB, CHINESE S1BC, CHINESE 1MB, CHINESE 1DB.

Restriction: CHINESE 1B and CHINESE 1DB and CHINESE 1MB and CHINESE S1AB and CHINESE S1BC may not be taken for full credit.

CHINESE 1C. Fundamental Mandarin Chinese. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with no previous experience in any dialect of Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1B or CHINESE S1AB or placement in CHINESE 1C. CHINESE 1B with a grade of C or better. CHINESE S1AB with a grade of C or better.

Overlaps with CHINESE 1DC, CHINESE 1MC, CHINESE S1BC.

Restriction: CHINESE 1C and CHINESE 1DC and CHINESE 1MC and CHINESE S1BC may not be taken for full credit.

(VI)

CHINESE 1DA. Fundamentals of Mandarin Chinese - Dialect Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in a Chinese dialect other than Mandarin. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: Placement into CHINESE 1DA.

Overlaps with CHINESE 1A, CHINESE S1AB, CHINESE 1MA.

Restriction: CHINESE 1DA and CHINESE 1MA and CHINESE 1A and CHINESE S1AB may not be taken for full credit.

CHINESE 1DB. Fundamentals of Mandarin Chinese - Dialect Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in a Chinese dialect other than Mandarin. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1DA or placement into CHINESE 1DB. CHINESE 1DA with a grade of C or better.

Overlaps with CHINESE 1B, CHINESE S1AB, CHINESE S1BC, CHINESE 1MB.

Restriction: CHINESE 1DB and CHINESE 1MB and CHINESE 1B and CHINESE S1AB and CHINESE S1BC may not be taken for full credit.

CHINESE 1DC. Fundamentals of Mandarin Chinese - Dialect Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in a Chinese dialect other than Mandarin. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1DB or placement into CHINESE 1DC. CHINESE 1DB with a grade of C or better.

Overlaps with CHINESE S1BC, CHINESE 1MC, CHINESE 1C.

Restriction: CHINESE 1DC and CHINESE 1MC and CHINESE 1C and CHINESE S1BC may not be taken for full credit.

(VI)

CHINESE 1MA. Fundamentals of Mandarin Chinese - Mandarin Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in Mandarin Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: Placement into CHINESE 1MA.

Overlaps with CHINESE 1DA, CHINESE 1A, CHINESE S1AB.

Restriction: CHINESE 1MA and CHINESE 1DA and CHINESE 1A and CHINESE S1AB may not be taken for full credit.

CHINESE 1MB. Fundamentals of Mandarin Chinese - Mandarin Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in Mandarin Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1MA or placement into CHINESE 1MB. CHINESE 1MA with a grade of C or better.

Overlaps with CHINESE 1B, CHINESE 1DB, CHINESE S1AB, CHINESE S1BC.

Restriction: CHINESE 1MB and CHINESE 1DB and CHINESE 1B and CHINESE S1AB and CHINESE S1BC may not be taken for full credit.

CHINESE 1MC. Fundamentals of Mandarin Chinese - Mandarin Background Track. 5 Units.
Natural approach emphasizing four fundamental skills: listening, speaking, reading and writing. Specifically designed for students with previous background in Mandarin Chinese. Conducted in Mandarin Chinese using the Pinyin system of Romanization, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1MB or placement into CHINESE 1MC. CHINESE 1MB with a grade of C or better.

Overlaps with CHINESE 1C, CHINESE 1DC, CHINESE S1BC.

Restriction: CHINESE 1MC and CHINESE 1DC and CHINESE 1C and CHINESE S1BC may not be taken for full credit.

(VI)

CHINESE S1AB. Fundamentals of Mandarin Chinese. 7.5 Units.
First half of first-year Mandarin Chinese in an intensive setting using natural approach with emphasis on listening, speaking, reading, and writing.

Prerequisite: Placement into CHINESE 1A or CHINESE 1B or CHINESE 1MA or CHINESE 1MB or CHINESE 1DA or CHINESE 1DB.

Overlaps with CHINESE 1A, CHINESE 1B, CHINESE 1MA, CHINESE 1DA, CHINESE 1DB, CHINESE 1MB.

Restriction: CHINESE S1AB and CHINESE 1A and CHINESE 1B and CHINESE 1DA and CHINESE 1DB and CHINESE 1MA and CHINESE 1MB may not be taken for full credit.

CHINESE S1BC. Fundamentals of Mandarin Chinese. 7.5 Units.
Second half of first-year Mandarin Chinese in an intensive setting using natural approach with emphasis on listening, speaking, reading, and writing.

Prerequisite: CHINESE S1AB or CHINESE 1B or CHINESE 1DB or CHINESE 1MB or placement into CHINESE 1C or CHINESE 1DC or CHINESE 1MC. CHINESE S1AB with a grade of C or better. CHINESE 1B with a grade of C or better. CHINESE 1DB with a grade of C or better. CHINESE 1MB with a grade of C or better.

Overlaps with CHINESE 1C, CHINESE 1B, CHINESE 1DB, CHINESE 1DC, CHINESE 1MB, CHINESE 1MC.

Restriction: CHINESE S1BC, CHINESE 1B, CHINESE 1C, CHINESE 1DB or CHINESE 1DC, CHINESE 1MB or CHINESE 1MC and may not be taken for full credit.

(VI)

CHINESE 2A. Intermediate Mandarin Chinese. 5 Units.
Both authentic and pedagogically-prepared materials are used to further develop students' ability to communicate in culturally, socially, and linguistically appropriate manners. Taught in Chinese using Pinyin romanization system and both traditional and simplified forms of Chinese.

Prerequisite: CHINESE 1C or CHINESE S1BC or placement into CHINESE 2A. CHINESE 1C with a grade of C or better. CHINESE S1BC with a grade of C or better.

Overlaps with CHINESE 2DA, CHINESE 2MA.

Restriction: CHINESE 2A and CHINESE 2DA and CHINESE 2MA may not be taken for full credit.

(VIII)

CHINESE 2B. Intermediate Mandarin Chinese. 5 Units.
Both authentic and pedagogically-prepared materials are used to further develop students' ability to communicate in culturally, socially, and linguistically appropriate manners. Taught in Chinese using Pinyin romanization system and both traditional and simplified forms of Chinese.

Prerequisite: CHINESE 2A or placement into CHINESE 2B. CHINESE 2A with a grade of C or better.

Overlaps with CHINESE 2DB, CHINESE 2MB.

Restriction: CHINESE 2B and CHINESE 2DB and CHINESE 2MB may not be taken for full credit.

(VIII)

CHINESE 2C. Intermediate Mandarin Chinese. 5 Units.
Both authentic and pedagogically-prepared materials are used to further develop students' ability to communicate in culturally, socially, and linguistically appropriate manners. Taught in Chinese using Pinyin romanization system and both traditional and simplified forms of Chinese.

Prerequisite: CHINESE 2B or placement into CHINESE 2C. CHINESE 2B with a grade of C or better.

Overlaps with CHINESE 2DC, CHINESE 2MC.

Restriction: CHINESE 2C and CHINESE 2DC and CHINESE 2MC may not be taken for full credit.

(VIII)

CHINESE 2DA. Intermediate Mandarin Chinese - Dialect Background Track. 5 Units.
Authentic and pedagogically prepared materials used to further develop communication in culturally, socially, and linguistically appropriate manners for students with experience in a dialect other than Mandarin. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1DC or CHINESE S1BC or placement into CHINESE 2DA. CHINESE 1DC with a grade of C or better. CHINESE S1BC with a grade of C or better.

Overlaps with CHINESE 2A, CHINESE 2MA.

Restriction: CHINESE 2DA and CHINESE 2MA and CHINESE 2A may not be taken for full credit.

(VIII)

CHINESE 2DB. Intermediate Mandarin Chinese - Dialect Background Track. 5 Units.
Authentic and pedagogically prepared materials used to further develop communication in culturally, socially, and linguistically appropriate manners for students with experience in a dialect other than Mandarin. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 2DA or placement into CHINESE 2DB. CHINESE 2DA with a grade of C or better.

Overlaps with CHINESE 2B, CHINESE 2MB.

Restriction: CHINESE 2DB and CHINESE 2MB and CHINESE 2B may not be taken for full credit.

(VIII)

CHINESE 2DC. Intermediate Mandarin Chinese - Dialect Background Track . 5 Units.
Authentic and pedagogically prepared materials used to further develop communication in culturally, socially, and linguistically appropriate manners for students with experience in a dialect other than Mandarin. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 2DB or placement into CHINESE 2DC. CHINESE 2DB with a grade of C or better.

Overlaps with CHINESE 2MC, CHINESE 2C.

Restriction: CHINESE 2DC and CHINESE 2MC and CHINESE 2C may not be taken for full credit.

(VIII)

CHINESE 2MA. Intermediate Mandarin Chinese - Mandarin Background Track. 5 Units.
Authentic and pedagogically prepared materials are used to further develop communication in culturally, socially, and linguistically appropriate manners for students with initial experience in Mandarin Chinese. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 1MC or CHINESE S1BC or placement into CHINESE 2MA. CHINESE 1MC with a grade of C or better. CHINESE S1BC with a grade of C or better.

Overlaps with CHINESE 2A, CHINESE 2DA.

Restriction: CHINESE 2MA and CHINESE 2DA and CHINESE 2A may not be taken for full credit.

(VIII)

CHINESE 2MB. Intermediate Mandarin Chinese - Mandarin Background Track . 5 Units.
Authentic and pedagogically prepared materials are used to further develop communication in culturally, socially, and linguistically appropriate manners for students with initial experience in Mandarin Chinese. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 2MA or placement into CHINESE 2MB. CHINESE 2MA with a grade of C or better.

Overlaps with CHINESE 2B, CHINESE 2DB.

Restriction: CHINESE 2MB and CHINESE 2DB and CHINESE 2B may not be taken for full credit.

(VIII)

CHINESE 2MC. Intermediate Mandarin Chinese - Mandarin Background Track . 5 Units.
Authentic and pedagogically prepared materials are used to further develop communication in culturally, socially, and linguistically appropriate manners for students with initial experience in Mandarin Chinese. Conducted in Mandarin using the Pinyin Romanization system, traditional and simplified Chinese characters.

Prerequisite: CHINESE 2MB or placement into CHINESE 2MC. CHINESE 2MB with a grade of C or better.

Overlaps with CHINESE 2C, CHINESE 2DC.

Restriction: CHINESE 2MC and CHINESE 2DC and CHINESE 2C may not be taken for full credit.

(VIII)

CHINESE 3A. Advanced Mandarin Chinese. 4 Units.
A continuation of CHINESE 2A-CHINESE 2B-CHINESE 2C emphasizing conceptualization, self-expression and academic skills in Chinese. Authentic texts from modern Chinese prose and newspapers are used. Taught in Mandarin Chinese using both traditional and simplified forms of Chinese characters.

Prerequisite: CHINESE 2C or CHINESE 2DC or CHINESE 2MC or placement into CHINESE 3A. CHINESE 2C with a grade of C better. CHINESE 2DC with a grade of C better. CHINESE 2MC with a grade of C better.

(VIII)

CHINESE 3B. Advanced Mandarin Chinese. 4 Units.
A continuation of CHINESE 2A-CHINESE 2B-CHINESE 2C emphasizing conceptualization, self-expression, and academic skills in Chinese. Authentic texts from modern Chinese prose and newspapers are used. Taught in Mandarin Chinese using both traditional and simplified forms of Chinese characters.

Prerequisite: CHINESE 3A. CHINESE 3A with a grade of C or better.

(VIII)

CHINESE 3C. Advanced Mandarin Chinese. 4 Units.
A continuation of CHINESE 2A-CHINESE 2B-CHINESE 2C emphasizing conceptualization, self-expression, and academic skills in Chinese. Authentic texts from modern Chinese prose and newspapers are used. Taught in Mandarin Chinese using both traditional and simplified forms of Chinese characters.

Prerequisite: CHINESE 3B. CHINESE 3B with a grade of C or better.

(VIII)

CHINESE 100A. Classical Chinese. 4 Units.
Introduction to classical Chinese grammar and vocabulary with emphasis on reading basic texts.

Prerequisite: CHINESE 3C or JAPANSE 3C or KOREAN 3C.

CHINESE 100B. Classical Chinese. 4 Units.
Introduction to classical Chinese grammar and vocabulary with emphasis on reading basic texts.

Prerequisite: CHINESE 3C or JAPANSE 3C or KOREAN 3C.

CHINESE 100C. Classical Chinese. 4 Units.
Introduction to classical Chinese grammar and vocabulary with emphasis on reading basic texts.

Prerequisite: CHINESE 3C or JAPANSE 3C or KOREAN 3C.

CHINESE 101A. Fourth-Year Mandarin Chinese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of specific literary texts.

Prerequisite: CHINESE 3C.

CHINESE 101B. Fourth-Year Mandarin Chinese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of specific literary texts.

Prerequisite: CHINESE 3C.

CHINESE 101C. Fourth-Year Mandarin Chinese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of specific literary texts.

Prerequisite: CHINESE 3C.

CHINESE 115. Chinese Literature: Advanced Texts. 4 Units.
Designed for students with near-fluency in reading Chinese. Readings may include both literary and philosophical work by important writers, but the emphasis is on literary texts and writings that interpret those texts.

Prerequisite: CHINESE 101A or CHINESE 101B or CHINESE 101C.

Repeatability: Unlimited as topics vary.

CHINESE 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading in Chinese. Paper required.

Repeatability: May be taken for credit for 12 units.

CHINESE 201. Readings in Traditional Chinese Narrative and Prose. 4 Units.
Close reading of selected premodern prose texts such as historical narratives, novels, short stories, and essays.

Prerequisite: CHINESE 101C.

Repeatability: Unlimited as topics vary.

CHINESE 202. Readings in Traditional Chinese Poetry. 4 Units.
Close readings of selected premodern poetic texts.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 203. Readings in Modern Chinese Literature. 4 Units.
Close readings of selected modern literary texts.

Prerequisite: CHINESE 101C.

Repeatability: Unlimited as topics vary.

CHINESE 204. Readings in Chinese Literary and Cultural Theory. 4 Units.
Close readings of selected texts in premodern criticism and theory.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 211A. Studies in Traditional Chinese Narrative and Prose. 4 Units.
Two-quarter seminar in traditional Chinese narrative and prose, with topics varying from year to year.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 211B. Studies in Traditional Chinese Narrative and Prose. 4 Units.
Two-quarter seminar in traditional Chinese narrative and prose, with topics varying from year to year.

Prerequisite: CHINESE 211A.

Repeatability: Unlimited as topics vary.

CHINESE 212A. Studies in Traditional Chinese Poetry. 4 Units.
Two-quarter seminar in traditional Chinese poetry, with topics varying from year to year.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 212B. Studies in Traditional Chinese Poetry. 4 Units.
Two-quarter seminar in traditional Chinese poetry, with topics varying from year to year.

Prerequisite: CHINESE 212A.

Repeatability: Unlimited as topics vary.

CHINESE 213A. Studies in Modern Chinese Literature. 4 Units.
Two-quarter seminar in modern Chinese literature, with topics varying from year to year. Research paper required.

Prerequisite: CHINESE 100C.

Repeatability: Unlimited as topics vary.

CHINESE 213B. Studies in Modern Chinese Literature. 4 Units.
Two-quarter seminar in modern Chinese literature, with topics varying from year to year. Research paper required.

Prerequisite: CHINESE 213A.

Repeatability: Unlimited as topics vary.

CHINESE 214. Studies in Chinese Literature and Cultural Theory. 4 Units.
Seminar in Chinese literature and cultural theory, with topics varying from year to year. Research paper required.

Prerequisite: CHINESE 100C or CHINESE 101C.

Repeatability: Unlimited as topics vary.

CHINESE 230. Topics in Chinese Literature and Culture. 4 Units.
Seminar in Chinese literature and culture, with topics varying from year to year. Research paper required.

Prerequisite: CHINESE 101.

Repeatability: Unlimited as topics vary.

CHINESE 290. Independent Study. 4 Units.
Directed research on topic determined in consultation with faculty member. A term paper or project is required.

Repeatability: May be repeated for credit unlimited times.

CHINESE 299. Dissertation Research. 4-12 Units.
Dissertation research with Chinese faculty.

Prerequisite: Advancement to Ph.D. candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

East Asian Languages and Literatures Courses

E ASIAN 10. Introductory Topics in Chinese Literature and Society. 4 Units.
Introductory studies in Chinese texts in their social and cultural context(s). Conducted in English.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 20. Asian Religions . 4 Units.
An introduction to Asian religions (Hinduism, Buddhism, Confucianism, Taoism, Shamanism) including both elite doctrinal aspects and forms of more popular religiosity.

Repeatability: May be taken for credit 3 times as topics vary.

(VIII)

E ASIAN 25. Introductory Topics in East Asian Philosophy. 4 Units.
Selected introductory topics in the philosophies of East Asia, e.g., Yoga, Buddhism, Vedanta, Confucianism, Taoism, and Shinto.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 40. Topics in East Asian Popular Culture. 4 Units.
Selected topics in the popular cultural traditions of East Asia designed to introduce students both to problems in situating culture in a specific time and place and to contemporary theories of popular culture and their application to East Asian contexts.

Repeatability: Unlimited as topics vary.

(IV, VIII)

E ASIAN 55. Introduction to East Asian Cultures . 4 Units.
Interdisciplinary courses organized each year around a broad theme designed to introduce students to the cultures of East Asia. Topical organization of courses addresses issues that have been of importance historically and are reshaping East Asia today.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

E ASIAN 110. Topics in Chinese Literature and Society. 4 Units.
Studies in Chinese texts in their social and cultural context(s). Conducted in English.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 116. Topics in East Asian Religions. 4 Units.
Selected topics in the religions of East Asia, e.g., Buddhism, Daoism, Shintô, Christianity, popular religions.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 117. Topics in East Asian Philosophy. 4 Units.
Selected topics in the philosophies of East Asia, e.g., Yoga, Buddhism, Vedanta, Confucianism, Taoism, and Shinto.

Repeatability: Unlimited as topics vary.

E ASIAN 120. Topics in Japanese Literature and Society. 4 Units.
Studies in Japanese texts in their social and cultural context(s). Conducted in English.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 125. Topics in East Asian Applied Linguistics. 4 Units.
In-depth examination of selected topics in applied linguistics, with a particular emphasis on language acquisition and language pedagogy.

Repeatability: May be taken for credit 3 times as topics vary.

Concurrent with E ASIAN 225.

E ASIAN 130. Topics in Korean Society and Culture. 4 Units.
Studies of the social and cultural forces that affect the lives of the Koreans, including those in the United States. Considers traditional values and contemporary issues within a historical framework.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 140. Topics in Korean Literature and Society. 4 Units.
Studies in Korean texts in their social and cultural context(s). Conducted in English.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 150. Topics in East Asian Literature in Translation. 4 Units.
East Asian literary works in translation. Taught in English.

Repeatability: Unlimited as topics vary.

E ASIAN 155. Topics in Cultural Studies in East Asia. 4 Units.
Interdisciplinary and theoretical introduction to issues in cultural studies that are pertinent to the study of East Asia. All readings in English.

Repeatability: Unlimited as topics vary.

E ASIAN 160. East Asian Cinema. 4 Units.
Study of East Asian cinema from historical, theoretical, and comparative perspectives. Taught in English.

Repeatability: Unlimited as topics vary.

E ASIAN 170. Gender in East Asia . 4 Units.
Explores the construction of gender in East Asian cultures and literatures. Pays close attention to the specificity of historical, cultural, and literary contexts of East Asia as it investigates various theoretical and critical perspectives on gender and sexuality.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 190. Junior-Senior Colloquium. 4 Units.
Specialized courses dealing with primary sources; required reports and papers. Each colloquium reflects the instructor's intellectual interest and is conducted as a discussion group. Limited to 15 students.

Repeatability: May be taken for credit 3 times as topics vary.

Restriction: Upper-division students only. East Asian Cultures, Chinese Studies, Japanese Language and Literature, Korean Literature and Culture majors only.

E ASIAN 192W. Junior-Senior Seminar. 4 Units.
Analysis of a literary or cultural topic or problem through research and writing of two short and one long original research paper for a total of 4,000 words minimum. Seminar follows E ASIAN 190; related to the colloquium's subject.

Prerequisite: E ASIAN 190. Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 198. Directed Group Study. 1-4 Units.
Directed group study on special topics.

Repeatability: May be repeated for credit unlimited times.

E ASIAN 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading in translation. Paper required.

Repeatability: May be taken for credit for 12 units.

E ASIAN 216. Topics in East Asian Religions . 4 Units.
Selected topics in the religions of East Asia, e.g., Buddhism, Daoism, Shintô, Islam, shamanism.

Repeatability: May be taken for credit 3 times as topics vary.

E ASIAN 220. Topics in East Asian Cultural Studies. 4 Units.
Seminar, with topics varying from year to year. Research paper required.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

E ASIAN 225. Topics in East Asian Applied Linguistics. 4 Units.
In-depth examination of selected topics in applied linguistics, with a particular emphasis on language acquisition and language pedagogy.

Repeatability: May be taken for credit 3 times as topics vary.

Concurrent with E ASIAN 125.

E ASIAN 260. Topics in East Asian Cinema. 4 Units.
An examination of the possibilities of East Asian cinematic narrative. Possible topics: cinematic history; cinema in popular culture; comparisons with literary texts; major auteurs. Emphasis on technical as well as on thematic aspects. Includes readings in film theory.

Prerequisite: E ASIAN 160.

Repeatability: Unlimited as topics vary.

E ASIAN 290. Independent Study. 2-4 Units.
Directed research on topic determined in consultation with faculty member. A term paper or project is required.

Repeatability: May be repeated for credit unlimited times.

E ASIAN 299. Dissertation Research. 4-12 Units.
Dissertation research for students who are advanced to doctoral candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Advancement to Ph.D. candidacy.

E ASIAN 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Japanese Courses

JAPANSE 1A. Fundamental Japanese. 5 Units.
Students develop listening, speaking, reading, and writing abilities in Japanese for meaningful communication. Content deals with daily life, society, and culture in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the hiragana and katakana orthography.

Prerequisite: Placement into JAPANSE 1A.

Overlaps with JAPANSE S1AB.

Restriction: JAPANSE 1A and JAPANSE S1AB may not be taken for full credit.

JAPANSE 1B. Fundamental Japanese. 5 Units.
Students develop listening, speaking, reading, and writing abilities in Japanese for meaningful communication. Content deals with daily life, society, and culture in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the hiragana and katakana orthography.

Prerequisite: JAPANSE 1A or JAPANSE S1AB or placement into JAPANSE 1B. JAPANSE 1A with a grade of C or better. JAPANSE S1AB with a grade of C or better.

Overlaps with JAPANSE S1AB, JAPANSE S1BC.

Restriction: JAPANSE 1B and JAPANSE S1AB and JAPANSE S1BC may not be taken for full credit.

JAPANSE 1C. Fundamental Japanese. 5 Units.
Students develop listening, speaking, reading, and writing abilities in Japanese for meaningful communication. Content deals with daily life, society, and culture in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the hiragana and katakana orthography.

Prerequisite: JAPANSE 1B or JAPANSE S1AB or placement into JAPANSE 1C. JAPANSE 1B with a grade of C or better. JAPANSE S1AB with a grade of C or better.

Overlaps with JAPANSE S1BC.

Restriction: JAPANSE 1C and JAPANSE S1BC may not be taken for full credit.

(VI)

JAPANSE S1AB. Fundamentals of Japanese. 7.5 Units.
First half of first-year Japanese in an intensified form.

Prerequisite: Placement into JAPANSE 1A.

Overlaps with JAPANSE 1A, JAPANSE 1B.

Restriction: JAPANSE S1AB and JAPANSE 1A and JAPANSE 1B may not be taken for full credit.

JAPANSE S1BC. Fundamentals of Japanese. 7.5 Units.
Second half of first-year Japanese in an intensified form.

Prerequisite: JAPANSE S1AB or JAPANSE 1B or placement into JAPANSE 1C. JAPANSE S1AB with a grade of C or better. JAPANSE 1B with a grade of C or better.

Overlaps with JAPANSE 1C, JAPANSE 1B.

Restriction: JAPANSE S1BC and JAPANSE 1B and JAPANSE 1C may not be taken for full credit.

(VI)

JAPANSE 2A. Intermediate Japanese. 5 Units.
Japanese listening, speaking, reading, and writing abilities developed for meaningful communication. Content deals with daily life, society, and culture, including social issues in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the 180 characters learned in 1A-B-C.

Prerequisite: JAPANSE 1C or JAPANSE S1BC or placement into JAPANSE 2A. JAPANSE 1C with a grade of C or better. JAPANSE S1BC with a grade of C or better.

Overlaps with JAPANSE S2AB.

Restriction: JAPANSE 2A and JAPANSE S2AB may not be taken for full credit.

(VIII)

JAPANSE 2B. Intermediate Japanese. 5 Units.
Japanese listening, speaking, reading, and writing abilities developed for meaningful communication. Content deals with daily life, society, and culture, including social issues in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the 180 characters learned in 1A-B-C.

Prerequisite: JAPANSE 2A or placement into JAPANSE 2B. JAPANSE 2A with a grade of C or better.

Overlaps with JAPANSE S2AB.

Restriction: JAPANSE 2B and JAPANSE S2AB and JAPANSE S2BC may not be taken for full credit.

(VIII)

JAPANSE 2C. Intermediate Japanese. 5 Units.
Japanese listening, speaking, reading, and writing abilities developed for meaningful communication. Content deals with daily life, society, and culture, including social issues in Japan. Approximately 180 kanji (Chinese characters) are introduced in addition to the 180 characters learned in 1A-B-C.

Prerequisite: JAPANSE 2B or JAPANSE S2AB or placement into JAPANSE 2C. JAPANSE 2B with a grade of C or better. JAPANSE S2AB with a grade of C or better.

Overlaps with JAPANSE S2BC.

Restriction: JAPANSE 2C and JAPANSE S2BC may not be taken for full credit.

(VIII)

JAPANSE S2AB. Intermediate Japanese. 7.5 Units.
First half of second-year Japanese in an intensified form.

Prerequisite: JAPANSE 1C or JAPANSE S1BC or placement in JAPANSE 2A. JAPANSE 1C with a grade of C or better. JAPANSE S1BC with a grade of C or better.

Overlaps with JAPANSE 2A, JAPANSE 2B.

Restriction: JAPANSE S2AB and JAPANSE 2A and JAPANSE 2B may not be taken for full credit.

(VIII)

JAPANSE S2BC. Intermediate Japanese. 7.5 Units.
Second half of second-year Japanese in an intensified form.

Prerequisite: JAPANSE S2AB or JAPANSE 2B or placement into JAPANSE 2C. JAPANSE S2AB with a grade of C or better. JAPANSE 2B with a grade of C or better.

Overlaps with JAPANSE 2C, JAPANSE 2B.

Restriction: JAPANSE S2BC and JAPANSE 2B and JAPANSE 2C may not be taken for full credit.

(VIII)

JAPANSE 3A. Advanced Japanese. 4 Units.
Students are taught to conceptualize in Japanese as they learn to understand, read, write, and speak. Authentic Japanese texts are used. Approximately 360 kanji (Chinese characters) in addition to the 270 characters learned in 1A-B-C and 2A-B-C are introduced.

Prerequisite: JAPANSE 2C or JAPANSE S2BC or placement into JAPANSE 3A. JAPANSE 2C with a grade of C or better. JAPANSE S2BC with a grade of C or better.

(VIII)

JAPANSE 3B. Advanced Japanese. 4 Units.
Students are taught to conceptualize in Japanese as they learn to understand, read, write, and speak. Authentic Japanese texts are used. Approximately 360 kanji (Chinese characters) in addition to the 270 characters learned in 1A-B-C and 2A-B-C are introduced.

Prerequisite: JAPANSE 3A or placement into JAPANSE 3B. JAPANSE 3A with a grade of C or better.

(VIII)

JAPANSE 3C. Advanced Japanese. 4 Units.
Students are taught to conceptualize in Japanese as they learn to understand, read, write, and speak. Authentic Japanese texts are used. Approximately 360 kanji (Chinese characters) in addition to the 270 characters learned in first and second year are introduced.

Prerequisite: JAPANSE 3B or placement into JAPANSE 3C. JAPANSE 3B with a grade of C or better.

Restriction: Japanese majors have first consideration for enrollment.

(VIII)

JAPANSE 100A. Classical Japanese. 4 Units.
Introduction to classical Japanese grammar and vocabulary with emphasis on reading and analysis of basic texts.

Prerequisite: JAPANSE 3C. JAPANSE 3C with a grade of C or better.

JAPANSE 100B. Classical Japanese. 4 Units.
Introduction to classical Japanese grammar and vocabulary with emphasis on reading and analysis of basic texts.

Prerequisite: JAPANSE 100A. JAPANSE 100A with a grade of C or better.

JAPANSE 101A. Fourth Year Japanese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of texts.

Prerequisite: JAPANSE 3C.

JAPANSE 101B. Fourth Year Japanese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of texts.

Prerequisite: JAPANSE 3C.

JAPANSE 101C. Fourth Year Japanese. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of texts.

Prerequisite: JAPANSE 3C.

JAPANSE 115. Japanese Literature: Advanced Texts. 4 Units.
Designed for students with near-fluency in reading Japanese. Texts include both fiction and nonfiction by important writers, and may be supplemented and contextualized where needed by literary criticism and cultural-studies texts in English.

Prerequisite: JAPANSE 101A or JAPANSE 101B or JAPANSE 101C.

Repeatability: Unlimited as topics vary.

JAPANSE 180. Topics in Japanese Literature. 4 Units.
Special topics through directed reading in Japanese. Paper required.

Repeatability: May be taken for credit 3 times as topics vary.

JAPANSE 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading in Japanese. Paper required.

Repeatability: May be taken for credit for 12 units.

JAPANSE 201. Readings in Traditional Japanese Prose. 4 Units.
Close reading of selected premodern prose texts, including tales, journals, travel journals, essays.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 202. Readings in Traditional Japanese Poetry or Drama. 4 Units.
Close reading of selected premodern poetic or dramatic texts.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 203. Readings in Modern Japanese Literature. 4 Units.
Texts include both fiction and nonfiction by important writers, and may be supplemented where needed by literary criticism and cultural-studies texts in English.

Prerequisite: JAPANSE 101C.

Repeatability: Unlimited as topics vary.

JAPANSE 204. Readings in Traditional Japanese Literary and Cultural Theory . 4 Units.
Close reading of selected texts involving literary criticism and/or aesthetics.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 205. Readings in Japanese Religion. 4 Units.
Close readings of selected Japanese religious texts.

Prerequisite: JAPANSE 101C.

Repeatability: Unlimited as topics vary.

JAPANSE 211A. Studies in Traditional Japanese Prose. 4 Units.
Studies in selected areas of traditional Japanese prose. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 211B. Studies in Traditional Japanese Prose. 4 Units.
Studies in selected areas of traditional Japanese prose. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 100B and JAPANSE 211A.

Repeatability: Unlimited as topics vary.

JAPANSE 212A. Studies in Traditional Japanese Poetry or Drama. 4 Units.
Studies in selected areas of traditional Japanese poetry or drama. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 100B.

Repeatability: Unlimited as topics vary.

JAPANSE 212B. Studies in Traditional Japanese Poetry or Drama. 4 Units.
Studies in selected areas of traditional Japanese poetry or drama. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 212A.

Repeatability: Unlimited as topics vary.

JAPANSE 213A. Studies in Modern Japanese Literature. 4 Units.
A two-quarter, in-depth look at a major author and/or issue in modern Japanese literature. Seminar format. The first quarter is devoted to reading of the requisite texts; the second quarter, to the writing of a research paper.

Prerequisite: JAPANSE 203.

Repeatability: Unlimited as topics vary.

JAPANSE 213B. Studies in Modern Japanese Literature. 4 Units.
A two-quarter, in-depth look at a major author and/or issue in modern Japanese literature. Seminar format. The first quarter is devoted to reading of the requisite texts; the second quarter, to the writing of a research paper.

Prerequisite: JAPANSE 203 and JAPANSE 213A.

Repeatability: May be repeated for credit unlimited times.

JAPANSE 214. Studies in Japanese Literary and Cultural Theory. 4 Units.
Studies in selected areas of Japanese literary and cultural theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

JAPANSE 215. Studies in Japanese Religion. 4 Units.
Studies in selected areas of Japanese religion. Topics addressed vary each quarter. Research paper required.

Prerequisite: JAPANSE 101C.

Repeatability: Unlimited as topics vary.

JAPANSE 230. Topics in Japanese Literature and Culture. 4 Units.
A topical study that addresses important issues in Japanese literature and culture. May focus on a specific writer or writers, or on a specific issue or set of related issues.

Prerequisite: JAPANSE 203.

Repeatability: Unlimited as topics vary.

JAPANSE 290. Independent Study. 4 Units.
Directed research on topic determined in consultation with faculty member. A term paper or project is required.

Repeatability: May be repeated for credit unlimited times.

JAPANSE 299. Dissertation Research. 4-12 Units.
For Students who have been admitted to doctoral candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Advancement to Ph.D. candidacy.

Korean Courses

KOREAN 1A. Fundamental Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with no previous background in Korean. Conducted in both English and Korean.

Prerequisite: Placement into KOREAN 1A.

Overlaps with KOREAN 1KA, KOREAN S1AB.

Restriction: KOREAN 1A and KOREAN 1KA and KOREAN S1AB may not be taken for full credit.

KOREAN 1B. Fundamental Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with no previous background in Korean. Conducted in both English and Korean.

Prerequisite: KOREAN 1A or placement into KOREAN 1B. KOREAN 1A with a grade of C or better.

Overlaps with KOREAN S1BC, KOREAN 1KB, KOREAN S1AB.

Restriction: KOREAN 1B and KOREAN 1KB and KOREAN S1AB and KOREAN S1BC may not be taken for full credit.

KOREAN 1C. Fundamental Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with no previous background in Korean. Conducted in both English and Korean.

Prerequisite: KOREAN 1B or KOREAN S1AB or placement into KOREAN 1C. KOREAN 1B with a grade of C or better. KOREAN S1AB with a grade of C or better.

Overlaps with KOREAN 1KC, KOREAN S1BC.

Restriction: KOREAN 1C and KOREAN 1KC and KOREAN S1BC may not be taken for full credit.

(VI)

KOREAN 1KA. Fundamental Korean for Students with a Previous Background in Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with a previous background in Korean. Conducted in both English and Korean.

Prerequisite: Placement into KOREAN 1KA.

Overlaps with KOREAN 1A, KOREAN S1AB.

Restriction: KOREAN 1KA and KOREAN 1A and KOREAN S1AB may not be taken for full credit.

KOREAN 1KB. Fundamental Korean for Students with a Previous Background in Korean . 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with a previous background in Korean. Conducted in both English and Korean.

Prerequisite: KOREAN 1KA or placement into KOREAN 1KB. KOREAN 1KA with a grade of C or better.

Overlaps with KOREAN 1B, KOREAN S1AB, KOREAN S1BC.

Restriction: KOREAN 1KB and KOREAN 1B and KOREAN S1AB and KOREAN S1BC may not be taken for full credit.

KOREAN 1KC. Fundamental Korean for Students with a Previous Background in Korean. 5 Units.
Natural approach with emphasis on the four fundamental skills of listening, speaking, reading, and writing for students with a previous background in Korean. Conducted in both English and Korean.

Prerequisite: KOREAN 1KB or placement into KOREAN 1KC. KOREAN 1KB with a grade of C or better.

Overlaps with KOREAN 1C, KOREAN S1BC.

Restriction: KOREAN 1KC and KOREAN 1C and KOREAN S1BC may not be taken for full credit.

(VI)

KOREAN S1AB. Fundamentals of Korean. 7.5 Units.
First half of first-year Korean in an intensified form.

Prerequisite: Placement into KOREAN 1A or KOREAN 1KA or KOREAN 1B or KOREAN 1KB.

Overlaps with KOREAN 1A, KOREAN 1B, KOREAN 1KA, KOREAN 1KB.

Restriction: KOREAN S1AB and KOREAN 1A and KOREAN 1KA and KOREAN 1B and KOREAN 1KB may not be taken for full credit.

KOREAN S1BC. Fundamentals of Korean. 7.5 Units.
Second half of first-year Korean in an intensified form.

Prerequisite: KOREAN S1AB or KOREAN 1B or KOREAN 1KB or placement into KOREAN 1C or KOREAN 1KC. KOREAN S1AB with a grade of C or better. KOREAN 1B with a grade of C or better. KOREAN 1KB with a grade of C or better.

Overlaps with KOREAN 1C, KOREAN 1KB, KOREAN 1KC, KOREAN 1B.

Restriction: KOREAN S1BC and KOREAN 1B and KOREAN 1KB and KOREAN 1C and KOREAN 1KC may not be taken for full credit.

(VI)

KOREAN 2A. Intermediate Korean. 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students without previous initial background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 1C or KOREAN S1BC or placement into KOREAN 2A. KOREAN 1C with a grade of C or better. KOREAN S1BC with a grade of C or better.

Overlaps with KOREAN 2KA, KOREAN S2AB.

Restriction: KOREAN 2A and KOREAN 2KA and KOREAN S2AB may not be taken for full credit.

(VIII)

KOREAN 2B. Intermediate Korean. 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students without previous initial background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 2A or placement into KOREAN 2B . KOREAN 2A with a grade of C or better.

Overlaps with KOREAN 2KB, KOREAN S2AB, KOREAN S2BC.

Restriction: KOREAN 2B and KOREAN 2KB and KOREAN S2AB and KOREAN S2BC may not be taken for full credit.

(VIII)

KOREAN 2C. Intermediate Korean. 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students without previous initial background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 2B or placement into KOREAN 2C. KOREAN 2B with a grade of C or better.

Overlaps with KOREAN 2KC, KOREAN S2AB, KOREAN S2BC.

Restriction: KOREAN 2C and KOREAN 2KC and KOREAN S2BC may not be taken for full credit.

(VIII)

KOREAN 2KA. Intermediate Korean for Students with a Previous Background in Korean . 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students with previous background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 1KC or KOREAN S1BC or placement into KOREAN 2KA. KOREAN 1KC with a grade of C or better. KOREAN S1BC with a grade of C or better.

Overlaps with KOREAN 2A, KOREAN S2AB.

Restriction: KOREAN 2KA and KOREAN 2A and KOREAN S2AB may not be taken for full credit.

(VIII)

KOREAN 2KB. Intermediate Korean for Students with a Previous Background in Korean . 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students with previous background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 2KA or placement into KOREAN 2KB. KOREAN 2KA with a grade of C or better.

Overlaps with KOREAN 2B, KOREAN S2BC, KOREAN S2AB.

Restriction: KOREAN 2KB and KOREAN 2B and KOREAN S2AB and KOREAN S2BC may not be taken for full credit.

(VIII)

KOREAN 2KC. Intermediate Korean for Students with a Previous Background in Korean. 5 Units.
Designed to develop writing and reading skills as well as communicative skills in authentic situations for students with previous background in Korean. Students also introduced to aspects of Korean culture as related to lesson topics and basic Chinese characters.

Prerequisite: KOREAN 2KB or placement into KOREAN 2KC. KOREAN 2KB with a grade of C or better.

Overlaps with KOREAN 2C, KOREAN S2BC.

Restriction: KOREAN 2KC and KOREAN 2C and KOREAN S2BC may not be taken for full credit.

(VIII)

KOREAN S2AB. Intensive Intermediate Korean. 7.5 Units.
First half of second-year Korean in an intensive form. Specifically designed for students with no previous initial background in Korean.

Prerequisite: KOREAN 1C or KOREAN S1BC. KOREAN 1C with a grade of C or better. KOREAN S1BC with a grade of C or better.

Overlaps with KOREAN 2A, KOREAN 2B, KOREAN 2KA, KOREAN 2KB.

Restriction: KOREAN S2AB and KOREAN 2A and KOREAN 2KA and KOREAN 2B and KOREAN 2KB may not be taken for full credit.

(VIII)

KOREAN S2BC. Intensive Intermediate Korean. 7.5 Units.
Second half of second-year Korean in an intensive form. Specifically designed for students with no previous initial background in Korean.

Prerequisite: KOREAN 2B or KOREAN S2AB. KOREAN 2B with a grade of C or better. KOREAN S2AB with a grade of C or better.

Overlaps with KOREAN 2C, KOREAN 2B, KOREAN 2KB, KOREAN 2KC.

Restriction: KOREAN S2BC and KOREAN 2B and KOREAN 2KB and KOREAN 2C and KOREAN 2KC may not be taken for full credit.

(VIII)

KOREAN 3A. Advanced Korean. 4 Units.
Focuses on developing advanced reading/writing and translation skills with additional instruction in Chinese characters.

Prerequisite: KOREAN 2C or KOREAN 2KC or KOREAN S2BC or placement in KOREAN 3A. KOREAN 2C with a grade of C or better. KOREAN 2KC with a grade of C or better. KOREAN S2BC with a grade of C or better.

(VIII)

KOREAN 3B. Advanced Korean. 4 Units.
Focuses on developing advanced reading, writing, and translation skills.

Prerequisite: KOREAN 3A or placement into KOREAN 3B. KOREAN 3A with a grade of C or better.

(VIII)

KOREAN 3C. Advanced Korean. 4 Units.
Focuses on developing advanced reading, writing, and translation skills.

Prerequisite: KOREAN 3B or placement into KOREAN 3C. KOREAN 3B with a grade of C or better.

(VIII)

KOREAN 101A. Fourth Year Korean. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of modern texts.

Prerequisite: KOREAN 3C.

KOREAN 101B. Fourth Year Korean. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of modern texts.

Prerequisite: KOREAN 3C.

KOREAN 101C. Fourth Year Korean. 4 Units.
Continued emphasis on comprehension, grammar, and proficiency in reading, composition, and conversation through intensive study and analysis of a variety of modern texts.

Prerequisite: KOREAN 3C.

KOREAN 115. Korean Literature: Advanced Texts. 4 Units.
Designed for students with near-fluency in reading Korean. Readings include modern Korean literary works (poetry, prose, and drama) by important writers. Emphasis is on the interpretation of the texts and writings that interpret those texts in the original language.

Prerequisite: KOREAN 101A or KOREAN 101B or KOREAN 101C.

Repeatability: Unlimited as topics vary.

KOREAN 180. Topics in Korean Literature. 4 Units.
Special topics through directed readings in Korean. Paper required.

Repeatability: May be taken for credit 3 times.

KOREAN 199. Independent Study. 1-4 Units.
Investigation of special topics through directed reading in Korean. Paper required.

Repeatability: May be taken for credit for 12 units.

Department of English

435 Humanities Instructional Building; 949-824-6712
http://www.humanities.uci.edu/english/
Martin Harries, **Department Chair**

Faculty in the Department of English include literary theorists and literary historians, rhetoricians, fiction writers, and poets. Students in the Department thus have the opportunity to explore a variety of models for literary analysis while examining the nature and value of literature. English majors learn to interpret written works with the tools of rhetorical and culture analysis; they become familiar with English and American literary history, as well as non-Anglo-American literatures in English; and they are introduced to the history of criticism and theory. At the same time, they learn to do research using both traditional and electronic resources, and they gain practice at producing effective professional writing, whether critical, journalistic, fictional, or poetic.

Undergraduate Program

All of the Department's areas of study emphasize a variety of critical approaches in the reading and criticism of literature. Two majors, as well as an emphasis in Creative Writing, are offered. The Department also offers English majors a specialization in English for Future Teachers (p. 841) for majors interested in a teaching career. The specialization, which focuses on English language arts, can prepare students for the California Subject Examinations for Teachers.

English (p. 840)**.** This major seeks to introduce students to the entire range of literatures written in English, from British and American to African, Asian, and Australasian literatures. The major emphasizes the differences among historical periods and various genres, and encourages exploration of a broad range of literary theories. It also offers students the opportunity to do significant work in Creative Writing.

Creative Writing (p. 841)**.** This emphasis within the English major provides a setting in which students write original work and subject it to critique in peer workshops led by instructors who are themselves writers. The disciplines of close reading and practical criticism are taken up in the lecture classes.

Literary Journalism (p. 842)**.** This major was created to meet the needs of a growing number of students who wish to read, study, and write nonfiction prose that has transcended the limits of daily journalism. This is prose that has evolved into a distinct branch of literature, prose that adopts the aims and

techniques of the finest fiction. The program provides majors with a solid foundation in nonfiction writing and an equally solid background in areas such as literary history, which together will help make students more informed writers. A Literary Journalism minor is also offered.

Literary Journalism majors take three intensive writing seminars, and are expected to develop a portfolio of work by graduation which they can present as evidence of their skill for purposes of employment or future education. At the same time, majors are asked to take a comprehensive look at the theory, history, and context of literary journalism. Among other forms, they study and write narratives, memoirs, profiles, histories, and personal essays, in subject areas as varied as science, politics, justice, travel, sports, food, and popular culture.

While it differs from an applied journalism major that focuses primarily on newspaper writing, the major in Literary Journalism is excellent preparation for students planning to enter graduate programs in journalism, as well as for those interested in the many careers requiring sophisticated writing and communication skills.

Planning a Program of Study

Students should plan coherent programs of study with their faculty advisors, including undergraduate seminars, workshops and seminars in writing (for students choosing a Literary Journalism major or Creative Writing emphasis), and courses in allied areas outside the Department. It is possible to combine a cluster of courses in literature with other majors in the sciences and social sciences, and to use an English or Literary Journalism major as preprofessional training in government, law, or medicine. Students who wish advice in planning such programs should consult both the Department and people in their prospective professional areas.

A student who intends to continue with graduate work is urged to study a second foreign language before graduation.

Students are also encouraged to take advantage of the opportunity to study abroad through the UC Education Abroad Program. Visit the Study Abroad Center (http://www.studyabroad.uci.edu) website or an academic counselor for additional information.

Careers for the English or Literary Journalism Major

The study of literature helps students express their ideas clearly, do independent research, and think analytically and imaginatively. These capabilities will help qualify majors for careers in education, law, technical writing, communications, journalism, public relations, business, marketing, and management. Departmental advisors encourage their students to investigate various career options before completing their undergraduate educations.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center (p. 124) section for additional information.

Requirements for the B.A. Degree in English

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

A. Complete the following:	
ENGLISH 28A	The Poetic Imagination
or ENGLISH 28D	The Craft of Poetry
ENGLISH 28B	Comic and Tragic Vision
ENGLISH 28C	Realism and Romance
or ENGLISH 28E	The Craft of Fiction
B. Complete the following:	
ENGLISH 100	Introduction to Literary Theory
ENGLISH 101W	Undergraduate Seminar in Critical Writing: Topics in Literary History
C. Complete the following:	
ENGLISH 102A	Topics in Medieval and Renaissance Literature
ENGLISH 102B	Topics in Restoration and Eighteenth-Century Literature
ENGLISH 102C	Topics in Romantic and Nineteenth-Century Literature
ENGLISH 102D	Topics in Twentieth-Century Literature
ENGLISH 105	Multicultural Topics in Literatures in English
ENGLISH 106	Advanced Seminar: Topics in English Literature
D. Select at least three more Departmental (English, Literary Journalism, Writing) courses numbered 102 or above, excluding ENGLISH 150, LIT JRN 197, WRITING 139W, and WRITING 179W. An upper-division foreign literature-in-translation course may be substituted for one of the three courses. [1]	
E. Completion of one of the following:	
1. Two years of work in a single acceptable modern foreign language (through 2C) or equivalent, plus either one course in a foreign literature in which texts are read in the original language or two upper-division courses in foreign literatures in translation; or [1]	
2. Select one of the following:	

GREEK 1A- 1B- 1C	Fundamentals of Greek and Fundamentals of Greek and Fundamentals of Greek
LATIN 1A- 1B- 1C	Fundamentals of Latin and Fundamentals of Latin and Fundamentals of Latin
GREEK 100 or LATIN 100 and two GREEK 103 or LATIN 103	
GREEK 100 or LATIN 100 and two GREEK 104 or LATIN 104	
3. Select one of the following:	
CHINESE 3C	Advanced Mandarin Chinese
KOREAN 3C	Advanced Korean
JAPANSE 3C	Advanced Japanese
NOTE: If a student is exempted from 3C based on examination or equivalent, a course in which texts are read in Chinese, Japanese, or Korean is required.	

[1] Foreign literature-in-translation courses are offered in Classics, Comparative Literature, East Asian Languages and Literatures, French and Italian, German, and Spanish and Portuguese. COM LIT 150, COM LIT 160, E ASIAN 160, FLM&MDA 160, FRENCH 160, GERMAN 160, JAPANSE 180, KOREAN 180, and SPANISH 160 when appropriate, also qualify as foreign language literature-in-translation courses.

Emphasis in Creative Writing

ENGLISH 100	Introduction to Literary Theory
WRITING 101W	Undergraduate Seminar: Applications in Literary Theory and Criticism for Creative Writing
Completion of a portfolio	
Specific course work (below) in either Poetry of Fiction:	
Poetry	
ENGLISH 28D	The Craft of Poetry
WRITING 30	The Art of Writing: Poetry
WRITING 90	Intermediate Poetry Writing
Students may additionally take Writing 111 after submitting work in advance.	
Fiction	
ENGLISH 28E	The Craft of Fiction
WRITING 31	The Art of Writing: Prose Fiction
WRITING 91	Intermediate Fiction Writing
Students may additionally take Writing 110 after submitting work in advance.	
A further, optional course may be taken as a tutorial:	
WRITING 115	Conference in Writing

[1] NOTE: WRITING 101W may be substituted for ENGLISH 101W in the major requirement.

Residence Requirement for the English Major: ENGLISH 100, ENGLISH 101W, two ENGLISH 102s, and ENGLISH 106 must be completed successfully at UCI.

Requirements for the B.A. Degree in English with a Specialization in English for Future Teachers

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

A. Complete the following:	
ENGLISH 28A	The Poetic Imagination
or ENGLISH 28D	The Craft of Poetry
ENGLISH 28B	Comic and Tragic Vision
ENGLISH 28C	Realism and Romance
or ENGLISH 28E	The Craft of Fiction
B. Complete the following:	
ENGLISH 100	Introduction to Literary Theory

ENGLISH 101W	Undergraduate Seminar in Critical Writing: Topics in Literary History
C. Complete the following:	
ENGLISH 102A	Topics in Medieval and Renaissance Literature
ENGLISH 102B	Topics in Restoration and Eighteenth-Century Literature
ENGLISH 102C	Topics in Romantic and Nineteenth-Century Literature
ENGLISH 102D	Topics in Twentieth-Century Literature
ENGLISH 106	Advanced Seminar: Topics in English Literature
D. Complete two ENGLISH 105 courses with different topics.	
E. Complete at least two more Departmental (English, Literary Journalism, Writing) courses numbered 102 or above, excluding ENGLISH 150, LIT JRN 197, WRITING 139W, or WRITING 179W. An upper-division foreign literature-in-translation course may be substituted for one of the three courses. [1]	
F. Select one from following:	
EDUC 108	Adolescent Development and Education
EDUC 124	Multicultural Education in K-12 Schools
EDUC 128	Exceptional Learners
EDUC 131	Educational Technology
EDUC 153A	Urban Youth and the Development of Literacy through the Arts I
EDUC 153B	Urban Youth and the Development of Literacy through the Arts II
EDUC 173	Cognition and Learning in Educational Settings
EDUC 176	Psychology of Learning, Abilities, and Intelligence
G. Complete at least two units of field work from EDUC 100, WRITING 197, or other relevant experience with prior departmental approval.	
H. Completion of one of the following:	
1. Two years of work in a single acceptable modern foreign language (through 2C) or equivalent, plus either one course in a foreign literature in which texts are read in the original language or two uppper-division courses in foreign literatures in translation. [1]	
2. Select one of the following:	
GREEK 1A- 1B- 1C	Fundamentals of Greek and Fundamentals of Greek and Fundamentals of Greek
LATIN 1A- 1B- 1C	Fundamentals of Latin and Fundamentals of Latin and Fundamentals of Latin
GREEK 100 or LATIN 100 and two GREEK 103 or LATIN 103	
GREEK 100 or LATIN 100 and two GREEK 104 or LATIN 104	
3. Select one of the following:	
CHINESE 3C	Advanced Mandarin Chinese
KOREAN 3C	Advanced Korean
JAPANSE 3C	Advanced Japanese
NOTE: If a student is exempted from 3C based on examination or equivalent, a course in which texts are read in Chinese, Korean, or Japanese is required.	

1 Foreign literature-in-translation courses are offered in Classics, Comparative Literature, East Asian Languages and Literatures, French and Italian, German, and Spanish and Portuguese. COM LIT 150 and COM LIT 160, E ASIAN 160, FLM&MDA 160, FRENCH 160, GERMAN 160, JAPANSE 180, KOREAN 180, and SPANISH 160 when appropriate, also qualify as foreign language literature-in-translation courses.

Requirements for the B.A. Degree in Literary Journalism Major

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

A. Complete:	
LIT JRN 20	Introduction to Literary Journalism
LIT JRN 21	Reporting for Literary Journalism
LIT JRN 100	Advanced Reporting
B. Select one course from the English 28 series, and [1]	
ENGLISH 105	Multicultural Topics in Literatures in English
C. Complete:	

LIT JRN 101A	Studies in the History, Theory, and Ethics of Literary Journalism
LIT JRN 101BW	Literary Journalism Core Writing Seminar (three times, on various topics)
D. Select at least three more Departmental courses numbered 102 or above (excluding ENGLISH 150, LIT JRN 197, WRITING 139W, or WRITING 179W), for one of which may be substituted an upper-division foreign literature-in-translation course offered in the School of Humanities (that is, requisite courses in Classics, Comparative Literature, East Asian Languages and Literatures, French and Italian, German, Spanish and Portuguese).	
E. Two upper-division History courses in a single regional or thematic focus area (excluding History 104).	

[1] Students can substitute COM LIT 60A or COM LIT 60C for any one English 28 course.

Residence Requirement for the Literary Journalism Major: LIT JRN 20, LIT JRN 21, LIT JRN 100, LIT JRN 101A, and three LIT JRN 101BW courses must be completed successfully at UCI.

Departmental Requirements for the English Minor

A. Select three of the following:	
ENGLISH 28A	The Poetic Imagination
ENGLISH 28B	Comic and Tragic Vision
ENGLISH 28C	Realism and Romance
ENGLISH 28D	The Craft of Poetry
ENGLISH 28E	The Craft of Fiction
B. Select at least five Departmental (English, Literary Journalism, Writing) courses numbered 102 or higher (excluding LIT JRN 197 & WRITING 139W), although two courses from the following may be substituted:	
ENGLISH 100	Introduction to Literary Theory
ENGLISH 101W	Undergraduate Seminar in Critical Writing: Topics in Literary History
WRITING 101W	Undergraduate Seminar: Applications in Literary Theory and Criticism for Creative Writing

Residence Requirement for the English Minor: Four upper-division courses must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the department undergraduate chair.

Departmental Requirements for the Literary Journalism Minor

A. Complete:	
LIT JRN 20	Introduction to Literary Journalism
LIT JRN 21	Reporting for Literary Journalism
B. Select one course from the English 28 series. [1]	
C. Complete:	
LIT JRN 100	Advanced Reporting
LIT JRN 101A	Studies in the History, Theory, and Ethics of Literary Journalism
D. Complete:	
LIT JRN 103	Lectures on Topics in Literary Journalism (three times, on various topics.)

[1] Students can substitute COM LIT 60A or COM LIT 60C for any one English 28 course.

Residence Requirement for the Literary Journalism Minor: LIT JRN 20, LIT JRN 21, LIT JRN 100, and LIT JRN 101A must be completed successfully at UCI. By petition, two of the three LIT JRN 103 courses may be taken through the UC Education Abroad Program, providing course content is approved in advance by the Literary Journalism program.

Graduate Program

The Department's three principal undergraduate offerings—English and American Literature, the English major with a Creative Writing emphasis, and Literary Journalism—are reflected in the graduate programs, which at this level, may also involve collaboration with the Department of Comparative Literature: M.A. and Ph.D. in English, M.F.A. in English (fiction/poetry), and an emphasis in Creative Nonfiction within the Ph.D. degree in English. The faculty is particularly equipped to guide students with special interests in criticism and theory, an area which candidates for the Ph.D. in English may stress by adding the Schoolwide Critical Theory emphasis. Applicants for graduate degrees in English must submit scores for the Graduate Record Examination (GRE). Ordinarily students are not admitted to the English program unless they plan to continue, and are qualified to continue, to the degree of Ph.D. Students are admitted to the M.F.A. program chiefly on the basis of submitted creative work.

Specific requirements for the graduate degrees will be established by consultation between members of the faculty and the candidate. First-year graduate students or candidates for the Master of Fine Arts in English (fiction/poetry) plan a program with an assigned advisor; candidates for the Ph.D.

plan with an advisor and three-person committee. At the time of the M.A. examination, the Graduate Committee evaluates the student's graduate career up to that point and offers advice about future prospects. Candidates for literary degrees are also encouraged to study philosophy, history, foreign languages and literatures, and the fine arts.

Only in exceptional circumstances will students be permitted to undertake programs of less than six full courses during the academic year. The normal expectation is enrollment in three courses each quarter; Teaching Assistants take two courses in addition to earning credit for University Teaching. Students who are not teaching should be able to complete course work in two years. The Ph.D. qualifying examination should be taken within a couple of quarters after courses are finished. The normative time for completion of the Ph.D. in English is seven years.

The Murray Krieger Fellowship in Literary Theory is intended for an outstanding entering graduate student who is pursuing the Ph.D. in English or Comparative Literature and who demonstrates a primary interest in theory as theory relates to literary texts. A range of other fellowships is also available to students in the Department.

Emphasis in Creative Nonfiction

Students admitted to the emphasis in Creative Nonfiction must meet all course, language, and examination requirements for the Ph.D. in English. Their course work must include: (1) three writing workshops in nonfiction; (2) three courses in nonfictional literature or rhetoric; and (2) if needed for the projected dissertation, one course outside the Department.

Students must also conduct a dissertation defense.

School Emphases

Schoolwide graduate emphases are available in Asian American Studies, Critical Theory, and Feminist Studies. Refer to the appropriate sections of the *Catalogue* for information.

English

Master of Arts in English

Each candidate for the M.A. will be assigned to a graduate advisor who will supervise the student's program. The M.A. plan of study includes: (1) the completion of course work, as advised, for three quarters or the equivalent; (2) demonstrated proficiency in reading a designated foreign language, modern or classical; and (3) the submission of materials (including a statement about work accomplished and plans for future study, and a sample essay) to the Graduate Committee, who will review and assess the student's progress, recommend whether further study toward the Ph.D. is advisable, and, if so, give advice about areas for further study.

The Department of English sponsors a Summer M.A. Program in English designed for teachers and returning students. The M.A. degree in English is awarded to candidates who complete 32 units of graduate course work through two consecutive summers in the program and submit an acceptable Master's essay, which must be submitted by the end of the third summer.

Master of Fine Arts in English

The Master of Fine Arts (M.F.A.) is a degree in fiction writing or poetry. The M.F.A. degree is normally conferred upon the completion of a three-year residence. Each quarter the candidate will be enrolled in either the poetry or fiction section of the Graduate Writers' Workshop, which will constitute two-thirds of a course load, the other course to be selected in consultation with the student's advisor. It is expected that M.F.A. candidates will complete at least one supervised teaching seminar.

In addition to course work, the candidate is required to present as a thesis an acceptable book-length manuscript of poetry or short stories or a novel. The normative time for completion of the M.F.A. is three years, and the maximum time permitted is four years.

Doctor of Philosophy in English

The program for the Ph.D. in English requires about two years of full-time enrollment in regular courses beyond the B.A.; proficiency in the reading of one acceptable foreign language, modern or classical; satisfactory performance on designated examinations; and the dissertation.

The languages acceptable depends upon the nature of the student's program as determined by the student's advisors. Reading competence in this language must be established in the first year of residence. Competence in the language required for the Ph.D. is verified through examination.

Upon completion of course work the student is examined in three areas: (1) a primary field; (2) a secondary field; and (3) theory and/or criticism.

Upon satisfactorily completing this Qualifying Examination, the student is admitted to candidacy for the degree. As soon after completion of the Qualifying Examination as is practical, the student presents a dissertation prospectus for the approval of the doctoral committee. The dissertation itself must also be approved by the committee, which may or may not require an oral examination on it. All work for the Ph.D. degree must be in courses limited to graduate students. The normative time for advancement to candidacy is four years. The normative time for completion of the Ph.D. is seven years, and the maximum time permitted is nine years.

Faculty

Jonathan Alexander, Ph.D. Louisiana State University, *Campus Writing Coordinator and Professor of English; Culture and Theory; Education; Gender and Sexuality Studies* (writing studies, sexuality studies, queer theory, new media studies)

Bobbie J. Allen, Ph.D. University of Washington, *Lecturer of English*

Elizabeth G. Allen, Ph.D. University of Michigan, *Associate Professor of English*

Michael Andreasen, M.F.A. University of California, Irvine, *Lecturer of English*

Stephen A. Barney, Ph.D. Harvard University, *Professor Emeritus of English*

Jami Bartlett, Ph.D. University of California, Berkeley, *Assistant Professor of English*

Alice C. Berghof, Ph.D. University of California, Irvine, *Lecturer of Humanities; English*

Emily M. Brauer, M.A. University of Southern California, *Lecturer of English*

Carol M. Burke, Ph.D. University of Maryland, College Park, *Professor of English*

Ellen S. Burt, Ph.D. Yale University, *Professor of English; Comparative Literature; European Languages and Studies* (eighteenth-century French literature and nineteenth-century poetry)

James L. Calderwood, Ph.D. University of Washington, *Professor Emeritus of English*

Ronald Carlson, M.A. University of Utah, *Professor of English*

Chieh L. Chieng, M.F.A. University of California, Irvine, *Lecturer of English*

Jerome C. Christensen, Ph.D. Cornell University, *Professor of English*

Michael P. Clark, Ph.D. University of California, Irvine, *Professor of English*

Rachael L. Collins, Ph.D. University of California, Irvine, *Lecturer of English*

Miles Corwin, M.A. University of Missouri-Columbia, *Professor of English*

Keith Danner, Ph.D. University of California, Riverside, *Lecturer of English*

Rebecca Davis, Ph.D. University of Notre Dame, *Assistant Professor of English*

Susan E. Davis, M.F.A. University of California, Irvine, *Lecturer of English*

Lorene D. Delany-Ullman, M.F.A. University of California, Irvine, *Lecturer of English*

Amy Depaul, B.A. Boston University, *Lecturer of English*

Jaya Dubey, M.A. University of California, Irvine, *Lecturer of English*

Kathryn Eason, M.A. University of Colorado Boulder, *Lecturer of English*

Loren P. Eason, Ph.D. University of California, Irvine, *Lecturer of English*

Anita W. Fischer, M.A. Loyola Marymount University, *Lecturer of English*

Robert Folkenflik, Ph.D. Cornell University, *Edward A. Dickson Emeriti Professorship* and *Professor Emeritus of English*

Linda M. Georgianna, Ph.D. Columbia University, *Professor Emerita of English*

Amy Gerstler, M.F.A. Bennington College, *Professor of English*

Richard Godden, Ph.D. University of Kent, *Professor of English*

Chelsea J. Gordon, Ph.D. University of California, Irvine, *Lecturer of English*

Rebecca C. Gray, M.F.A. University of California, Irvine, *Lecturer of English*

Daniel Gross, Ph.D. University of California, Berkeley, *Associate Professor of English*

Alberto D. Gullaba, M.F.A. University of California, Irvine, *Lecturer of English*

Linda G. Haas, Ph.D. University of South Florida, *Lecturer of English*

Martin Harries, Ph.D. Yale University, *Department Chair and Professor of English*

Erika Hayasaki, B.A. University of Illinois at Urbana–Champaign, *Assistant Professor of English*

Rebeca Louise Helfer, Ph.D. Columbia University, *Associate Professor of English*

Andrea K. Henderson, Ph.D. University of Pennsylvania, *Professor of English*

Margaret A. Hesketh, M.F.A. Chapman University, *Lecturer of English*

John W. Hollowell, Ph.D. University of Michigan, *Senior Lecturer with Security of Employment Emeritus of English*

Oren J. Izenberg, Ph.D. Johns Hopkins University, *Assistant Professor of English*

Virginia W. Jackson, Ph.D. Princeton University, *Chair in Rhetoric and Communication* and *Associate Professor of English*

Leah C. Kaminski, M.F.A. University of California, Irvine, *Lecturer of English*

Charlene J. Keeler, M.A. California State University, Fullerton, *Lecturer of English*

Jonathan I. Keeperman, M.F.A. University of California, Irvine, *Lecturer of English*

Arlene Keizer, Ph.D. University of California, Berkeley, *Associate Professor of English; Comparative Literature; Culture and Theory* (African American and Caribbean literature, critical race and ethnic studies, feminist and psychoanalytic theory, cultural studies)

Jeremy A. Kiene, Ph.D. University of Notre Dame, *Lecturer of English*

Douglas V. Kiklowicz, M.F.A. University of California, Irvine, *Lecturer of English*

Laura S. Knighten, Ph.D. University of California, Irvine, *Lecturer of English*

Peter O. Krapp, Ph.D. University of California, Santa Barbara, *Department Chair and Professor of Film and Media Studies; English; Informatics* (media history, secret communication, digital culture, cultural memory, computer games, history and theory of artificial worlds)

P. Michelle Latiolais, M.F.A. University of California, Irvine, *Professor of English*

Karen R. Lawrence, Ph.D. Columbia University, *Professor Emerita of English*

Rodrigo Lazo, Ph.D. University of Maryland, College Park, *Associate Professor of English; Comparative Literature* (hemispheric American studies, nineteenth century, Latino studies and the Americas, Cuba, immigrant literature)

Abbie J. Leavens, M.F.A. University of California, Irvine, *Lecturer of English*

Jayne Elizabeth Lewis, Ph.D. Princeton University, *Professor of English*

Emily A. Liu, Ph.D. University of California, Irvine, *Lecturer of English*

Julia R. Lupton, Ph.D. Yale University, *Professor of English; Comparative Literature; Education* (Renaissance literature, literature and psychology)

Juliet F. MacCannell, Ph.D. Cornell University, *Professor Emerita of English*

Steven J. Mailloux, Ph.D. University of Southern California, *Professor Emeritus of English; Comparative Literature* (rhetoric, critical theory, American literature, law and literature)

Gregory J. McClure, M.F.A. University of California, Irvine, *Lecturer of English*

Mia L. McIver, Ph.D. University of California, Irvine, *Lecturer of English*

Lowell B. McKay, M.F.A. University of California, Irvine, *Lecturer of English*

James L. McMichael, Ph.D. Stanford University, *Professor Emeritus of English*

Erin M. McNellis, Ph.D. University of California, Irvine, *Lecturer of English*

John Miles, Ph.D. Harvard University, *UCI Distinguished Professor of English*

J. Hillis Miller, Ph.D. Harvard University, *UCI Endowed Chair* and *Professor Emeritus of Comparative Literature; English* (Victorian literature, critical theory)

Lisa L. Montagne, Ed.D. California State University, Fullerton, *Lecturer of English*

Joseph M. Morales, Ph.D. University of California, Berkeley, *Lecturer of Humanities; English*

Olga Moskvina, M.F.A. University of California, Irvine, *Lecturer of English*

Robert W. Newsom, Ph.D. Columbia University, *Professor Emeritus of English*

Margot Norris, Ph.D. State University of New York College at Buffalo, *Professor Emerita of English; Comparative Literature* (modern Irish, British, American and continental modernism, literature and war)

Laura B. O'Connor, Ph.D. Columbia University, *Associate Professor of English; Comparative Literature* (Irish literature, twentieth-century poetry, Anglo-American modernism)

Tira A. Palmquist, M.F.A. University of California, Irvine, *Lecturer of English*

Joy L. Parker, M.F.A. New York University, *Lecturer of English*

Aaron M. Peters, M.F.A. University of California, Irvine, *Lecturer of English*

Robert L. Peters, Ph.D. University of Wisconsin-Madison, *Professor Emeritus of English*

Eric M. Peterson, Ph.D. University of California, Irvine, *Lecturer of English*

Bradley A. Queen, Ph.D. Boston University, *Lecturer with Potential Security of Employment of English*

Rajagopalan Radhakrishnan, Ph.D. Binghamton University, State University of New York, *UCI Chancellor's Professor of English; Comparative Literature; Culture and Theory* (critical theory, postcoloniality, nationalisms and diasporas, poststructuralism, postmodernism, democracy and minority discourse, cultural studies, globalization and transnationalism)

Barbara L. Reed, Ph.D. Indiana University, *Lecturer with Security of Employment Emerita of English*

Ryan C. Ridge, M.F.A. University of California, Irvine, *Lecturer of English*

Hugh J. Roberts, Ph.D. McGill University, *Associate Professor of English*

John C. Rowe, Ph.D. State University of New York College at Buffalo, *Professor Emeritus of English; Comparative Literature*

Michael Ryan, Ph.D. University of Iowa, *Professor of English*

Tarah M. Scalzo, M.A. University of California, Irvine, *Lecturer of English*

Edgar T. Schell, Ph.D. University of California, Berkeley, *Professor Emeritus of English*

Gretchen K. Short, Ph.D. University of California, Irvine, *Lecturer of Humanities; English*

Barry E. Siegel, M.S. Columbia University, *Professor of English*

Victoria A. Silver, Ph.D. University of California, Los Angeles, *Associate Professor of English; European Languages and Studies* (early modern literature and culture, religious studies, history and theory of rhetoric, literature and philosophy)

Richard A. Sims, M.F.A. University of California, Irvine, *Lecturer of English*

James Steintrager, Ph.D. Columbia University, *Professor of English; Comparative Literature; European Languages and Studies* (eighteenth-century comparative literature, ethical philosophy and literature, systems theory, amatory and erotic fiction)

Michael F. Szalay, Ph.D. Johns Hopkins University, *Professor of English*

Ngugi Wa Thiong'O, B.A. Makerere University, *UCI Distinguished Professor of Comparative Literature; English* (African and Caribbean literatures, theater and film, performance studies, cultural and political theory)

Brook Thomas, Ph.D. University of California, Santa Barbara, *UCI Chancellor's Professor of English*

Harold E. Toliver, Ph.D. University of Washington, *Professor Emeritus of English*

Andrew T. Tonkovich, M.F.A. University of California, Irvine, *Lecturer of English*

Irene Tucker, Ph.D. University of California, Berkeley, *Professor of English*

Georges Y. Van Den Abbeele, Ph.D. Cornell University, *Dean of the School of Humanities* and *Professor of Comparative Literature; English; European Languages and Studies; Film and Media Studies*

Ann J. Van Sant, Ph.D. University of California, Berkeley, *Associate Professor of English*

Andrzej J. Warminski, Ph.D. Yale University, *Professor of English; European Languages and Studies; Humanities* (romanticism, history of literary theory, contemporary theory, literature and philosophy)

Jacqueline Y. Way, Ph.D. University of California, Irvine, *Lecturer of English*

Henry Weinstein, J.D. University of California, Berkeley, *Senior Lecturer of School of Law; English*

Allison Benis White, M.F.A. University of California, Irvine, *Lecturer of English*

Amy Wilentz, B.A. Harvard University, *Professor of English*

David Lee Wirthlin, M.F.A. The Art Institute of Chicago, *Lecturer of English*

Geoffrey Wolff, B.A. Princeton University, *Professor Emeritus of English*

Criticism Courses

CRITISM 220A. Studies in Literary Theory and Its History. 4 Units.
Introduction to criticism and aesthetics for beginning graduate students. Readings from continental, English, and American theorists.

Same as HUMAN 220A.

Restriction: Graduate students only.

CRITISM 220B. Studies in Literary Theory and Its History. 4 Units.
Introduction to criticism and aesthetics for beginning graduate students. Readings from continental, English, and American theorists.

Same as HUMAN 220B.

Restriction: Graduate students only.

CRITISM 240. Advanced Theory Seminar. 4 Units.
Studies in selected areas of Criticism Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

English Courses

ENGLISH 8. Multicultural American Literature. 4 Units.
Writings from at least two historically underrepresented groups in California and the United States with particular attention to historical conditions of literary production. Considers in-depth how literary works relate to racial constructions, economic conditions, and/or social movements.

(IV, VII)

ENGLISH 10. Topics in English and American Literature. 4 Units.
Explores the diversity of human expression manifested in selected works of literature. By engaging with substantial literary texts, students will think critically about how meaning is created and how experience is interpreted in literary language.

Repeatability: May be taken for credit 3 times as topics vary.

(IV)

ENGLISH 11. Society, Law, and Literature. 4 Units.
How works of literature represent and influence the relation between law and society. The primary readings will be works of literature, but selections of works of law, politics, and sociology may also be assigned.

(III or IV).

ENGLISH 12. Young Adult Fiction . 4 Units.
Young adult fiction studied in historical context, including the publishing industry and mass marketing as well as education and literacy. Primary readings will focus on young adult fiction, but works of history, advertising, and film will also be included.

(IV)

ENGLISH 28A. The Poetic Imagination. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 28B. Comic and Tragic Vision. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 28C. Realism and Romance. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 28D. The Craft of Poetry. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers. Requires creative writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 28E. The Craft of Fiction. 4 Units.
Reading of selected texts to explore the ways in which these modes formulate experience. Students write several short analytic papers. Requires creative writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(IV)

ENGLISH 100. Introduction to Literary Theory. 4 Units.
Using Plato and Aristotle as points of departure, addresses a range of perspectives and problems in literary theory. To be taken by English majors in the junior year.

Prerequisite: (ENGLISH 28A and ENGLISH 28B and ENGLISH 28C) or (ENGLISH 28D and ENGLISH 28B and ENGLISH 28C) or (ENGLISH 28A and ENGLISH 28B and ENGLISH 28E) or (ENGLISH 28A and ENGLISH 28B and ENGLISH 28C) or (ENGLISH 28D and ENGLISH 28B and ENGLISH 28E), or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28A) or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28B) or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28C) or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28D) or (LIT JRN 20 and LIT JRN 21 and ENGLISH 28E).

ENGLISH 101W. Undergraduate Seminar in Critical Writing: Topics in Literary History. 4 Units.
Each instructor identifies a topic within literary history; special attention will be given to mastering the conventions of academic argument and expression. To be taken as early as possible in the junior year.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)). Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

(Ib)

ENGLISH 102A. Topics in Medieval and Renaissance Literature. 4 Units.
Studies of works representative of Medieval and Renaissance literature in English, with attention to literary history, treating at a minimum more than one author and more than one genre.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)).

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

ENGLISH 102B. Topics in Restoration and Eighteenth-Century Literature . 4 Units.
Studies of works representative of Restoration and eighteenth-century literature in English, with attention to literary history, treating at a minimum more than one author and more than one genre.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)).

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

ENGLISH 102C. Topics in Romantic and Nineteenth-Century Literature. 4 Units.
Studies of works representative of Romantic and nineteenth-century literature in English, with attention to literary history, treating at a minimum more than one author and more than one genre.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)).

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

ENGLISH 102D. Topics in Twentieth-Century Literature. 4 Units.
Studies of works representative of twentieth-century literature in English, with attention to literary history, treating at a minimum more than one author and more than one genre.

Prerequisite: (Three courses in ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E) or (LIT JRN 20 and LIT JRN 21 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E)).

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. English majors have first consideration for enrollment.

ENGLISH 103. Topics in Literature, Theory, and Criticism. 4 Units.
A series of lectures on and discussions of announced topics in literary criticism, theory, history, genres, modes, major authors.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

ENGLISH 105. Multicultural Topics in Literatures in English. 4 Units.
Focuses on ethnic or minority literatures, or treats issues related to race and cultural identity.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

ENGLISH 106. Advanced Seminar: Topics in English Literature . 4 Units.
Capstone course. Provides intensive work on a topic within the area of literatures in English with particular attention to the theoretical, critical, or conceptual issues it raises, with the goal of producing a substantive research paper.

Prerequisite: (ENGLISH 101W or WRITING 101W) and (ENGLISH 100 and 102A) or (ENGLISH 100 and 102B) or (ENGLISH 100 and 102C) or (ENGLISH 100 and 102D) or (ENGLISH 102A and 102B) or (ENGLISH 102A and 102C) or (ENGLISH 102A and 102D) or (ENGLISH 102B and 102C) or (ENGLISH 102C and 102D) or (ENGLISH 103 and 102A) or (ENGLISH 103 and 102B) or (ENGLISH 103 and 102C) or (ENGLISH 103 and 102D) or (ENGLISH 105 and 102A) or (ENGLISH 105 and 102B) or (ENGLISH 105 and 102C) or (ENGLISH 105 and 102D) or (ENGLISH 100 and 103) or (ENGLISH 103 and 105) or (ENGLISH 100 and 105).

Repeatability: Unlimited as topics vary.

Restriction: English majors have first consideration for enrollment. Seniors only.

ENGLISH 150. Topics in Literature for Nonmajors . 4 Units.
Major texts in English, American, and Comparative Literature explored for basic humanistic issues and themes, on announced topics. Primarily for upper-division students, but not requiring previous training in literature.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

ENGLISH 160. English Language Cinema. 4 Units.
Focuses on any one of the different cinematic traditions in the English-speaking world, from a historical theoretical, or comparative perspective.

Repeatability: May be taken for credit 2 times as topics vary.

ENGLISH 198. Special Topics. 4 Units.
Directed group study of selected topics as arranged by instructor.

Repeatability: May be repeated for credit unlimited times.

ENGLISH 199. Independent Study. 1-4 Units.
To be taken only when the materials to be studied lie outside the normal run of departmental offerings, and when the student will have no formal chance to pursue the subject. Research paper required.

Repeatability: May be repeated for credit unlimited times.

ENGLISH 210. Studies in Literary History. 4 Units.
Studies in selected areas of literary history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ENGLISH 215. Prospectus Workshop. 2 Units.
Workshop for the writing of the graduate student prospectus for those who have completed their qualifying examinations. Topics covered and assignments completed culminate in a presentation of a draft of the prospectus in class. Biweekly discussions.

ENGLISH 225. Studies in Literary Genres. 4 Units.
Studies in selected areas of literary genres. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ENGLISH 230. Studies in Major Writers. 4 Units.
Studies in selected areas of major writers. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

ENGLISH 255. Graduate Workshop in Academic Publishing. 4 Units.
Reading and critique of student-authored essays with the goal of producing a publishable essay. Instructor leads discussion, meets with students individually, and provides an introduction to appropriate venues for publication and the process of submission, peer review, and revision.

Grading Option: Satisfactory/unsatisfactory only.

ENGLISH 290. Reading and Conference. 4-12 Units.
Studies in selected areas. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

ENGLISH 291. Guided Reading Course. 4 Units.
Studies in selected areas. Topics addressed vary each quarter.

ENGLISH 299. Dissertation Research. 4-12 Units.
A units-only course for students in the dissertation phase.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

ENGLISH 398. Rhetoric/Teaching of Composition. 4 Units.
Readings, lectures, and internship designed to prepare graduate students to teach composition. Formal instruction in rhetoric and practical work in teaching methods and grading.

ENGLISH 399. University Teaching. 4 Units.
A units-only course for students appointed as teaching assistants or associates.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Literary Journalism Courses

LIT JRN 20. Introduction to Literary Journalism. 4 Units.
Reading of selected texts to explore the ways in which literary journalism and related nonfiction modes formulate experience. Students complete a range of writing projects.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Literary Journalism majors have first consideration for enrollment.

(IV)

LIT JRN 21. Reporting for Literary Journalism. 4 Units.
Instruction and hands-on training in how to interview, report, research, and collect the types of information needed to write literary journalism.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Literary Journalism majors have first consideration for enrollment.

LIT JRN 100. Advanced Reporting. 4 Units.
Practical engagement with advanced reporting techniques of Literary Journalism, emphasizing the importance of thorough and effective research in the production of high-quality journalistic writing. Prepares students to make good decisions about where and how to publish their writing.

Prerequisite: LIT JRN 21.

LIT JRN 101A. Studies in the History, Theory, and Ethics of Literary Journalism. 4 Units.
Required of upper-division majors in Literary Journalism. Lectures and discussion on topics that explore the historical and theoretical dimensions of literary journalism, with particular emphasis on the evolution of ethics in the field.

Prerequisite: LIT JRN 21 and LIT JRN 20 and (ENGLISH 28A or ENGLISH 28B or ENGLISH 28C or ENGLISH 28D or ENGLISH 28E or COM LIT 60A or COM LIT 60B or COM LIT 60C).

LIT JRN 101BW. Literary Journalism Core Writing Seminar. 4 Units.
Limited to 20 students. Writing seminars in announced specialized genres that students will both study and practice. Examples: "The Memoir"; "Review Writing"; "The Editorial"; "Writing Biography"; "The Profile"; "Political Writing.".

Prerequisite: LIT JRN 101A. Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be taken for credit 3 times as topics vary.

Restriction: Upper-division students only. Students may enroll in a maximum of one LIT JRN 101BW course per quarter.

(Ib)

LIT JRN 103. Lectures on Topics in Literary Journalism. 4 Units.
A series of lectures on, and discussions of, announced topics in literary journalism and the literature of fact. Examples: "Writing the Palate"; "Early Modern Women in the Public Sphere"; "Victorian Cultural Critics"; "Writing about War.".

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

LIT JRN 197. Community Reporting . 4 Units.
Directed group study in which students work with an instructor to report and write about community news in a newsroom-style format. Students will partner with local publications to pitch, market, and publish their stories.

Prerequisite: Satisfactory completion of lower-division writing requirement.

Repeatability: May be repeated for credit unlimited times.

LIT JRN 198. Special Topics. 4 Units.
Directed group study of selected topics.

Repeatability: Unlimited as topics vary.

LIT JRN 199. Reading and Conference. 1-4 Units.
To be taken only when the materials to be studied lie outside the normal run of departmental offerings.

Repeatability: May be repeated for credit unlimited times.

Writing Courses

WRITING 30. The Art of Writing: Poetry. 4 Units.
Beginners' workshop in the writing of poetry, evaluation of student manuscripts, and parallel readings.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Repeatability: May be taken for credit 2 times.

(Ia)

WRITING 31. The Art of Writing: Prose Fiction. 4 Units.
Beginners' workshop in fiction writing, evaluation of student manuscripts, and parallel readings.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Repeatability: May be taken for credit 2 times.

(Ia)

WRITING 37. Intensive Writing. 6 Units.
Offers instruction in the process of writing, rhetorical principles, and sentence-level mechanics. Provides guided practice in writing. Readings selected from current fiction and nonfiction; writing assignments require analysis of readings and demonstration of rhetorical principles.

Prerequisite: Students must have taken the Analytical Writing Placement Examination.

Overlaps with WRITING 39A, WRITING 39B.

Restriction: Enrollment open only to recommended students.

(Ia)

WRITING 39A. Introduction to Writing and Rhetoric. 4 Units.
Deals with the writing of expository essays, principles of rhetoric, paragraph development, and the fundamentals of sentence-level mechanics. Frequent papers, some exercises. Course may be offered online.

Prerequisite: Students must have taken the UC Analytical Writing Placement Examination with placement in Writing 39A.

Overlaps with WRITING 37, WRITING 39A.

WRITING 39B. Critical Reading and Rhetoric. 4 Units.
Guided practice in the critical reading and written analysis of both popular and academic prose. Readings selected from literary, academic, journalistic, and fictional genres; writing topics require rhetorical analysis of readings and demonstration of rhetorical principles in student writing. Course may be offered online.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

Overlaps with WRITING 37.

(Ia)

WRITING 39C. Argument and Research. 4 Units.
Guided writing practice in argumentation, logic, and inquiry. Readings are selected from current nonfiction and from materials students select from the University Library. Research strategies emphasized. Course may be offered online.

Prerequisite: WRITING 37 or WRITING 39B.

(Ia)

WRITING 90. Intermediate Poetry Writing. 4 Units.
Intermediate workshop in the writing of poetry, evaluation of student manuscripts, and parallel readings.

Prerequisite: WRITING 30.

Repeatability: May be taken for credit 2 times.

WRITING 91. Intermediate Fiction Writing. 4 Units.
Intermediate workshop in the writing of fiction, evaluation of student manuscripts, and parallel readings.

Prerequisite: WRITING 31.

Repeatability: May be taken for credit 2 times.

WRITING 101W. Undergraduate Seminar: Applications in Literary Theory and Criticism for Creative Writing. 4 Units.
Substitute for ENGLISH 101 for Creative Writing emphasis students.

Prerequisite: ENGLISH 100 or LIT JRN 100. Satisfactory completion of the lower-division writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: English majors and Literary Journalism majors only.

(Ib)

WRITING 110. Short Story Writing. 4 Units.
Three-hour workshop in short fiction; discussion of student writing and of relevant literary texts.

Repeatability: May be taken for credit 2 times.

WRITING 111. Poetry Writing. 4 Units.
Three-hour advanced poetry writing workshop; discussion of student writing and of relevant literary texts.

Repeatability: May be taken for credit 2 times.

WRITING 113. Novel Writing. 4 Units.
Three-hour advanced workshop in fiction writing; discussion of student writing and of relevant literary texts.

WRITING 115. Conference in Writing. 4 Units.
Primarily for writing emphasis seniors.

Repeatability: May be taken for credit 2 times.

WRITING 139W. Advanced Expository Writing. 4 Units.
Study of rhetorical techniques; practice in writing clear and effective prose. Several essays of varying lengths, totaling at least 4,000 words. May not be counted toward the upper-division requirements for majors or minors.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only.

(Ib)

WRITING 179W. Advanced Composition for Teachers. 4 Units.
Principles of formal composition and problems of teaching. Selecting handbooks and ancillary reading, marking papers, making assignments, and conducting workshops and tutorials.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as EDUC 179W.

Restriction: Upper-division students only.

(Ib)

WRITING 197. Writing Internship . 2-4 Units.
Internships focused on writing. In consultation with a faculty advisor, students create a course from response essays, research essays, and assessment project data. Internships may include editing and publication projects, supervised teaching and tutoring assignments, community literacy projects.

Prerequisite: Satisfactory completion of the lower-division writing requirement.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

WRITING 250A. Graduate Writers' Workshop (Fiction). 4 Units.
Graduate fiction workshop open to students enrolled in the MFA program in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

WRITING 250B. Graduate Writers' Workshop (Fiction). 4 Units.
Graduate fiction workshop open to students enrolled in the MFA program in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

WRITING 250C. Graduate Writers' Workshop (Poetry). 8 Units.
Graduate poetry workshop open to students enrolled in the MFA Programs in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Humanities graduate students only.

WRITING 251A. Writing in Conference (Fiction). 4 Units.
Graduate fiction workshop open to students enrolled in the MFA program in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

WRITING 251B. Writing in Conference (Fiction). 4 Units.
Graduate fiction workshop open to students enrolled in the MFA program in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

WRITING 251C. Writing in Conference (Poetry). 8 Units.
Graduate poetry workshop open to students enrolled in the MFA Programs in Writing.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

WRITING 252. Graduate Workshop in Nonfiction. 4 Units.
Reading and critique of student manuscripts in creative nonfiction. The instructor leads discussions and meets with students on an individual basis.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

Department of European Languages and Studies

243 Humanities Instructional Building; 949-824-6406
http://www.humanities.uci.edu/els/
Jane O. Newman, **Department Chair**

The Department of European Languages and Studies provides undergraduates with the opportunity to study Europe in its geographical, linguistic, historical, literary, artistic, and cultural diversity. The literatures, histories, and cultures of European nation-states have always been closely interconnected, even before the individual regions became nation-states. It is nearly impossible to study any era—the Renaissance, the Early Modern period, the Enlightenment, the Romantic period, or the Modern period—without taking into account the influence of one European nation on other European nations. Almost all significant European literary and artistic movements have been cross-cultural and transnational. The current configuration of Europe—the European Union—is merely the most recent socio-political and economic realization of the intense cross-pollination of ideas and institutions that defines—and has always defined—the continent. Immigration and the displacement of populations throughout the continent are constants of European history and have long inflected literary and artistic production in ways scholars continually explore. The history of European colonial enterprises and their afterlives have had a profound impact on the shape of the world in which we live; the Department is committed to a critical engagement with these legacies.

The Department offers majors in European Studies, French, and German Studies; minors in European Studies, French, German Studies, Italian Studies, and Russian Studies; as well as a graduate program (M.A., Ph.D.) in German. The Department also offers language training in French, German, Italian, and Russian with emphasis on the communicative and interpretive aspects of language learning. The goal is the achievement of translingual and transcultural competency. University language study is the critical investigation of a foreign linguistic system and the cultures defined by it. It is also an investigation of one's own native language(s): it is nearly impossible for us to scrutinize and analyze something we know as intimately as our native language and yet this is the order by which we formulate our thoughts and the order which may sometimes formulate our thoughts for us. The "foreignness" of a foreign language allows us to objectify an entire linguistic system, to observe its structure and its usage, and then to make comparisons with our own linguistic situation. This kind of knowledge of one's own languages is the foundation of critical reflection on texts of any nature—historical, philosophical, literary, political, legal, journalistic, and others. Thus serious study of a language other than English is crucial to a university education. The Department teaches its language courses with this principle in mind and seeks to provide its students with a framework for critical linguistic and cultural learning.

Career Opportunities

European Studies

A degree in European Studies prepares its graduates to enter advanced degree programs in international business, history, law, and political science. The strong academic skills and professional orientation acquired by European Studies majors are necessary to pursue successful careers in such fields as international banking, law, journalism, management, public relations, publishing, and government service, as well as social justice and non-governmental organization (NGO) work both in the United States and abroad. Humanities graduates in general learn to express ideas clearly, do independent research, and think analytically and imaginatively—the required tools for success beyond the undergraduate career.

French

The great majority of students who major in French pursue careers in business and commerce, where they can take advantage not only of their proficiency in French language but also of their knowledge of French and Francophone literature and culture. Students also go on to law school, to medical school, and to careers in the diplomatic service and education. The multidisciplinary approach to the study of literature and culture teaches students to think critically and develops analytical skills that can be applied to a wide range of problems. It also helps students develop the interpretive and writing skills necessary to express their own ideas clearly and persuasively. Whether they enter business or professions such as law, education, or government, French majors acquire the intellectual and communicative skills requisite for success.

German Studies

The ability to speak and write German can open up opportunities in communications, international business and banking, transportation, government, science and technology, tourism, library services, and teaching, as well as in social justice and non-governmental organization (NGO) work. Because German plays an important role in modern technology, employers in international law, business, the film industry, the airline and travel industry, journalism, professional translating, and all levels of education increasingly seek students with a knowledge of German. German is excellent preparation for professional schools. It can be combined successfully with work in the natural sciences, business and management, and computer sciences, and it is invaluable for advanced work in the humanities and the arts.

UCI Career Center

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. For additional information, see the Career Center (p. 124) section.

Undergraduate Program in European Studies

The European Studies program focuses on the study of Europe from the vantage points of several disciplines in the humanities and social sciences. Because Europe is both a geographical place and an idea that changes throughout history, it has had different meanings at different times and in different places. The study of Europe thus requires an open, pluralistic, and interdisciplinary curriculum that takes a critical approach to the idea (or ideas) of Europe.

The program provides a multidisciplinary view of Europe as a whole and of its historical, political, and cultural formation and global implications and encounters with the non-European world. It also provides a focus on a specific area of European experience that cuts across traditional disciplinary and national boundaries. Participation in the UC Education Abroad Program in a European country is strongly recommended for all European Studies majors.

Requirements for the B.A. Degree in European Studies

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Requirements for the Major

Completion of two years of language (through the 2C level or equivalent) in French, German, classical Greek, Italian, Latin, Portuguese, Russian, or Spanish.

Fourteen courses, of which five may be lower-division:

A. Complete:	
HISTORY 70B	Problems in History: Europe
B. Complete:	
EURO ST 101A- 101B	European Studies Core I - Early Europe (Pre-1789) and EUROPEAN STUDIES CORE II: MODERN EUROPE (1789-PRESENT)
C. Six courses from an approved emphasis list (see sample below), four of which must be upper-division.	
D. Four multidisciplinary electives: two courses in European History or Political Science or Social Science outside the student's emphasis, and two courses in European Literature or Arts outside the student's emphasis. [1]	
E. Complete:	
EURO ST 190W	Senior Seminar in European Studies

[1] For the student with a focus on modern Europe, at least one of these courses must be on a pre-1789 topic; for the student with an emphasis in Medieval or Early Modern Europe, one of these courses must be on a post-1789 topic.

NOTE: One course from either the approved emphasis list or the elective category must be from the Encounters with the Non-European World emphasis.

NOTE: Courses are sometimes approved in more than one emphasis. Any course that appears on the approved list for a student's emphasis cannot be used as a course outside the emphasis even if it also appears on other lists.

Residence Requirement for the Major: At least five upper-division courses required for the major must be completed successfully at UCI.

Emphases and Approved Courses: The following emphases are available in the major in European Studies:

- British Studies
- Early Modern Europe (1450–1789)
- Encounters with the Non-European World
- French Studies
- German Studies
- Italian Studies
- Medieval Studies
- Modern Europe (1789–present)
- Russian Studies
- Spanish/Portuguese Studies
- The Mediterranean World: Past and Present

The list of approved courses is extensive and varies from quarter to quarter, depending upon course scheduling. For complete up-to-date information about approved courses, students are advised to consult the European Languages and Studies (http://www.humanities.uci.edu/els) website.

Requirements for the Minor

A. Complete:	
HISTORY 70B	Problems in History: Europe
B. Complete:	
EURO ST 101A- 101B	European Studies Core I - Early Europe (Pre-1789) and EUROPEAN STUDIES CORE II: MODERN EUROPE (1789-PRESENT)
C. Three courses selected from a single emphasis.	
D. Four electives: two courses in European History or Political Science or Social Science outside the student's emphasis, and two courses in European Literature or Arts outside the student's emphasis, approved by petition to the European Studies Committee. [1]	

[1] For the student with a focus on modern Europe, at least one of these courses must be on a pre-1789 topic; for the student with an emphasis in Medieval or Early Modern Europe, one of these courses must be on a post-1789 topic.

NOTE: Courses are sometimes approved in more than one emphasis. Any course that appears on the approved list for a student's emphasis cannot be used as a course outside the emphasis even if it also appears on other lists.

Residence Requirement for the Minor: At least four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department Undergraduate Director.

Undergraduate Program in French

The undergraduate major in French offers a broad humanistic course of study designed for students majoring in the liberal arts or double majoring in another discipline. The orientation of the program is multidisciplinary, where the study of literature is linked to critical, cultural, and historical concerns. Courses reflect the faculty's interest in the related disciplines of history, philosophy, anthropology, gender and sexuality studies, cultural studies, and comparative literature. The study of French and Francophone literature and culture is enriched by pursuing its relations with other disciplines, fields, and cultures.

Lower-division language courses encourage students to participate in the creative process of language, to think in French as they learn to understand, speak, read, and write. These courses are taught entirely in French; the Language Laboratory is used to complement classroom activity.

At the intermediate lower-division level, texts of contemporary literary and social interest provide the focus for advanced conversation, reading, and composition. After the second year, advanced courses in conversation and writing enable students to attain a greater degree of proficiency, preparing them for further study in the upper-division program. In the advanced courses, the student learns to analyze and interpret different types of creative literature and is introduced to various critical concepts and vocabularies. In recent years, courses have been offered in literature and the Enlightenment, the Surrealist imagination, French cinema, autobiography, Francophone literature, literature by women, new wave cinema, Paris: Art Capital of Europe, The Writer as Fighter, the Conquest of Algeria: French Colonization in Algeria, terrorism, and colonial conflict. The content of courses changes yearly

according to the interests of both faculty and students. In the junior or senior year, students have the opportunity, in the context of the capstone seminar (FRENCH 185), to pursue a single project in depth, leading to a final research paper.

The program strongly encourages its students to take advantage of the study-abroad programs in French-speaking countries to improve their language skills and gain invaluable cultural experience in a foreign university setting. The program recommends the UC Education Abroad Program which runs programs of differing lengths in France (Lyon, Bordeaux, and Paris). Credit for courses taken through study-abroad programs is available. Students are advised to discuss their course of study with the Undergraduate Director before their departure and to arrange to bring home proof of their work.

Language placement examinations are not required, although an optional placement examination is available. Students will be placed in French language courses according to their years of previous study. See Language Other Than English Placement and Progression (p. 625).

Transfer students who have had a previous course (or courses) in French from another college or university who want to enroll in any French 1A through 2C course at UCI must take a copy of their transcript to their academic counseling office in order to receive authorization to enroll in the appropriate course.

Requirements for the B.A. Degree in French

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Departmental Requirements for the Major

A. Complete:	
FRENCH 100A	Advanced French Writing: Reading and Telling Stories
FRENCH 100B	Advanced French Essay Writing: Argument and Evidence
FRENCH 101A	Introduction to Nineteeth-Century French Literature
FRENCH 101B	Introduction to Eighteenth-Century French Literature
FRENCH 101C	Introduction to Twentieth-Century French Literature
FRENCH 185	Junior/Senior Seminar in French Literature and Culture
B. Six additional upper-division French courses. Students may take up to three French courses taught in English.	

Residence Requirement for the Major: FRENCH 185 and four upper-division courses (excluding FRENCH 100A, FRENCH 100B, FRENCH 101A, FRENCH 101B, FRENCH 101C) must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved by the Humanities Office of Undergraduate Study and the Director of the undergraduate program in French.

Requirement for the French Minor

A. Complete:	
FRENCH 100A	Advanced French Writing: Reading and Telling Stories
FRENCH 100B	Advanced French Essay Writing: Argument and Evidence
B. Five French courses, four of which must be upper-division; four of these must be taught in French. Prerequisite: FRENCH 2C or equivalent.	

Residence Requirement for the Minor: At least four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department Undergraduate Director.

Planning a Program of Study

Students should consult with the faculty to plan a coherent program of courses to fulfill the major requirements. Students also should consult with faculty members concerning career plans in areas such as teaching, business, journalism, law, public service, as well as social justice and international non-governmental organization (NGO) work.

Courses

The "Courses" tab at the top of this page contains all French courses. Scroll down to "French Courses."

Undergraduate and Graduate Programs in German Studies

The German Studies programs emphasize the humanistic endeavor of understanding and evaluating culture. Courses are focused on language, literature, and film in context, that is, within the historical, social, philosophical, linguistic, intellectual, and political circumstances of their production and continuing reception. Courses on German, Austrian, and Swiss literature, film, and culture offer a variety of critical perspectives from historical, social, or politically engaged readings to feminist analysis and cultural studies. Topics range from authors, periods, and genres to the history of German-language literature and film, philosophy, theory and criticism, European cultural relations, and cultural artifacts in a globalized social and political context.

The German Studies major can be combined as a double major with any other UCI course of study, and the minor may be taken in tandem with any UCI major.

Courses in the program are taught in German to the extent compatible with the aim of the course. In the lower-division language courses students develop skills in speaking, listening, reading, and writing through an engaging, collaborative, task-based curriculum. The courses place a great deal of emphasis on meaningful cultural literacy in German, employing a diverse range of authentic texts and materials from the beginning. During the second year (intermediate), students benefit from a curriculum based on authentic literary and cultural content (theatre, media) and simulation of “real world” situations. These courses have the additional goal of contributing to students’ education in the humanities and developing their skills in critical thinking.

After completion of the intermediate level, students enroll in the GERMAN 101–GERMAN 115 series, which emphasizes advanced reading, writing, and speaking skills while providing an introduction to a variety of German topics and texts in literature, culture, film, linguistics, and business. Courses in this series are taken in preparation for GERMAN 117, GERMAN 118, GERMAN 119, GERMAN 120, GERMAN 130, which provide advanced instruction in periods ranging historically from the Reformation to the present and cover a variety of topics and approaches. A further series of courses (GERMAN 140, GERMAN 150, GERMAN 160, GERMAN 170) is taught in English for both German Studies students and those who do not speak the language, and covers topics in German, Austrian, and Swiss literature and culture, literary theory, philosophy, linguistics, and criticism as well as German-language cinema.

Students are encouraged to participate in work- and study-abroad programs in German-speaking countries. The Department recommends the UC Education Abroad Program (EAP) in Berlin where students may enroll at any of the city universities (Free University, Humboldt University, Berlin Technical University) and take courses at others as desirable. UCEAP students complete an advanced language program before enrolling in university courses.

German placement tests are recommended for students who have successfully completed foreign language classes in high school or elsewhere. To obtain information about the German placement test, contact the UCI Academic Testing Office at (949) 824-6207. Students with college-level course work should present their transcript to their academic counseling office, for assistance in determining which UCI course to take.

Requirements for the B.A. Degree in German Studies

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Departmental Requirements for the Major

A. Select six of the following:	
GERMAN 101	Introduction to German Literature and Culture
GERMAN 102	German Culture and Society
GERMAN 103	German Film
GERMAN 104	Introduction to Germanic Linguistics
GERMAN 105	German for Business and Economics
GERMAN 115	Advanced German for Business and Economics
GERMAN 117	Topics in German Literature and Culture 750-1750
GERMAN 118	Studies in the Age of Goethe
GERMAN 119	Studies in Nineteenth-Century German Literature and Culture
GERMAN 120	Studies in Twentieth Century German Literature and Culture
GERMAN 130	Topics in German Literature and Culture
B. Select three of the following: [1,2]	
GERMAN 140	Topics in Literary Theory and Criticism
GERMAN 150	German Literature and Culture in Translation
GERMAN 160	German Cinema
GERMAN 170	Topics in German Linguistics
C. Select three of the following: [2]	
GERMAN 140	Topics in Literary Theory and Criticism
GERMAN 150	German Literature and Culture in Translation
GERMAN 160	German Cinema
GERMAN 170	Topics in German Linguistics
LINGUIS 3	Introduction to Linguistics
Comparative Literature [3]	
German history [3]	

German philosophy [3]	
German political science [3]	

1 One of which can be taken in satisfaction of the upper-division writing requirement.

2 GERMAN 140, GERMAN 150, GERMAN 160, GERMAN 170 are variable topics courses and may be repeated for credit as topics vary.

3 Must be approved by the advisor for the major.

Residence Requirements for the Major: At least six of the upper-division courses required for the major must be completed successfully at UCI. Other courses may be taken through the UC Education Abroad Program, provided that course content is approved in advance by the Undergraduate Director and the Humanities Office of Undergraduate Study.

Education Abroad Option: Up to a maximum of six upper-division courses taken during study abroad may be counted toward the major requirement. All such courses must be approved by the Undergraduate Director and students are advised to consult with the Undergraduate Director both before and after their stay abroad. Course approval typically involves the following: (1) presentation of syllabi and other pertinent course materials (term papers, exams, etc.) from the foreign host university, and (2) approval by the Undergraduate Director and the Humanities Office of Undergraduate Study. In planning their undergraduate career, all students should keep in mind the Residence Requirement (see above).

Departmental Requirements for the Minor

A. Select four of the following:

GERMAN 101	Introduction to German Literature and Culture
GERMAN 102	German Culture and Society
GERMAN 103	German Film
GERMAN 104	Introduction to Germanic Linguistics
GERMAN 105	German for Business and Economics
GERMAN 115	Advanced German for Business and Economics
GERMAN 117	Topics in German Literature and Culture 750-1750
GERMAN 118	Studies in the Age of Goethe
GERMAN 119	Studies in Nineteenth-Century German Literature and Culture
GERMAN 120	Studies in Twentieth Century German Literature and Culture
GERMAN 130	Topics in German Literature and Culture

B. Select three of the following:

GERMAN 101	Introduction to German Literature and Culture
GERMAN 102	German Culture and Society
GERMAN 103	German Film
GERMAN 104	Introduction to Germanic Linguistics
GERMAN 105	German for Business and Economics
GERMAN 115	Advanced German for Business and Economics
GERMAN 117	Topics in German Literature and Culture 750-1750
GERMAN 118	Studies in the Age of Goethe
GERMAN 119	Studies in Nineteenth-Century German Literature and Culture
GERMAN 120	Studies in Twentieth Century German Literature and Culture
GERMAN 130	Topics in German Literature and Culture
GERMAN 140	Topics in Literary Theory and Criticism
GERMAN 150	German Literature and Culture in Translation
GERMAN 160	German Cinema
GERMAN 170	Topics in German Linguistics

Residence Requirement for the Minor: Four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, provided that course content is approved in advance by the German Undergraduate Director and the Humanities Office of Undergraduate Study.

Courses

The "Courses" tab at the top of this page contains all German courses. Scroll down to "German Courses."

Graduate Program

In its graduate courses the Department stresses theoretical understanding of the nature of literature, philosophy, film, and culture. Seminars focus on German literary and cultural development after 1700. An emphasis in Critical Theory is available to graduate students in all departments of the School of Humanities. In addition, graduate students in German may choose to complete an emphasis in Comparative Literature, Feminist Studies, or Visual Studies.

The graduate program in German is essentially a Ph.D. program; however, the faculty will consider admitting students who plan to pursue a terminal M.A. The M.A. requires a minimum of one year in academic residence, passing of the comprehensive examination, and must be completed in no more than two years of full-time graduate study. For those in the Ph.D. program, the faculty will decide after completion of the M.A., at the latest, whether to permit the student to continue in the Ph.D. program or recommend discontinuation. In those cases where the student enters the UCI graduate program in German with an M.A. from another institution, the faculty will evaluate the student's progress during the first year of study before deciding to recommend continuation or discontinuation.

For students who enter with normal academic preparation and pursue a full-time program of study, the normative time to degree for the Ph.D. is six years or less.

Master of Arts in German

Before entering the program, a candidate is expected to have the equivalent of the UCI undergraduate German Studies major. Students with a bachelor's degree in another subject may be considered for admission. Normally their course of study will have to be extended in order to make up for the deficiency. However, each case is considered individually by the faculty. The minimum course requirement for the M.A. degree is nine courses, eight of which must be taken from offerings of the German graduate program. Reading knowledge of a foreign language other than German also is required for the M.A. degree. Whenever possible, a candidate is urged to complete this requirement before entering the program. Further requirements follow.

Students entering with a B.A. must complete their requirements for the M.A. by the end of the second year of study (six quarters) at the latest.

The Preparation of a Reading List. All candidates should prepare as early as possible a list of works read in the field of German literature, both primary texts and critical works. This list should be augmented by critical texts and by works from other literatures which, in the candidate's opinion, relate to the German works on the list. Since it should ultimately contain representative selections from various eras of German literature and some works of criticism, a tentative list must be discussed with the graduate advisor before the end of the fall quarter of the year in which the candidate expects to receive the M.A. Candidates should indicate on the list a number of works with which they are especially familiar. In its final form (including works read during the course of study both in and outside of class), the list will be submitted together with the master's essay two weeks before the oral examination. It is the student's responsibility to keep the reading list current.

M.A. Comprehensive Examination (consists of two parts):

1. **The Master's Essay.** The purpose of the written part of the M.A. comprehensive examination is to show the candidate's methodological progress in interpreting German literature and film. It consists of an essay in which a text is elucidated and related to (a) pertinent works by the same author, (b) its social and historical context, and (c) other works of German or other literatures with which the candidate is familiar. The level of the discussion will normally be enhanced by the candidate's knowledge of the relevant secondary literature. The topic of the essay should be tentatively formulated and reported to the graduate advisor before the end of the second quarter of the student's residence.
2. **The Oral Examination.** During the oral examination the following items will be discussed: (a) the essay, and (b) the reading list. The discussion based on the reading list will focus on works which the student knows well, but may broaden into other areas.

One Year of Residence.

Doctor of Philosophy in German

The program requires a minimum of 22 approved courses from students entering with a bachelor's degree. These may include courses in philosophy, history, comparative literature, and others suitable for the individual student's program of study. The student also will participate in each of the German Program's colloquia. The student will augment the reading list and keep it current during the whole course of study. At least two years of residence are required.

Students entering with the master's degree will be advised individually as to remaining course requirements.

Since the majority of German Ph.D. candidates choose careers that involve teaching, the faculty recognizes its obligation to offer them preparatory experience. Therefore, all candidates for the German Ph.D. are required to teach under the supervision of a faculty member at least one course in each of three quarters (for which they will receive credit as GERMAN 399). Three of these courses may be counted toward the 22 courses required for the Ph.D.

Faculty Mentors. Each graduate student will be assigned a faculty mentor to consult at least once each quarter about progress, the program, academic questions, or any other issues pertaining to the student's graduate career. A student may change mentors for any reason (indeed, without giving a reason) at any time after meeting with either the graduate advisor or chair.

First-Year Review. Students ending their first year of study at UCI must undergo a more comprehensive review procedure. This applies to students entering with either a B.A. or an M.A. After the review, students will be apprised of the faculty's evaluation and advised on a future course of study or recommended for discontinuation of the program.

Annual Review. All students will undergo an annual review by the faculty of the program. Each spring the faculty will meet to discuss students' progress in the program. Annual review and evaluation of student performance and progress assure both the student and the faculty that each student is meeting the academic standards, teaching standards (for teaching assistants and associates, readers, and "ABD" lecturers), and professional standards of conduct expected of graduate students in the program. The review process provides an opportunity to assess and make recommendations regarding any deficiencies in student performance and progress. The following factors will be considered in determining graduate student performance and progress: grade point average, time to degree, foreign language requirement, and teaching performance.

Grade Point Average. All graduate students in German, including those in both the master's program and the doctoral program, are expected to maintain a 3.3 GPA. A GPA below 3.3 in any quarter falls below the academic standard expected by the program. Pursuant to the terms of appointment, a student whose GPA falls below 3.3 in any given quarter and whose cumulative GPA is not 3.3 by the end of the academic year may be ineligible for funding, and faculty may recommend the student be disqualified from the program.

Foreign Language Requirements. Students must demonstrate reading knowledge of two languages or extensive competence in one language other than German and English. Choice of language(s) depends on the student's area of specialization. Students are expected to demonstrate satisfactory progress. Progress is normally demonstrated by passing language examinations administered by a member of the faculty versed in the language, or by registering for and passing language courses equivalent to the intermediate level (as approved by the graduate advisor). Full-time students must demonstrate near-native speaking abilities in German and English. Students with significant deficiencies in language competency that will adversely affect their academic progress normally will not be admitted to doctoral candidacy. Students in the doctoral program will meet language requirements on a schedule established by their doctoral committees, but in all cases the requirements must be met prior to taking the Ph.D. qualifying examination. If these requirements are not met in a timely manner, faculty may recommend disqualification from the program.

Qualifying Examination. In order to advance to candidacy, the student must take and pass a qualifying examination. At least two months prior to the planned date of the exam, students must submit a comprehensive reading list, prepared in consultation with their committee chair, to the examination committee. The committee may make recommendations to the list. On the basis of that list, students must design four courses. One course should be designed as an Introduction to German Literature and Culture. The other three courses, drafted in consultation with the student's committee chair, are graduate seminars and must ensure breadth and depth of coverage of German literature and culture. They may be organized around topics, genres, authors, or periods. At least one of these courses must comprise the student's intended area of dissertation research. The four courses must be clearly distinct and have minimal overlap. These courses must include reading lists of required and optional texts, main secondary literature, a written justification/course description, and a basic syllabus (for a 13-week semester course). No more than one course may be a modification of a seminar taken in the program. These courses must be submitted to the committee members at least two weeks prior to an oral examination date. The oral exam will be a three-hour exploration of the reading list, focusing on the courses. Upon successful completion of the qualifying examination, the candidate will have advanced to Ph.D. candidacy.

Dissertation Prospectus. Students must submit a dissertation prospectus to their advisor and, following approval by the advisor, circulate it to the entire committee. There will be a two-hour oral defense of the prospectus before the committee. It is expected that the prospectus be submitted two quarters after completion of the qualifying examination or within one year at the latest.

Dissertation Chapter Review. Students must submit a substantial piece of writing (approximately 45 pages) from their dissertation ordinarily in the form of a chapter and a comprehensive bibliography. In consultation with their dissertation committee chair, they schedule a date and time for the oral review with the committee, which lasts approximately two-three hours. Prior to the oral review the student will make a public presentation, open to the UCI community and guests, in the form of a lecture with questions and answers.

Doctoral Colloquium. Students who have advanced to candidacy and are in residence must attend a colloquium for doctoral candidates. The colloquium will be held at least two times per quarter. Students will be expected to present sections of their prospectus or dissertation.

Dissertation Defense. The oral defense of the dissertation focuses on the adequacy of the student's research and thesis.

Two Years of Residence.

Normative Time to Degree and Expected Programs of Study

For students entering with a B.A.:

Year 1: Course work;

Year 2: Course work; M.A. completed;

Year 3: Course work; Qualifying Examination (latest, fall of year four); advance to candidacy;

Year 4: Dissertation prospectus and defense;

Year 5: Dissertation chapter review and public presentation;

Year 6: Completion of dissertation; defense.

For students entering with an M.A.:

Year 1: Course work;

Year 2: Course work; Qualifying Examination (latest, fall of year three); advance to candidacy;

Year 3: Dissertation prospectus and defense;

Year 4: Dissertation chapter review and public presentation;

Year 5: Completion of dissertation; defense.

Courses

The "Courses" tab at the top of this page contains all German courses. Scroll down to "German Courses."

Undergraduate Minor in Italian Studies

The minor in Italian Studies is an interdisciplinary curriculum that allows students to go beyond second-year Italian and engage in various aspects of Italian culture by taking courses in Italian literature and other courses related to Italian history and culture in the Departments of Art History, Comparative Literature, English, Film and Media Studies, History, and Philosophy.

Requirements for the Italian Studies Minor

A. Complete the following:	
ITALIAN 1A- 1B- 1C	Fundamentals of Italian and Fundamentals of Italian and Fundamentals of Italian
ITALIAN 2A- 2B- 2C	Intermediate Italian and Intermediate Italian and Intermediate Italian
B. Seven courses selected from the following two groups, when topics are appropriate. At least five of the seven courses must be from Group 1. Also in Group 1, no more than two courses may be taken from any one department, with the exception of Italian courses.	
Group 1	
ART HIS 120	Studies in Renaissance and Baroque Art
ART HIS 121	Studies in Southern Renaissance Art
ART HIS 125	Studies in Southern Baroque Art
FLM&MDA 160	National/Regional Cinemas and Media
ITALIAN 101A	Introduction to Italian Literature
ITALIAN 101B	Introduction to Italian Literature
ITALIAN 150	Topics in Italian Literature and Culture
PHILOS 132	Topics in Political and Social Philosophy
Group 2	
ART HIS 107	Studies in Roman Art
ART HIS 198	Advanced Seminar: Topics in Art History
CLASSIC 140	Classics and History: The Ancient World
CLASSIC 150	Classical Mythology
CLASSIC 170	Topics in Classical Civilization
HISTORY 105B	Later Roman Empire
HISTORY 110C	Europe in the Later Middle Ages
HISTORY 112D	Topics in Early Modern Europe

Residence Requirement for the Minor: At least four upper-division courses must be completed successfully at UCI. By petition, two of the four may be taken at an Italian university through the UC Education Abroad Program, provided they are approved in advance by the Director of the minor.

The Department strongly encourages its students to take advantage of the study-abroad programs in Italy to improve their language skills and gain invaluable cultural experience in a foreign university setting. The Department recommends the UC Education Abroad Program in Italy.

Credit for courses taken through study-abroad programs is available. Students are advised to discuss their course of study with the Undergraduate Director before their departure and to arrange to bring home proof of their work.

Courses

The "Courses" tab at the top of this page contains all Italian courses. Scroll down to "Italian Courses."

Undergraduate Minor in Russian Studies

Spanning both Europe and Asia, Russia is one of the world's dominant political entities. Its rich cultural traditions have enhanced world literature, theatre, art, film, and dance. As the world's first socialist state, it became a major political rival of the United States after the Second World War. In the past decade, Russians have abandoned their socialist system and are now in the process of making a rocky transition to capitalism. Although Russia lost sizeable amounts of territory in this transition, the Russian language now serves as the *lingua franca* throughout many areas formerly controlled by the Soviet Union.

While the demand for specialists in various sectors of government has eased, relationships between our countries at other levels of society are growing more active and business opportunities are exciting and rewarding. Other areas in which the need for Russian language competence is evident right now include trade, environmental protection, social services, law, medicine, and technology.

All students in Russian language courses are encouraged to take part in the UC Education Abroad Program and spend a portion of their junior or senior year studying in Russia. Visit the Study Abroad Center (http://www.studyabroad.uci.edu) website for additional information.

The Russian Studies minor is a multidisciplinary curriculum combining the Humanities and Social Sciences. It is designed to introduce students to the rich history and culture of Russia and provide them with the intellectual and linguistic tools necessary for sustained engagement with this area of the world.

Requirements for the Russian Studies Minor

A. Complete:	
RUSSIAN 2C	Intermediate Russian (or equivalent)
B. Complete:	
RUSSIAN 50	Russian Culture (three different topics)
C. Select sixteen units of upper-division courses from the following:	
RUSSIAN 140	Topics in Russian Literary Theory
RUSSIAN 150	Topics in Russian Literature
RUSSIAN 190	Russian Language Through Film
HISTORY 124A	Imperial Russia: 1689-1905
HISTORY 124B	Twentieth-Century Russia
HISTORY 190	Colloquium (when topics are related to Russia)
POL SCI 154F/ANTHRO 164P	Peoples and Cultures of Post-Soviet Eurasia
POL SCI 159	Special Topics in Comparative Politics (when topics are related to Russia)

A maximum of four units may be chosen from the following courses devoted in part to Russian themes: HISTORY 114, HISTORY 126A, HISTORY 126B, HISTORY 158A, POL SCI 142D, POL SCI 142E, POL SCI 142F, and SOCECOL E113 (same as INTL ST 121).

Students may petition other relevant courses.

Residence Requirement for the Minor: At least four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, provided course content is approved in advance by the appropriate department chair.

Courses

The "Courses" tab at the top of this page contains all Russian courses. Scroll down to "Russian Courses."

Faculty

Luis Avilés, Ph.D. Brown University, *Associate Professor of Spanish and Portuguese; Comparative Literature; Culture and Theory; European Languages and Studies* (Golden Age literature and critical theory)

Etienne Balibar, Ph.D. Catholic University of Nijmegen, *Professor Emeritus of French; Comparative Literature* (political philosophy, critical theory, epistemology of the social sciences, ethics)

Nina Bandelj, Ph.D. Princeton University, *Associate Professor of Sociology; European Languages and Studies* (economic sociology, culture, organizations, social networks, political economy, globalization, social change, central and eastern Europe)

Anke Biendarra, Ph.D. University of Washington, *Associate Professor of German* (twentieth- and twenty-first-century German literature, culture, and film, cultural studies)

Daniel R. Brunstetter, Ph.D. University of California, Davis, *Associate Professor of Political Science; European Languages and Studies* (political theory, international relations, French political thought)

Kurt R. Buhanan, Ph.D. University of California, Irvine, *Lecturer of Academic English/English as a Second Language; European Languages and Studies; Humanities*

Ellen S. Burt, Ph.D. Yale University, *Professor of English; Comparative Literature; European Languages and Studies* (eighteenth-century French literature and nineteenth-century poetry)

David Carroll, Ph.D. Johns Hopkins University, *Professor Emeritus of French* (critical theory and twentieth-century French literature)

Nahum D. Chandler, Ph.D. University of Chicago, *Associate Professor of African American Studies; Comparative Literature; Culture and Theory; European Languages and Studies* (modern intellectual history, history of the human sciences)

James T. Chiampi, Ph.D. Yale University, *Professor of Italian* (Dante and Italian Renaissance)

Russell Dalton, Ph.D. University of Michigan, *Professor of Political Science; European Languages and Studies; Political Science*

Edward Dimendberg, Ph.D. University of California, Santa Cruz, *Professor of Film and Media Studies; European Languages and Studies* (film and literature, history of the book, scholarly communication)

Kai Evers, Ph.D. Duke University, *Associate Professor of German* (twentieth-century German literature and film, modernism and Holocaust literature, theories of violence and catastrophic imagination)

Herschel Farbman, Ph.D. Yale University, *Assistant Professor of French* (modernism, critical theory)

Sarah Bennett Farmer, Ph.D. University of California, Berkeley, *Associate Professor of History; European Languages and Studies* (modern French history, twentieth-century Europe, social and cultural history)

Suzanne Gearhart, Ph.D. Johns Hopkins University, *Professor Emerita of French* (seventeenth- and eighteenth-century French literature, philosophy and literature)

Zina Giannopoulou, Ph.D. University of Illinois at Urbana-Champaign, *Associate Professor of Classics; European Languages and Studies* (literary theory and Platonic hermeneutics, Classical and Hellenistic philosophy, Greek tragedy and epic)

Michael A. Green, Ph.D. University of California, Los Angeles, *Professor Emeritus of Russian* (eighteenth-century Russian theatre and literary theory, Pushkin, Chekhov, Kuzmin, Russian Symbolist theater, cabaret theatre, Russian literature and theater of the 1920s)

Elizabeth Guthrie, Ph.D. University of Illinois at Urbana-Champaign, *Senior Lecturer with Security of Employment Emerita of French* (second-language acquisition and teaching)

Franca Hamber, B.A. University of California, Irvine, *Lecturer of Italian*

Gail K. Hart, Ph.D. University of Virginia, *Professor of German* (eighteenth- and early-nineteenth-century German drama and fiction, Schiller, history of punishment)

Douglas M. Haynes, Ph.D. University of California, Berkeley, *Associate Vice Provost for Equity and Diversity and Professor of History; African American Studies; Culture and Theory; European Languages and Studies* (social and cultural history of modern Britain, social history of modern medicine)

James D. Herbert, Ph.D. Yale University, *Associate Dean of Curricular and Student Affairs and Professor of Art History; Culture and Theory; European Languages and Studies* (modern European art)

Judd D. Hubert, Ph.D. Columbia University, *Professor Emeritus of French* (seventeenth- and nineteenth-century French literature)

Ruth Klüger, Ph.D. University of California, Berkeley, *Professor Emerita of German* (Kleist, nineteenth-century literature, Stifter, Holocaust literature)

Alice M. Laborde, Ph.D. University of California, Los Angeles, *Professor Emerita of French and Italian* (eighteenth-century French literature)

Meredith A. Lee, Ph.D. Yale University, *Professor Emerita of German* (lyric poetry, eighteenth-century literature, Goethe, music and literature)

Matthias Lehmann, Ph.D. Freie Universtät Berlin, *Director of the Interdisciplinary Minor in Jewish Studies and Teller Family Chair in Jewish History* and *Associate Professor of History; European Languages and Studies* (early modern and modern Jewish history, Sephardic studies)

Herbert H. Lehnert, Ph.D. University of Kiel, *Professor Emeritus of German* (Thomas Mann)

Glenn S. Levine, Ph.D. University of Texas at Austin, *German Language Program Director and Professor of German; Education* (applied linguistics, foreign language pedagogy, German-Jewish culture and history, Yiddish language and culture, European culinary history)

William J. Lillyman, Ph.D. Stanford University, *Professor Emeritus of German* (Romanticism, Goethe, Tieck)

Nancy Ann McLoughlin, Ph.D. University of California, Santa Barbara, *Assistant Professor of History; European Languages and Studies* (medieval Europe)

Maryse J. Mijalski, M.A. University of California, Irvine, *Lecturer of French* (French Language Program)

Lora D. Mjolsness, Ph.D. University of Southern California, *Lecturer of Russian* (nineteenth- and twentieth-century French poetry and prose, relationships between poetics, ethics and politics, modern representations of dominance, violence, alienation and suffering, Hugo, Baudelaire, and Camus studies)

Santiago Morales-Rivera, Ph.D. Harvard University, *Assistant Professor of Spanish and Portuguese; European Languages and Studies* (contemporary Spanish intellectual history, literature and culture)

Eve C. Morisi, Ph.D. Princeton University, *Assistant Professor of European Languages and Studies*

Susan Morse, Ph.D. University of California, Irvine, *Lecturer of Humanities; European Languages and Studies*

Gonzalo Navajas, Ph.D. University of California, Los Angeles, *Professor of Spanish and Portuguese; Culture and Theory; European Languages and Studies* (eighteenth through twentieth-first century Spanish literature and intellectual history, film, critical theory, cultural criticism, creative writing)

Jane O. Newman, Ph.D. Princeton University, *Department Chair and Professor of Comparative Literature; Culture and Theory; European Languages and Studies* (comparative Renaissance and early modern literature and culture [English, French, German, Italian, neo-Latin], Mediterranean Renaissance studies, Baroque, afterlives of antiquity, Walter Benjamin, Erich Auerbach, pre-modern lessons for the modern and post-modern)

Carrie J. Noland, Ph.D. Harvard University, *Professor of French; Comparative Literature* (twentieth-century poetry and poetics, avant-garde movements in art and literature, critical theory, performance studies)

David T. Pan, Ph.D. Columbia University, *Professor of German* (eighteenth-, nineteenth-, and early twentieth-century German literature and intellectual history)

James Porter, Ph.D. University of California, Berkeley, *Graduate Advisor and Professor of Classics; Comparative Literature; European Languages and Studies* (philosophy, literary and cultural criticism and aesthetics, history of the classical disciplines, reception of Homer)

Amy Powell, Ph.D. Harvard University, *Associate Professor of Art History; European Languages and Studies* (Northern European art and visual culture, 1300–1700)

Gary Richardson, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Economics; European Languages and Studies* (economic history, macroeconomics, Great Depression, Industrial Revolution, property rights and economic development)

Annette M. Schlichter, Ph.D. Humboldt University of Berlin, *Associate Professor of Comparative Literature; Culture and Theory; European Languages and Studies* (feminist theory and criticism, queer theory, critiques of heterosexuality, contemporary American literature, gender and literature, voice studies)

Beryl F. Schlossman, Doctorate University of Paris 7, Ph.D. Johns Hopkins University, *Professor of Comparative Literature; European Languages and Studies*

Gabriele J. Schwab, Ph.D. University of Konstanz, *Department Chair and UCI Chancellor's Professor of Comparative Literature; Anthropology; Culture and Theory; European Languages and Studies* (modern literature, critical theory, psychoanalysis, comparative literature)

Martin Schwab, Ph.D. Heidelberg University, *Professor Emeritus of Philosophy; Comparative Literature; European Languages and Studies* (philosophy and aesthetics)

Victoria A. Silver, Ph.D. University of California, Los Angeles, *Associate Professor of English; European Languages and Studies* (early modern literature and culture, religious studies, history and theory of rhetoric, literature and philosophy)

John H. Smith, Ph.D. Princeton University, *Professor of Comparative Literature; German* (eighteenth- and nineteenth-century literature and intellectual history, literary theory)

James Steintrager, Ph.D. Columbia University, *Professor of English; Comparative Literature; European Languages and Studies* (eighteenth-century comparative literature, ethical philosophy and literature, systems theory, amatory and erotic fiction)

Georges Y. Van Den Abbeele, Ph.D. Cornell University, *Dean of the School of Humanities* and *Professor of Comparative Literature; English; European Languages and Studies; Film and Media Studies*

Andrzej J. Warminski, Ph.D. Yale University, *Professor of English; European Languages and Studies; Humanities* (romanticism, history of literary theory, contemporary theory, literature and philosophy)

European Studies Courses

EURO ST 10. Historical Foundations. 4 Units.
Offers an overview of the European experience from its social, political, and cultural foundations to modern European issues and institutions in a globalized world. Topics covered include social, political, and cultural history up to the founding of the European Union.

Repeatability: Unlimited as topics vary.

((III or IV) and VIII).

EURO ST 11. Contemporary Issues and Institutions. 4 Units.
Offers an overview of contemporary European societies in social, political, and cultural terms. Topics include shifting geopolitical borders, social movements, and various forms of cultural expression (film, art, literature) as they intersect with and shape contemporary issues and events.

Repeatability: Unlimited as topics vary.

((III or IV) and VIII).

EURO ST 101A. European Studies Core I - Early Europe (Pre-1789). 4 Units.
Introduction to multidisciplinary approaches to important themes in European society, culture, art, literature, and politics; encourages students to explore intersections among disciplines. Possible themes: Concept of Europe in Renaissance, Self and Other: Europe and Islam, Hybrid Cultures in Medieval Europe.

Repeatability: Unlimited as topics vary.

EURO ST 101B. EUROPEAN STUDIES CORE II: MODERN EUROPE (1789-PRESENT). 4 Units.
Multidisciplinary approaches to important themes in modern European society, culture, art, literature, and politics, encouraging students to see points of intersection among disciplines. Possible themes: Subjects, Citizens, and Representation; Europe in the World; European Revolutions in Art and Society.

Repeatability: Unlimited as topics vary.

EURO ST 102. Topics in Early European History and Culture: Pre-1789. 4 Units.
Addresses historical and cultural events, issues, and texts (art, literature, music, political theory) from the pre-1789 period in more than one European country.

Repeatability: Unlimited as topics vary.

EURO ST 103. Topics in Modern European History and Culture: Post-1789. 4 Units.
Addresses historical and cultural events, issues, and texts (art, literature, music, political theory) from 1789 to present in more than one European country.

Repeatability: Unlimited as topics vary.

EURO ST 190W. Senior Seminar in European Studies. 4 Units.
Capstone research seminar. Students engage in rigorous, in-depth, interdisciplinary exploration of specific topics, periods, or themes, investigating and analyzing the intersection of material and discursive culture in different historical periods and geographical locations.

Restriction: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

EURO ST 199. Independent Study. 1-4 Units.
Directed reading and research in consultation with a faculty advisor. Substantial written work required.

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

French Courses

FRENCH 1A. Fundamentals of French. 5 Units.
Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French and meet daily. Language laboratory attendance is required.

Overlaps with FRENCH S1AB.

Restriction: FRENCH 1A and FRENCH S1AB may not be taken for full credit.

FRENCH 1B. Fundamentals of French. 5 Units.
Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French and meet daily. Language Laboratory attendance is required.

Prerequisite: FRENCH 1A. FRENCH 1A with a grade of C or better.

Overlaps with FRENCH S1AB, FRENCH S1BC.

Restriction: FRENCH 1B and FRENCH S1AB and FRENCH S1BC may not be taken for full credit

FRENCH 1C. Fundamentals of French. 5 Units.
Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French and meet daily. Language Laboratory attendance is required.

Prerequisite: FRENCH 1B or FRENCH S1AB. FRENCH 1B with a grade of C or better. FRENCH S1AB with a grade of C or better.

Overlaps with FRENCH S1BC.

Restriction: FRENCH 1C and FRENCH S1BC may not be taken for full credit.

(VI)

FRENCH S1. Fundamentals of French. 7.5 Units.
First-year French in an intensified form.

Overlaps with FRENCH 1A, FRENCH 1B, FRENCH 1C.

FRENCH S1AB. Fundamentals of French. 7.5 Units.
First half of first-year French in an intensified form. Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French.

Overlaps with FRENCH 1A, FRENCH 1B.

Restriction: FRENCH S1AB and FRENCH 1A and FRENCH 1B may not be taken for full credit.

FRENCH S1BC. Fundamentals of French. 7.5 Units.
First half of first-year French in an intensified form. Students are taught to conceptualize in French as they learn to understand, read, write, and speak. Classes are conducted entirely in French.

Prerequisite: FRENCH S1AB or FRENCH 1B. FRENCH S1AB with a grade of C or better. FRENCH 1B with a grade of C or better.

Overlaps with FRENCH 1B, FRENCH 1C.

Restriction: FRENCH S1BC and FRENCH 1B and FRENCH 1C may not be taken for full credit.

(VI)

FRENCH 2A. Intermediate French. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French.

Prerequisite: FRENCH 1C or FRENCH S1BC or placement into FRENCH 2A. FRENCH 1C with a grade of C or better. FRENCH S1BC with a grade of C or better.

Overlaps with FRENCH S2AB.

Restriction: FRENCH 2A and FRENCH S2AB may not be taken for full credit. School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

FRENCH 2B. Intermediate French. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French.

Prerequisite: FRENCH 2A. FRENCH 2A with a grade of C or better.

Overlaps with FRENCH S2AB, FRENCH S2BC.

Restriction: FRENCH 2B and FRENCH S2AB and FRENCH S2BC may not be taken for full credit. School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

FRENCH 2C. Intermediate French. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French.

Prerequisite: FRENCH 2B or FRENCH S2AB. FRENCH 2B with a grade of C or better. FRENCH S2AB with a grade of C or better.

Overlaps with FRENCH S2BC.

Restriction: FRENCH 2C and FRENCH S2BC may not be taken for full credit. School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

FRENCH S2AB. Intermediate French. 6 Units.
First half of second-year French in an intensified form. Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French. Prior high school or college French recommended.

Overlaps with FRENCH 2A, FRENCH 2B.

Restriction: FRENCH S2AB and FRENCH 2A and FRENCH 2B may not be taken for full credit.

(VIII)

FRENCH S2BC. Intermediate French. 6 Units.
Second half of second-year French in an intensified form. Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in French. Prior high school or college French recommended.

Prerequisite: FRENCH S2AB or FRENCH 2B. FRENCH S2AB with a grade of C or better. FRENCH 2B with a grade of C or better.

Overlaps with FRENCH 2C, FRENCH 2B.

Restriction: FRENCH S2BC and FRENCH 2B and FRENCH 2C may not be taken for full credit.

(VIII)

FRENCH 13. Conversation. 4 Units.
Helps students increase their fluency and enrich their vocabulary. Taught in French.

Prerequisite: Prerequisite or Corequisite: FRENCH 2C or FRENCH S2BC.

FRENCH 50. French Culture and the Modern World. 4 Units.
Introductory course for non-majors. Focuses on France's role in the modern world and its cultural connections to Asia, the Middle East, Africa, Europe, and the Americas. Taught in English.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

FRENCH 97. Fundamentals of French (with Emphasis on Reading). 4 Units.
Designed primarily for students interested in acquiring a solid reading knowledge of French, and to facilitate the understanding and translating of French texts dealing with a variety of disciplines.

Restriction: Non-French majors only.

FRENCH 100A. Advanced French Writing: Reading and Telling Stories. 4 Units.
Study and practice of various forms of writing including,description and narration. Students build vocabulary and increase reading comprehension while developing the ability to communicate ideas, tell stories, and articulate questions. Readings from texts of literary, historical, and social interest.

Prerequisite: FRENCH 2C or FRENCH S2BC.

FRENCH 100B. Advanced French Essay Writing: Argument and Evidence. 4 Units.
Introduction to essay writing with an emphasis on strategies for identifying a problem, developing an original argument, and,organizing evidence. Introduces idioms and vocabulary to prepare students for advanced courses on French and Francophone literature, culture, and cinema.

Prerequisite: FRENCH 100A.

FRENCH 101A. Introduction to Nineteeth-Century French Literature. 4 Units.
Fiction, nonfiction, drama, and poetry of the nineteeth- century studied in relationship to a specific literary or historical problem.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 100A and FRENCH 100B.

FRENCH 101B. Introduction to Eighteenth-Century French Literature. 4 Units.
Literature and philosophy of the eighteenth century studied in relationship to a specific literary or historical problem.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 100A and FRENCH 100B.

FRENCH 101C. Introduction to Twentieth-Century French Literature. 4 Units.
Literatures of the French-speaking world studied in relationship to a specific literary or historical problem.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 100A and FRENCH 100B.

FRENCH 110. Problems in French Culture. 4 Units.
Examines a controversial or critical issue in French culture of different ages through a variety of genres and media.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 116. Sixteenth-Century French Literature. 4 Units.
Examines the diverse literature of the Renaissance and the Age of Exploration.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 117. Seventeenth-Century French Literature. 4 Units.
Examines the age of drama and other vibrant forms in French literature of the period.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 118. Eighteenth-Century French Literature. 4 Units.
Examines the literature and philosophy of the Enlightenment, the Ancient Régime, Classicism, and/or Revolution.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 119. Nineteenth-Century French Literature. 4 Units.
Focuses on the literature of an era that experienced many modernist transformations.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 120. Twentieth-Century French and Francophone Literature. 4 Units.
A study of modern and contemporary literature and culture.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 125. African Literature of French Expression. 4 Units.
Introduction to the principal African and Caribbean works written in French. Offers opportunity to study literature and culture in French in a non-European context. Lectures and papers in French.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 127. Francophone Literature and Culture. 4 Units.
Literature and cultures of the francophone world.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 139W. Literature and Society. 4 Units.
In English. Readings of masterpieces of French literature in their social, political, and historical contexts. Requires at least 4,000 words of assigned composition based on French works. Several essays required.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. French majors have first consideration for enrollment.

(Ib)

FRENCH 140. Studies in French Literary Genre. 4 Units.
Examines the development and transformation of a single genre, such as the poem or the novel.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 150. Topics in French Literature and Culture. 4 Units.
Study of a theme, movement, or problem crucial to understanding French Literature and Culture.

Repeatability: Unlimited as topics vary.

FRENCH 160. French Cinema. 4 Units.
Study of a period, movement, or theme in French or Francophone cinema.

Repeatability: May be taken for credit 2 times as topics vary.

FRENCH 170. History and Literature. 4 Units.
Examines the dialogue between historical events and literary texts.

Prerequisite: FRENCH 2C. Recommended as prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: Unlimited as topics vary.

FRENCH 171. Politics and Literature. 4 Units.
Examines the role played by politics and ethics in French literature, film, and culture.

Repeatability: Unlimited as topics vary.

FRENCH 180. Junior/Senior Seminar in Theory and Criticism. 4 Units.
Advanced study of theoretical and critical texts.

Prerequisite: FRENCH 2C. Recommended prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C.

Repeatability: May be taken for credit 1 times as topics vary.

FRENCH 185. Junior/Senior Seminar in French Literature and Culture. 4 Units.
Required intensive writing course for French majors to explore in depth selected topic in French literature and culture. Students complete major independent research project on topic studied, making use of literary and critical materials in their capstone essay. In French.

Prerequisite: FRENCH 100A and FRENCH 100B. Prerequisite or corequisite: FRENCH 101A and FRENCH 101B and FRENCH 101C. Only one course in the French 101A-101B-101C series may be taken as a corequisite.

FRENCH 199. Special Studies in French. 1-4 Units.
A project proposal is prepared by the student and approved by the faculty member who directs the project. Procedure must be completed by the end of the first week of classes.

Repeatability: Unlimited as topics vary.

Restriction: Repeatability: once for M.A. candidates; twice for Ph.D. candidates.

FRENCH 216. Studies in Renaissance Literature. 4 Units.
Advanced study of a topic in the Renaissance period.

Repeatability: Unlimited as topics vary.

FRENCH 217. Studies in Seventeenth-Century Literature. 4 Units.
Advanced study of a topic in the 17th century.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 218. Studies in Eighteenth-Century Literature. 4 Units.
Advanced study of a topic in the 18th century.

Repeatability: Unlimited as topics vary.

FRENCH 219. Studies in Nineteenth-Century Literature. 4 Units.
Advanced study of a topic in the 19th century.

Repeatability: Unlimited as topics vary.

FRENCH 220. Studies in Twentieth-Century Literature. 4 Units.
Advanced study of a topic in the 20th and 21st century.

Repeatability: May be taken for credit 9 times as topics vary.

Restriction: Graduate students only.

FRENCH 225. Francophone Literature and Culture. 4 Units.
Studies in different francophone literatures and cultures (of Canada, the Caribbean, West and North Africa, and Southeast Asia).

Repeatability: Unlimited as topics vary.

FRENCH 231. Studies in Fiction . 4 Units.
Examines the art of fiction.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 232. Studies in Nonfictional Prose. 4 Units.
Examines non-fictional genres such as the essay and the memoir.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 233. Studies in Poetry and Poetics. 4 Units.
Examines the genre of poetry and theories of poetry.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 240. Studies on a Major Writer. 4 Units.
Focused study of one author.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

FRENCH 250. Studies in Theory and Criticism. 4 Units.
Advanced study of a topic in theory and/or criticism.

Repeatability: Unlimited as topics vary.

FRENCH 254. History and Literature. 4 Units.
Advanced study of literary works in their historical context.

Repeatability: Unlimited as topics vary.

FRENCH 272. Cultural Studies . 4 Units.
Examines the theoretical paradigm of cultural studies.

Repeatability: Unlimited as topics vary.

FRENCH 280. Directed Study in French Literature. 4 Units.
For graduate students taking the Master's examination the same quarter.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

FRENCH 290. Research in French Language and Literature. 4 Units.
A project proposal is prepared by the student and approved by the faculty member who directs the project. Procedure must be completed by the end of the first week of classes. Limit: Once for M.A. candidates; twice for Ph.D. candidates.

Repeatability: May be taken for credit 2 times.

Restriction: Graduate students only. French major only.

FRENCH 299. Dissertation Research. 4-12 Units.
For graduate students writing a dissertation with a faculty member in French.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

FRENCH 399. University Teaching. 4 Units.
For graduate students completing a course on foreign language pedagogy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

German Courses

GERMAN 1A. Fundamentals of German. 5 Units.
Emphasizes the development of meaningful communicative skills in German for the purposes of interaction with German speakers and beginning study of German. With a learner-centered approach, the courses help students develop speaking, listening, reading, writing, and cultural skills and knowledge.

Overlaps with GERMAN S1AB.

Restriction: GERMAN 1A and GERMAN S1AB may not be taken for full credit.

GERMAN 1AB. Intensive German Fundamentals . 7.5 Units.
First half of first-year German in a time-intensive form. Development of meaningful communicative skills for the purposes of interaction with German speakers and beginning study of German. Learner-centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge. Course may be offered online. Materials fee.

Prerequisite: Placement into GERMAN 1AB.

Overlaps with GERMAN S1AB, GERMAN 1A, GERMAN 1B.

Restriction: GERMAN 1AB and GERMAN 1A and GERMAN 1B and GERMAN S1AB may not be taken for full credit.

GERMAN 1B. Fundamentals of German. 5 Units.
Emphasizes the development of meaningful communicative skills in German for the purposes of interaction with German speakers and beginning study of German. With a learner-centered approach, the courses help students develop speaking, listening, reading, writing, and cultural skills and knowledge.

Prerequisite: GERMAN 1A or one to two years of high school German. GERMAN 1A with a grade of C or better.

Overlaps with GERMAN S1AB, GERMAN S1BC.

Restriction: GERMAN 1B and GERMAN S1AB and GERMAN S1BC may not be taken for full credit.

GERMAN 1BC. Intensive German Fundamentals. 7.5 Units.
Second half of first-year German in a time-intensive form. Development of meaningful communicative skills for the purposes of interaction with German speakers and beginning study of German. Learner-centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge. Course may be offered online. Materials fee.

Prerequisite: Placement into GERMAN 1BC. GERMAN 1AB or GERMAN 1B or GERMAN S1AB. GERMAN 1AB with a grade of C or better. GERMAN S1AB with a grade of C or better. GERMAN 1B with a grade of C or better.

Overlaps with GERMAN 1B, GERMAN 1C, GERMAN S1BC.

Restriction: GERMAN 1BC and GERMAN 1B and GERMAN 1C and GERMAN S1AB may not be taken for full credit.

(VI)

GERMAN 1C. Fundamentals of German. 5 Units.
Emphasizes the development of meaningful communicative skills in German for the purposes of interaction with German speakers and beginning study of German. With a learner-centered approach, the courses help students develop speaking, listening, reading, writing, and cultural skills and knowledge.

Prerequisite: GERMAN 1B or GERMAN S1AB or two to three years of high school German. GERMAN 1B with a grade of C or better. GERMAN S1AB with a grade of C or better.

Overlaps with GERMAN S1AB.

Restriction: GERMAN 1C and GERMAN S1BC may not be taken for full credit.

(VI)

GERMAN S1AB. Fundamentals of German. 7.5 Units.
First half of first-year German in a time-intensive form. Development of meaningful communicative skills for the purposes of interaction with German speakers and beginning study of German. Learner-centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge.

Overlaps with GERMAN 1A, GERMAN 1B.

Restriction: GERMAN S1AB and GERMAN 1A and GERMAN 1B may not be taken for full credit.

GERMAN S1BC. Fundamentals of German. 7.5 Units.
Second half of first-year German in a time-intensive form. Development of meaningful communicative skills for the purposes of interaction with German speakers and beginning study of German. Learner-centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge.

Prerequisite: GERMAN 1B or GERMAN S1AB. GERMAN 1B with a grade of C or better. GERMAN S1AB with a grade of C or better.

Overlaps with GERMAN 1B, GERMAN 1C.

Restriction: GERMAN S1BC and GERMAN 1B and GERMAN 1C may not be taken for full credit.

(VI)

GERMAN 2A. Intermediate German. 4 Units.
Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. With a learner-centered approach, helps students develop reading, writing, speaking, listening, grammatical, and cultural skills and knowledge. First-year grammar is reviewed and expanded.

Prerequisite: GERMAN 1C or GERMAN S1BC, three or four years of high school German. GERMAN 1C with a grade of C or better. GERMAN S1BC with a grade of C or better.

Overlaps with GERMAN S2BC.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment. GERMAN 2A and GERMAN S2AB may not be taken for full credit.

(VIII)

GERMAN 2B. Intermediate German. 4 Units.
Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. With a learner-centered approach, helps students develop reading, writing, speaking, listening, grammatical, and cultural skills and knowledge. First-year grammar is reviewed and expanded.

Prerequisite: GERMAN 2A. GERMAN 2A with a grade of C or better.

Overlaps with GERMAN S2AB, GERMAN S2BC.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment. GERMAN 2B and GERMAN S2AB and GERMAN S2BC may not be taken for full credit.

(VIII)

GERMAN 2C. Intermediate German. 4 Units.
Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. With a learner-centered approach, helps students develop reading, writing, speaking, listening, grammatical, and cultural skills and knowledge. First-year grammar is reviewed and expanded.

Prerequisite: GERMAN 2B or GERMAN S2AB. GERMAN 2B with a grade of C or better. GERMAN S2AB with a grade of C or better.

Overlaps with GERMAN S2BC.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment. GERMAN 2C and GERMAN S2BC may not be taken for full credit.

(VIII)

GERMAN S2AB. Intermediate German. 6 Units.
First half of second-year German in a time-intensive form. Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. Learner-centered approach develops reading, writing, speaking, listening, grammatical, and cultural skills and knowledge.

Prerequisite: GERMAN 1C or GERMAN S1BC.

Overlaps with GERMAN 2A, GERMAN 2B.

Restriction: GERMAN S2AB and GERMAN 2A and GERMAN 2B may not be taken for full credit.

(VIII)

GERMAN S2BC. Intermediate German. 6 Units.
Second half of second-year German in a time-intensive form. Emphasizes communicative skills for the purposes of interaction with German speakers and intermediate study of German. Learner-centered approach develops reading, writing, speaking, listening, grammatical, and cultural skills and knowledge.

Prerequisite: GERMAN 2B or GERMAN S2AB. GERMAN 2B with a grade of C or better. GERMAN S2AB with a grade of C or better.

Overlaps with GERMAN 2B, GERMAN 2C.

Restriction: GERMAN S2BC and GERMAN 2B and GERMAN 2C may not be taken for full credit.

(VIII)

GERMAN 50. Science, Society, and Mind. 4 Units.
Historical, philosophical, and literary reflections by German writers on the rise of the modern sciences. In English. Designed primarily for nonmajors.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

GERMAN 53. Advanced Conversation. 2 Units.
Includes reading of political and cultural material. Conducted in German.

Prerequisite: Prerequisite or corequisite: GERMAN 2C.

Repeatability: May be repeated for credit unlimited times.

GERMAN 97. Fundamentals of German (with Emphasis on Reading). 4 Units.
Primarily for students interested in acquiring a solid reading knowledge of German. Facilitates comprehension and translation of texts in various disciplines. Does not serve as prerequisite for any higher-level German courses or fulfill any undergraduate foreign language requirement.

Repeatability: May be taken for credit 3 times.

Restriction: Non-German majors only.

GERMAN 101. Introduction to German Literature and Culture. 4 Units.
Sample interpretations of texts in their cultural and historical contexts. Introduction to critical language in German.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GERMAN 102. German Culture and Society. 4 Units.
Interdisciplinary introduction to German culture from the perspective of its aesthetic, social, and political aspects. Methodological problems arising from an analysis of culture in its historical context.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GERMAN 103. German Film. 4 Units.
Introduction to the history and interpretation of German film within its cultural and social contexts. Enhances German grammar knowledge and vocabulary and develops sophisticated speaking, writing, and reading skills.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GERMAN 104. Introduction to Germanic Linguistics. 4 Units.
Introduces German or other Germanic-language linguistic, sociolinguistic, or ethnography-of-communication topics. Taught in German.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

Repeatability: Unlimited as topics vary.

GERMAN 105. German for Business and Economics. 4 Units.
Explores the structure of the German economy and business practices while developing verbal and written skills important for professional life in Germany. Taught in German.

Prerequisite: GERMAN 2C. GERMAN 2C with a grade of C or better.

GERMAN 115. Advanced German for Business and Economics. 4 Units.
Explores the structure of the German economy and business practices while developing advanced verbal and written skills important for professional life in Germany. Taught in German.

Prerequisite: GERMAN 105.

Repeatability: Unlimited as topics vary.

GERMAN 117. Topics in German Literature and Culture 750-1750. 4 Units.
Specific course content determined by individual faculty members. Example: Luther and the European Renaissance.

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 118. Studies in the Age of Goethe. 4 Units.
Individual authors such as Lessing, Goethe, Schiller, Kleist, and Hölderlin, or the drama of the "angry young men" of the German 1770s.

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 119. Studies in Nineteenth-Century German Literature and Culture. 4 Units.
Individual authors such as Büchner, Grillparzer, Keller, and Nietzsche, or broader social-literary phenomena.

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 120. Studies in Twentieth Century German Literature and Culture. 4 Units.
Individual authors such as Thomas Mann, Brecht, and Kafka, or topics addressing questions of genre and/or social-literary problems.

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 130. Topics in German Literature and Culture. 4 Units.
Literary and cultural topics not fully contained within the periods listed above, such as "German Comedy" and "Turn-of-the-Century Vienna.".

Prerequisite: GERMAN 101 or GERMAN 102 or GERMAN 103 or GERMAN 104.

Repeatability: Unlimited as topics vary.

GERMAN 140. Topics in Literary Theory and Criticism. 4 Units.
In English. Theoretical dimensions of literary criticism and the German philosophical tradition. Topics have included Marxism, Freudian thought, German Idealist aesthetics, Historicism, twentieth-century hermeneutics, Frankfurt School, and Rezeptionsästhetik.

Repeatability: Unlimited as topics vary.

GERMAN 140W. Topics in Literary Theory and Criticism. 4 Units.
In English. Theoretical dimensions of literary criticism and the German philosophical tradition. Topics have included Marxism, Freudian thought, German Idealist aesthetics, Historicism, twentieth-century hermeneutics, Frankfurt School, and Rezeptionsaesthetik.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

(Ib)

GERMAN 150. German Literature and Culture in Translation. 4 Units.
In English. Major works in Germanic literature and culture in context.

Repeatability: Unlimited as topics vary.

GERMAN 150W. German Literature and Culture in Translation. 4 Units.
In English. Major works in Germanic literature and culture in context.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

(Ib)

GERMAN 160. German Cinema.
Historical, theoretical, and comparative perspectives on German cinema.

Repeatability: Unlimited as topics vary.

GERMAN 160W. German Cinema. 4 Units.
Historical, theoretical, and comparative perspectives on German cinema.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

(Ib)

GERMAN 170. Topics in German Linguistics. 4 Units.
Explores linguistic, sociolinguistic, or ethnography-of-communication topics of German or other Germanic languages (Swedish, Icelandic, Yiddish, and others). Taught in English.

Repeatability: Unlimited as topics vary.

GERMAN 170W. Topics in German Linguistics. 4 Units.
Explores linguistic, sociolinguistic, or ethnography-of-communication topics of German or other Germanic languages (Swedish, Icelandic, Yiddish, and others). Taught in English.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

(Ib)

GERMAN 197. German Internship . 4 Units.
In this internship course, students will engage in professional practice (e.g., Engineering, Business Administration, government) in a German setting and thereby increase their knowledge of German language and culture in a setting beyond the academic classroom.

Prerequisite: German 2C.

Grading Option: Pass/no pass only.

GERMAN 199. Independent Study. 1-4 Units.
Independent research with German faculty.

Repeatability: May be repeated for credit unlimited times.

GERMAN 200. Literary Criticism . 4 Units.
Topics in literary criticism.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

GERMAN 210. Literary Theory . 4 Units.
Topics in literary theory.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

GERMAN 220. Selected Topics in German Linguistics . 4 Units.
Topics in German linguistics.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

GERMAN 230. Literary and Cultural History. 4 Units.
Topics in literary and cultural history.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

GERMAN 290. Independent Study. 4 Units.
Counted toward course requirements for the M.A. or Ph.D. A term paper or project is required.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

GERMAN 298. Independent Directed Reading. 4-12 Units.
For students preparing for doctoral examination.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

GERMAN 299. Dissertation Research. 4-12 Units.
For students who have been admitted to doctoral candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

GERMAN 398A. The Teaching of German. 2 Units.
Required of all Teaching Assistants in the German Department. Also open to present and prospective teachers of German who are not Teaching Assistants.

Restriction: Graduate students only. School of Humanities majors only.

GERMAN 398B. The Teaching of German. 2 Units.
Required of all Teaching Assistants in the German Department. Also open to present and prospective teachers of German who are not Teaching Assistants.

Prerequisite: GERMAN 398A.

Restriction: Graduate students only. School of Humanities majors only.

GERMAN 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Italian Courses

ITALIAN 1A. Fundamentals of Italian. 5 Units.
Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily.

Overlaps with ITALIAN S1AB.

Restriction: ITALIAN 1A and ITALIAN S1AB may not be taken for full credit.

ITALIAN 1B. Fundamentals of Italian. 5 Units.
Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily.

Prerequisite: ITALIAN 1A or Placement Exam into ITALIAN 1B. ITALIAN 1A with grade of C or better.

Overlaps with ITALIAN S1AB, ITALIAN S1BC.

Restriction: ITALIAN 1B and ITALIAN S1AB and ITALIAN S1BC may not be taken for full credit.

ITALIAN 1C. Fundamentals of Italian. 5 Units.
Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily.

Prerequisite: ITALIAN 1B or ITALIAN S1AB or Placement Exam into 1C. ITALIAN 1B with a grade of C or better. ITALIAN S1AB with a grade of C or better.

Overlaps with ITALIAN S1BC.

Restriction: ITALIAN 1C and ITALIAN S1BC may not both be taken for full credit.

(VI)

ITALIAN S1AB. Italian Fundamentals. 7.5 Units.
First-year Italian in an intensified form. Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily three hours for five weeks each session.

Overlaps with ITALIAN 1A, ITALIAN 1B.

Restriction: ITALIAN S1AB and ITALIAN 1A and ITALIAN 1B may not be taken for full credit.

ITALIAN S1BC. Italian Fundamentals. 7.5 Units.
First-year Italian in an intensified form. Students are taught to conceptualize in Italian as they learn to understand, read, write, and speak. Classes are conducted entirely in Italian and meet daily three hours for five weeks each session.

Prerequisite: ITALIAN S1AB or ITALIAN 1B. ITALIAN S1AB with a grade of C or better. ITALIAN 1B with a grade of C or better.

Overlaps with ITALIAN 1B, ITALIAN 1C.

Restriction: ITALIAN S1BC and ITALIAN 1B and ITALIAN 1C may not be taken for full credit.

(VI)

ITALIAN 2A. Intermediate Italian. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in Italian.

Prerequisite: ITALIAN 1C or ITALIAN S1BC or Placement Exam into 2A. ITALIAN 1C with grade of C or better. ITALIAN S1BC with grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ITALIAN 2B. Intermediate Italian. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in Italian.

Prerequisite: ITALIAN 2A or Placement Exam into 2B. ITALIAN 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ITALIAN 2C. Intermediate Italian. 4 Units.
Texts of contemporary literary or social interest provide the focus for more advanced conversation, reading, and composition. Classes are conducted entirely in Italian.

Prerequisite: ITALIAN 2B or Placement Exam into 2C. ITALIAN 2B with grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ITALIAN 99. Special Studies in Italian. 4 Units.
Both student and instructor arrive at the theme of the course and the critical approach to be followed in consultation. Intended to offer courses in Italian otherwise unavailable.

Repeatability: May be repeated for credit unlimited times.

ITALIAN 101A. Introduction to Italian Literature. 4 Units.
Introduction to all of the genres of a narrowly defined period in relationship to a specific literary problem. In Italian.

Prerequisite: ITALIAN 2C.

ITALIAN 101B. Introduction to Italian Literature. 4 Units.
Introduction to all of the genres of a narrowly defined period in relationship to a specific literary problem. In Italian.

Prerequisite: ITALIAN 2C.

ITALIAN 150. Topics in Italian Literature and Culture. 4 Units.
Taught in English.

Repeatability: Unlimited as topics vary.

ITALIAN 199. Tutorial in Italian Literature and Culture. 4 Units.
The student must submit a written description of the proposed course to the instructor and the Chair prior to the beginning of the course.

Repeatability: Unlimited as topics vary.

Russian Courses

RUSSIAN 1A. Fundamentals of Russian. 5 Units.
Focuses on reading, comprehension, basic composition, and conversation skills, and gives the student an initial exposure to the Russian cultural scene.

Prerequisite: Placement into RUSSIAN 1A.

RUSSIAN 1AB. Intensive Russian Fundamentals. 7.5 Units.
First half of first#year Russian in a time#intensive form. Development of meaningful communicative skills for the purposes of interaction with Russian speakers and beginning study of Russian. Learner#centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge. Course may be offered online.

Prerequisite: Placement into RUSSIAN 1A.

Overlaps with RUSSIAN 1A, RUSSIAN 1B.

Restriction: RUSSIAN 1AB and RUSSIAN 1A and RUSSIAN 1B may not be taken for full credit.

RUSSIAN 1B. Fundamentals of Russian. 5 Units.
Focuses on reading, comprehension, basic composition, and conversation skills, and gives the student an initial exposure to the Russian cultural scene.

Prerequisite: RUSSIAN 1A or placement into RUSSIAN 1B. RUSSIAN 1A with a grade of C or better.

RUSSIAN 1BC. Intensive Russian Fundamentals. 7.5 Units.
Second half of first#year Russian in a time#intensive form. Development of meaningful communicative skills for the purposes of interaction with Russian speakers and beginning study of Russian. Learner#centered approach develops speaking, listening, reading, writing, and cultural skills and knowledge. Course may be offered online.

Prerequisite: RUSSIAN 1AB or Russian 1B. RUSSIAN 1AB with a grade of C or better. RUSSIAN 1B with a grade of C or better.

Overlaps with RUSSIAN 1B, RUSSIAN 1C.

Restriction: Russian 1BC and Russian 1B and Russian 1C may not be taken for full credit.

(VI)

RUSSIAN 1C. Fundamentals of Russian. 5 Units.
Focuses on reading, comprehension, basic composition, and conversation skills, and gives the student an initial exposure to the Russian cultural scene.

Prerequisite: RUSSIAN 1B or placement into RUSSIAN 1C. RUSSIAN 1B with a grade of C or better.

(VI)

RUSSIAN 2A. Intermediate Russian. 4 Units.
Students read simple passages from contemporary Russian literary texts and newspapers. Development of oral skills and exposure to Russian culture continue.

Prerequisite: RUSSIAN 1C or placement in RUSSIAN 2A. RUSSIAN 1C with a grade of C or better.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

RUSSIAN 2B. Intermediate Russian. 4 Units.
Students read simple passages from contemporary Russian literary texts and newspapers. Development of oral skills and exposure to Russian culture continue.

Prerequisite: RUSSIAN 2A or placement into RUSSIAN 2B. RUSSIAN 2A with a grade of C or better.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

RUSSIAN 2C. Intermediate Russian. 4 Units.
Students read simple passages from contemporary Russian literary texts and newspapers. Development of oral skills and exposure to Russian culture continue.

Prerequisite: RUSSIAN 2B or placement into RUSSIAN 2C. RUSSIAN 2B with a grade of C or better.

Restriction: School of Humanities majors and International Studies majors have first consideration for enrollment.

(VIII)

RUSSIAN 50. Russian Culture . 4 Units.
Study of varied topics in Russian culture, area studies, and society, both in the present and in historical perspective.

Repeatability: May be taken for credit 4 times as topics vary.

(IV, VIII)

RUSSIAN 99. Special Studies Russian. 1-5 Units.
Special studies under faculty supervision.

Repeatability: May be taken for credit 2 times.

RUSSIAN 140. Topics in Russian Literary Theory. 4 Units.
Examines the work of individual theorists and schools of literary theory in the nineteenth and twentieth centuries.

Repeatability: Unlimited as topics vary.

RUSSIAN 150. Topics in Russian Literature. 4 Units.
Examines major themes in Russian literature, film, and other media from the eighteenth to twenty-first centuries. Taught in English.

Repeatability: Unlimited as topics vary.

RUSSIAN 190. Russian Language Through Film. 4 Units.
Uses Russian films of the late twentieth century to enhance students' language skills and deepen their cultural knowledge. Work involves intensive conversation, reading and listening comprehension, and the acquisition of written skills and grammatical accuracy. Conducted primarily in Russian.

Prerequisite: RUSSIAN 2C.

Repeatability: Unlimited as topics vary.

RUSSIAN 199. Independent Study. 1-4 Units.
Independent study under direct faculty supervision.

Repeatability: May be taken for credit 2 times.

Department of Film and Media Studies

2000 Humanities Gateway; 949-824-3532
http://www.humanities.uci.edu/filmstudies/
Victoria Johnson, **Acting Department Chair**

Undergraduate Program

We live in a world in which we are surrounded by electronic media in the form of images and sounds. Whether printed on roadside billboards, downloaded to our phones, or broadcast into our homes via television, media greatly influence our sense of who we are and how we live. Yet so much of our exposure to the sights and sounds of film, TV, video, advertising, and other technologies is taken for granted. Those sights and sounds are so pervasive, and in many cases so enjoyable, that we rarely pause to consider how we engage and interact with them. An undergraduate education in Film and Media Studies provides students with the opportunity to explore the appeal and operation of these social, historic, institutional, and textual entities we call cinema, television, and digital technologies, and to interrogate the inter-relationships of visual media and sound and music as forms of media.

The course work for the B.A. degree program in Film and Media Studies trains students to read and understand the audio-visual languages of modern media and new technologies and to analyze images from socioeconomic, political, aesthetic, and historical perspectives. Learning these critical viewing skills involves learning new ways of seeing. The Film and Media Studies curriculum is systematic and comprehensive; upper-division courses have between 20 and 70 students and are typically taught by regular faculty. There are more than 300 Film and Media Studies majors enrolled at UCI.

The Department of Film and Media Studies familiarizes students with the history, theory, and art of cinema, broadcast media, digital media, and other media. Courses focus on a range of topics, including directors, period styles, genres, national cinemas, the history and criticism of radio, television, sound theory and popular music, and developments in new media and digital technologies. Additional courses offer students hands-on experience in video production and screenwriting. The program provides its majors with a thorough understanding of the modern media's roles in contemporary society. Regular course offerings are complemented by film and video screenings and series. Film and Media Studies, in cooperation with other units at UCI, regularly invites scholars, digital artists, directors, producers, and screenwriters to campus to share their work and perspectives with students.

Film and Media Studies at UCI is unique in its concentration on the history, theory, and criticism of cinema, television, popular music and sound, and new technologies. The faculty has published books and articles on these topics and others including fantastic cinema, avant-garde directors, ethnographic film, media and intellectual property, sound in film and media, hip-hop and cinema, television history, and theory of new technologies.

In order to cover the extra costs generated by the purchase and rental of media demanded by the specialized Film and Media Studies curriculum, the School of Humanities charges a laboratory fee to all students taking Film and Media Studies courses.

Eligible Film and Media Studies students can complete professional internships in the fields of film, television, or digital media production, distribution, writing, and related areas for elective course credit.

Through the University's Education Abroad Program (UCEAP), eligible Film and Media Studies students have the opportunity to study abroad and earn credit toward their degree during the school year. Information about UCEAP is available through the Film and Media Studies Office and the Study Abroad Center (http://www.studyabroad.uci.edu).

Career Opportunities

A degree in Film and Media Studies will provide students with a variety of opportunities leading to a career choice or to further education at the graduate or professional level. Graduates from the program have gone on to a host of different careers. Some have pursued graduate work in critical studies and/or production at leading institutions such as the University of California, Los Angeles, Columbia University, New York University, University of Texas at Austin, and University of Southern California. Many are now at work in various sectors of the entertainment industry as feature film editors, executives

in film and video distribution companies, network television producers, and independent filmmakers. Professional internships are encouraged and open to all students who meet required criteria. Visit the internship page on our website (http://www.humanities.uci.edu/filmstudies/undergrad/interns.php) for more information.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center (p. 124) section for additional information.

Requirements for the B.A. Degree in Film and Media Studies

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Departmental Requirements for the Major

A. Complete the following:	
FLM&MDA 85A	Introduction to Film and Visual Analysis
FLM&MDA 85B	Broadcast Media History and Analysis
FLM&MDA 85C	New Media and Digital Technologies
FLM&MDA 101A	History of Film: The Silent Era I
FLM&MDA 101B	History of Film: The Sound Era I
FLM&MDA 101C	History of Film: The Sound Era II
FLM&MDA 139W	Writing on Film and Media
B. Complete either:	
FLM&MDA 110	Film and Media Theory
or FLM&MDA 111	Film and Media Theory and Practice
C. Complete either:	
FLM&MDA 117A	Introduction to Screenwriting
or FLM&MDA 120A	Basic Production
D. Select four of the following:	
FLM&MDA 112	Genre Study
FLM&MDA 113	Narrative/Image
FLM&MDA 114	Film, Media, and the Arts
FLM&MDA 115	Authorship
FLM&MDA 117B	Intermediate Screenwriting [1]
FLM&MDA 117C	Screenwriting Workshop [1]
FLM&MDA 120B	Intermediate Production [1]
FLM&MDA 120C	Production Workshop [1]
FLM&MDA 130	Multicultural Topics in the Media
FLM&MDA 143	Critical Theory of Television
FLM&MDA 144	Studies in New Media
FLM&MDA 145	Popular Culture and Media
FLM&MDA 146	Sound Studies
FLM&MDA 150	Audiences and Reception
FLM&MDA 151	Documentary and Experimental Film and Media
FLM&MDA 160	National/Regional Cinemas and Media
FLM&MDA 161	Global/Transnational Cinemas and Media
FLM&MDA 162	U.S. Cinema
FLM&MDA 185	Television and New Media
FLM&MDA 190	Special Topics in Film and Modern Media
FLM&MDA 191	Special Topics in Critical Practice

1 Only two of the courses marked may be applied toward this requirement.

Residence Requirement for the Major: At least five upper-division courses required for the major must be completed successfully at UCI.

Departmental Requirements for the Minor

A. Complete:	
FLM&MDA 85A	Introduction to Film and Visual Analysis
B. Select three of the following:	
FLM&MDA 85B	Broadcast Media History and Analysis
FLM&MDA 85C	New Media and Digital Technologies
FLM&MDA 101A	History of Film: The Silent Era I
FLM&MDA 101B	History of Film: The Sound Era I
FLM&MDA 101C	History of Film: The Sound Era II
C. Select three of the following:	
FLM&MDA 110	Film and Media Theory
FLM&MDA 111	Film and Media Theory and Practice
FLM&MDA 112	Genre Study
FLM&MDA 113	Narrative/Image
FLM&MDA 114	Film, Media, and the Arts
FLM&MDA 115	Authorship
FLM&MDA 130	Multicultural Topics in the Media
FLM&MDA 143	Critical Theory of Television
FLM&MDA 144	Studies in New Media
FLM&MDA 145	Popular Culture and Media
FLM&MDA 146	Sound Studies
FLM&MDA 150	Audiences and Reception
FLM&MDA 151	Documentary and Experimental Film and Media
FLM&MDA 160	National/Regional Cinemas and Media
FLM&MDA 161	Global/Transnational Cinemas and Media
FLM&MDA 162	U.S. Cinema
FLM&MDA 185	Television and New Media
FLM&MDA 190	Special Topics in Film and Modern Media
FLM&MDA 191	Special Topics in Critical Practice

Residence Requirement for the Minor: Four upper-division courses must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department chair.

Graduate Study

In conjunction with the Department of Art History, the Department of Film and Media Studies offers a graduate program in Visual Studies. A description may be found in the Program in Visual Studies (p. 969) section.

Faculty

M. Ackbar Abbas, M.Phil. University of Hong Kong, *Professor of Comparative Literature; Culture and Theory; Film and Media Studies* (Hong Kong culture and postcolonialism, visual culture, architecture and cinema, cultural theory, globalization)

Eyal Amiran, Ph.D. University of Virginia, *Associate Professor of Comparative Literature; Film and Media Studies* (digital media theory, twentieth-century literature, narrative and textual theory, psychoanalysis, modern and postmodern intellectual history)

Catherine Benamou, Ph.D. New York University, *Associate Professor of Film and Media Studies; Culture and Theory* (Hispanophone and Lusophone cinema and television, transnational media flows and ethnic spectatorship, Orson Welles and post-war maverick cinema, transculturation, cinematic memory and cultures of preservation)

Elizabeth M. Cane, M.F.A. University of California, Los Angeles, *Lecturer of Film and Media Studies*

Marie Cartier, Ph.D. Claremont Graduate University, *Lecturer of Film and Media Studies*

Julie G. Cho, M.F.A. University of California, Los Angeles, *Lecturer of Film and Media Studies; Asian American Studies*

Desha Dauchan, M.F.A. University of California, Los Angeles, *Lecturer of Film and Media Studies*

Sohail Daulatzai, Ph.D. University of Southern California, *Associate Professor of Film and Media Studies; African American Studies; Culture and Theory* (Black radicalism, Muslim studies, cultural studies, race, postcolonial theory, U.S. imperial culture, cinema, hip-hop culture)

Edward Dimendberg, Ph.D. University of California, Santa Cruz, *Professor of Film and Media Studies; European Languages and Studies* (film and literature, history of the book, scholarly communication)

Aglaya Glebova, Ph.D. University of California, Berkeley, *Acting Assistant Professor of Art History; Film and Media Studies* (history and theory of photography and film, European avant-garde, Russian and Soviet art)

Andrew G. Harrington, Ph.D. Claremont Graduate University, *Lecturer of Film and Media Studies*

Kristen L. Hatch, Ph.D. University of California, Los Angeles, *Assistant Professor of Film and Media Studies* (American film history, film genres, stardom, histories of gender and sexuality, childhood studies, reception studies)

Lucas Hilderbrand, Ph.D. New York University, *Director of the Graduate Program in Visual Studies and Associate Professor of Film and Media Studies* (cultural and media studies, queer studies, histories of technology, documentary, audio, intellectual property)

Adriana M. Johnson, Ph.D. Duke University, *Associate Professor of Comparative Literature; Film and Media Studies; Spanish and Portuguese* (Latin American literature and film, subaltern studies, postcolonial studies, politics and culture)

Victoria E. Johnson, Ph.D. University of Southern California, *Associate Professor of Film and Media Studies; Culture and Theory* (history and critical theory of U.S. television, popular film, and media; politics of geography, race, gender, and sexuality in popular culture; cultural studies)

Kyung Hyun Kim, Ph.D. University of Southern California, *Professor of Korean Culture; Asian American Studies; Film and Media Studies* (East Asian cinema, modern Korea, critical theory)

Peter O. Krapp, Ph.D. University of California, Santa Barbara, *Department Chair and Professor of Film and Media Studies; English; Informatics* (media history, secret communication, digital culture, cultural memory, computer games, history and theory of artificial worlds)

Felicidad "Bliss" Cua Lim, Ph.D. New York University, *Associate Professor of Film and Media Studies; Culture and Theory* (Philippine cinema, temporality, postcolonial feminist theory, transnational horror and fantastic cinema, film archives)

Catherine Liu, Ph.D. Yale University, *Professor of Film and Media Studies; Comparative Literature* (Hou Hsiao-Hsien, labor history and theory, U.S. intellectual history and educational/cultural/media policy, culture wars, Frankfurt School, historiography and psychoanalysis, surveillance, spaces of private life, Cold War culture, neoliberalism, science fiction studies, political economy and aesthetic education)

Glen M. Mimura, Ph.D. University of California, Santa Cruz, *Associate Professor of Film and Media Studies; Asian American Studies; Culture and Theory* (minority, diasporic, and third cinemas, popular culture and social movements, media, race, and sexuality)

Allison J. Perlman, Ph.D. University of Texas at Austin, *Assistant Professor of History; Film and Media Studies* (history of broadcasting, American social movements, media law and policy, media activism, popular memory)

Fatimah Tobing Rony, Ph.D. Yale University, *Associate Professor of Film and Media Studies* (documentary and ethnographic film, race and representation, feminist film theory, postcolonial studies, film history and theory, film and media production, media theory and practice)

Jared Charles Sexton, Ph.D. University of California, Berkeley, *Program Director and Associate Professor of African American Studies; Culture and Theory; Film and Media Studies* (race and sexuality, policing and imprisonment, contemporary U.S. cinema and political culture, multiracial coalition, critical theory)

Braxton Soderman, Ph.D. Brown University, *Assistant Professor of Film and Media Studies* (digital and new media theory, video games, electronic literature and digital aesthetics, media archaeology and history of technology, critical theory)

Lauren M. Steimer, M.A. New York University, *Lecturer of Film and Media Studies*

Georges Y. Van Den Abbeele, Ph.D. Cornell University, *Dean of the School of Humanities* and *Professor of Comparative Literature; English; European Languages and Studies; Film and Media Studies*

Roxanne Varzi, Ph.D. Columbia University, *Associate Professor of Anthropology; Culture and Theory; Film and Media Studies* (Islam, visual anthropology, anthropology of war, media, youth culture, religion and public space, Iran)

Frank B. Wilderson III, Ph.D. University of California, Berkeley, *Professor of African American Studies; Culture and Theory; Drama; Film and Media Studies* (film theory, Marxism, dramaturgy, black political theory)

Courses

FLM&MDA 85A. Introduction to Film and Visual Analysis. 4 Units.
Introduces the language and techniques of visual and film analysis. Teaches students to analyze the moving image, emphasizing the ways framing, camera movement, sound, and editing produce meaning, reproduce historical ideologies, foster or disrupt narrative, and cue spectators.

(IV)

FLM&MDA 85B. Broadcast Media History and Analysis. 4 Units.
History of broadcast media from the radio era to the present day, including social, political, institutional, and audience analysis as well as methods of visual and aural analysis of these media.

(IV)

FLM&MDA 85C. New Media and Digital Technologies. 4 Units.
The study of digital media, computer-mediated communication, and Internet cultures, from historical and theoretical perspectives.

(IV)

FLM&MDA 101A. History of Film: The Silent Era I. 4 Units.
An investigation of the technological, economic, social, and aesthetic determinants of the cinema in its first 30 years. The formal strategies and historical importance of films by Méliès, the Lumières, Porter, Griffith, Murnau, Lang, Eisenstein, Pudovkin, and others.

Prerequisite: FLM&MDA 85A.

FLM&MDA 101B. History of Film: The Sound Era I. 4 Units.
Explores the formal strategies and socio-historical dynamics of films made between 1930 and 1960, concentrating on representative cinemas and works by Lang, Riefenstahl, Renoir, Welles, De Sica, Ophüls, Kurosawa, and others.

Prerequisite: FLM&MDA 85A.

FLM&MDA 101C. History of Film: The Sound Era II. 4 Units.
Studies narrative strategies and formal possibilities in films made since 1960, framing aesthetic questions in political, social, and economic terms, using selected features from Western and non-Western countries.

Prerequisite: FLM&MDA 85A.

FLM&MDA 110. Film and Media Theory. 4 Units.
Survey of major directions in film and media theory. Various theories of mass culture, realism, auteurism, semiotics, feminism, cultural studies, and theories of other media, with an emphasis on developing the student’s ability to analyze and articulate a theoretical argument.

Prerequisite: FLM&MDA 85A and FLM&MDA 85B and FLM&MDA 85C and FLM&MDA 101A and FLM&MDA 101B and FLM&MDA 101C and FLM&MDA 139W. Satisfactory completion of the Upper-Division Writing requirement.

FLM&MDA 111. Film and Media Theory and Practice. 4 Units.
Seminar focusing on issues in film and media production and editing. Reading and exercises to understand aspects of film and media production (montage, sound, film movement, directing, and mise en scène), and how ideology works in tandem with style.

Prerequisite: FLM&MDA 101C and FLM&MDA 120A and FLM&MDA 139W. Satisfactory completion of the Upper-Division Writing requirement.

FLM&MDA 112. Genre Study . 4 Units.
Critical approaches to the serial productions we call "genre" films such as westerns, weepies, musicals, horror films, and others; televisual genres, such as sitcoms, drama, comedy, news, docudrama, police; Internet categories, such as chat-rooms, listservs, Web pages.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 113. Narrative/Image . 4 Units.
What relations do sound, image, and story assume in film, television, video, and Internet narratives? In what ways do these media interact with and borrow from each other and traditional story-telling media? How have the new media explored non-narrative strategies.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 114. Film, Media, and the Arts. 4 Units.
A synthetic entity, film draws on both established and popular arts. Looks at visual media's exchanges with "high" and "low" culture, exploring its relation to areas such as photography, music, painting, and architecture.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 115. Authorship . 4 Units.
Theoretical and analytical discussions of visual media authorship, focusing on case studies of directors, producers, scriptwriters, and film, video, and digital artists.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 117A. Introduction to Screenwriting. 4 Units.
Introduction to the technique and format of the screenplay, with a particular focus on its three act structural elements: coverage, treatment, and 60 beat outline.

Prerequisite: FLM&MDA 85A.

FLM&MDA 117B. Intermediate Screenwriting. 4 Units.
Exercises in the development of screenplays, with emphasis on formal and structural considerations of character development. Students work with the hero structure and other character development methodologies, such as method acting.

Prerequisite: FLM&MDA 117A.

FLM&MDA 117C. Screenwriting Workshop. 4 Units.
Continuation and intensification of work initiated in 117B. Students complete a full-length screenplay. Concentrates on both practical and technical concerns, addressing pragmatic and aesthetic questions in intensive small-group discussions.

Prerequisite: FLM&MDA 117B.

FLM&MDA 120A. Basic Production. 4 Units.
Introduction to the basic apparatus of video/film production. The elementary essentials of production, including the use of camera and lenses, lighting, editing, and sound.

Prerequisite: FLM&MDA 85A.

FLM&MDA 120B. Intermediate Production. 4 Units.
Students work on individual and group projects, utilizing skills and insights introduced in Film and Media Studies 120A.

Prerequisite: FLM&MDA 120A.

FLM&MDA 120C. Production Workshop. 4 Units.
As film and video are collaborative media, students form production groups and ultimately produce final 10-15 minute film/video projects.

Prerequisite: FLM&MDA 120B.

FLM&MDA 130. Multicultural Topics in the Media. 4 Units.
Investigation of media representations of gender, race, and sexuality in the United States. Topics include media images of and by one or more minority groups in the United States, including African Americans, Asian Americans, Chicano/Latinos, Native Americans, gays and lesbians.

Repeatability: Unlimited as topics vary.

FLM&MDA 139W. Writing on Film and Media. 4 Units.
Practical exercises in film, TV, and other media criticism as a form of cultural analysis. Requires at least 4,000 words of assigned composition.

Prerequisite: FLM&MDA 85A and FLM&MDA 101A. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

FLM&MDA 143. Critical Theory of Television. 4 Units.
Introduction to critical, theoretical, scholarly understandings and analyses of television, which offer in-depth analyses of television programming, audience reception practices, and industry strategies of address.

Prerequisite: FLM&MDA 85B.

FLM&MDA 144. Studies in New Media. 4 Units.
Advanced analysis of the technologies, texts, theories, and cultures of computers, videogames, networks, or platforms.

Prerequisite: FLM&MDA 85C.

Repeatability: Unlimited as topics vary.

FLM&MDA 145. Popular Culture and Media. 4 Units.
Considers the forms, ideologies, consumption, and marketing of popular entertainment and technologies. May focus on cultural studies methods, transnational approaches, and synergy between media.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 146. Sound Studies. 4 Units.
Focuses on the production, theories, and meanings of sound recordings, music, and/or audio technologies. Topics may include the cultures of popular music and audio devices, music television, and theories of film sound.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 150. Audiences and Reception. 4 Units.
Explores the dynamics of address, interpretation, and appropriation between film and media texts and their viewers. Topics may include reception studies, fandom, audience-defined modes of production, demographics, spectatorial pleasure, and historical approaches to audiences.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 151. Documentary and Experimental Film and Media. 4 Units.
Examines nonfiction and/or experimental cinemas and media, such as documentary, the historical avant-garde, video art, and activist media. Students consider the specific aesthetics and ideologies of forms distinct from narrative feature films.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 160. National/Regional Cinemas and Media. 4 Units.
National schools, period styles, or cultural movements beyond U.S. cinema, as defined by national borders or by geographic regions, such as Latin America. May be approached from a comparative perspective.

Repeatability: Unlimited as topics vary.

FLM&MDA 161. Global/Transnational Cinemas and Media. 4 Units.
Analyzes the multinational production, circulation, and reception of film and media texts beyond singular national borders or specific geographic regions. Topics may include transnational co-productions, exports, and diasporic reception.

Repeatability: Unlimited as topics vary.

FLM&MDA 162. U.S. Cinema . 4 Units.
Explores the modes of production and distribution, aesthetics, and contexts that have shaped cinema in the United States. Topics may include Classical Hollywood, American Independent Cinema, or periods such as 1970s Cinema.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 185. Television and New Media. 4 Units.
Advanced seminar focusing on special topics in television and new media. Past examples have included courses on Media Marketing and Brand Identity; Television and Sound; Game Theory; and other issues related to popular culture, broadcast media, and new media technologies.

Prerequisite: FLM&MDA 85B or FLM&MDA 85C.

Repeatability: Unlimited as topics vary.

FLM&MDA 190. Special Topics in Film and Modern Media. 4 Units.
Special issues concerned with film and media history, theory, and criticism.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 191. Special Topics in Critical Practice. 4 Units.
Integrates critical analysis, historical, and theoretical methods with creative projects to illuminate film and media production and industries. May include courses in adaptation, writing television, media activism, writing the short film, performance studies, and movie title sequences.

Prerequisite: FLM&MDA 85A.

Repeatability: Unlimited as topics vary.

FLM&MDA 197. Professional Internship. 2-4 Units.
Professional internship in the film, broadcast, and/or digital media industries designed to provide students with closely supervised professional experience to enhance their understanding of media from industrial, historical, and critical perspectives. Journal and final report required.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Restriction: Upper-division students only.

FLM&MDA 198. Creative Project. 2-4 Units.
Creative project in screenwriting, filmmaking, videomaking, or Web or Internet design intended to provide advanced production and creative writing training beyond the Film and Media Studies 117A-B-C or 120A-B-C series. Final project required.

Prerequisite: (FLM&MDA 85A and FLM&MDA 117A and FLM&MDA 117B and FLM&MDA 117C) or (FLM&MDA 120A and FLM&MDA 120B and FLM&MDA 120C). Recommended: FLM&MDA 101A.

Repeatability: May be taken for credit 2 times as topics vary.

Restriction: Upper-division students only.

FLM&MDA 199. Directed Research. 4 Units.
Directed reading and research under supervision of a faculty member in topic areas not covered by regular course offerings. Final research paper required.

Restriction: Upper-division students only.

FLM&MDA 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Department of Gender and Sexuality Studies

3000 Humanities Gateway; (949) 824-2376
http://www.humanities.uci.edu/genderandsexualitystudies/
Laura H. Kang, **Department Chair**

UCI's Department of Gender and Sexuality Studies is dedicated to the study of women, gender, and sexuality in their complex articulation with race, ethnicity, class, religion, and nationality. The Department's goal is to foster critical and creative analysis of the various disciplinary perspectives—historical, political, economic, representational, technological, and scientific—that have constituted women, gender, and sexuality as objects of study. By emphasizing a rigorous interdisciplinary perspective in their teaching and research, the Gender and Sexuality Studies faculty seek to produce new knowledge about the social meanings of gender, race, class, and sexuality, and to equip students with a range of analytical and methodological skills.

The field of women's studies has developed at a phenomenal rate from a handful of student-initiated courses in the early 1970s to more than 600 programs in colleges and universities across the United States offering degrees at the B.A., M.A., and Ph.D. levels. UCI's Department of Women's Studies was founded as a program in 1975 and has grown significantly since that time. To reflect its expanding scope of inquiry, the department changed its name in 2014 to the Department of Gender and Sexuality Studies. The Department offers a B.A. degree in Gender and Sexuality Studies, a minor in Gender and Sexuality Studies, a minor in Queer Studies, and a graduate emphasis in Feminist Studies.

Gender and Sexuality Studies provides a unique intellectual community for undergraduate and graduate students, where faculty and students share a commitment to interactive teaching and learning. Students work closely with faculty to plan a coherent program of study and to anticipate work toward advanced degrees and a wide variety of career options.

Career Opportunities

A degree in Gender and Sexuality Studies prepares students for the expanding opportunities available in graduate programs and in numerous careers in both the public and private sectors. Businesses and corporations increasingly find the need for increased knowledge about gender and sexuality, and the growth of organizations and agencies that deal with women's and LGBT rights issues—at the local, national, and global levels—is creating new opportunities for graduates with specializations in Gender and Sexuality Studies. Graduates bring unique skills and knowledge to the professions of law, medicine, social work, education, counseling, and to government service, all of which increasingly require expertise on issues concerning gender and sexuality. Students of Gender and Sexuality Studies develop critical and analytical skills which prove valuable in the full range of life choices.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques.

Undergraduate Program

Requirements for the B.A. Degree in Gender and Sexuality Studies

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Departmental Requirements for the Major

A. Three introductory core courses:	
GEN&SEX 50A	Gender and Feminism in Everyday Life
and select two of the following:	
GEN&SEX 50B	Gender and Power
GEN&SEX 50C	Gender and Popular Culture
GEN&SEX 60A	Gender and Science
GEN&SEX 60B	Gender and Law
B. Three advanced core courses–select one from each of the 100, 110, and 120 series:	
GEN&SEX 100A	Knowledge and Social Change
GEN&SEX 100B	Feminist Theory
GEN&SEX 100C	Feminist Cultural Studies
GEN&SEX 110A	Gender, State, and Nation
GEN&SEX 110B	Money, Sex, and Power
GEN&SEX 110C	Producing Gender Transnationally
GEN&SEX 120A	Modern Pleasures
GEN&SEX 120B	Image Problems
GEN&SEX 120C	Practices of Embodiment
C. Three advanced elective core courses selected from GEN&SEX 139–168	
D. Two additional advanced elective courses selected from GEN&SEX 170–190 [1]	
E. Complete:	
GEN&SEX 197	Senior Seminar in Gender and Sexuality Studies

1 Students may request, by petition, one lower-division course to count in this category. This course should be primarily centered on the study of women, gender, and/or feminism.

Residence Requirement for the Major: A minimum of five upper-division courses required for the major must be completed successfully at UCI.

Requirements for the Minor in Gender and Sexuality Studies

A. Three introductory core courses selected from:	
GEN&SEX 50A	Gender and Feminism in Everyday Life
GEN&SEX 50B	Gender and Power
GEN&SEX 50C	Gender and Popular Culture
GEN&SEX 60A	Gender and Science
GEN&SEX 60B	Gender and Law

B. Two advanced core courses selected from GEN&SEX 100–168	
C. Two advanced elective courses selected from GEN&SEX 170–190	

Residence Requirement for the Minor: A minimum of four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, provided course content is approved in advance by the appropriate department chair.

Minor in Queer Studies

The Department of Gender and Sexuality Studies offers a minor in Queer Studies. Taking as a point of departure that sexuality is a complex historical and cultural phenomenon, Queer Studies examines this complexity, drawing upon methods from anthropology, art, art history, biology, history, literature, philosophy, psychology, and sociology. Interdisciplinary insights from area studies, cultural studies, critical legal studies, ethnic studies, gender studies, religious studies, science and technology studies, visual studies, and women's studies also enrich this area of study.

Requirements for the Minor in Queer Studies

A. Three introductory core courses:	
GEN&SEX 20	Queer Studies
and select two of the following:	
GEN&SEX 50A	Gender and Feminism in Everyday Life
GEN&SEX 50B	Gender and Power
GEN&SEX 50C	Gender and Popular Culture
GEN&SEX 60A	Gender and Science
GEN&SEX 60B	Gender and Law
B. Two advanced core courses:	
GEN&SEX 157A	Topics in Queer Studies
GEN&SEX 157B	Topics in Queer Lives and Knowledge
C. Two advanced courses selected from the following:	
ANTHRO 129	Special Topics: Social and Economic Anthropology (when topics address issues of sexuality and gender)
ANTHRO 139	Special Topics in Cultural and Psychological Anthropology (when topics address issues of sexuality and HIV/AIDS)
DRAMA 103	Lectures in Dramatic Literature (when topics cover the representation of gays and lesbians in drama)
ENGLISH 105	Multicultural Topics in Literatures in English (when topics cover issues of gays and lesbians in literature)
FLM&MDA 112	Genre Study (when topics address issues of sexuality in representation and theory)
FLM&MDA 190	Special Topics in Film and Modern Media (when topics address issues of sexuality in representation and theory)
HISTORY 146D	Sex in the U.S. to 1860
HISTORY 146E	Gender in Nineteenth-Century America
HISTORY 169	Topics in Latin American History (when topics address gender and sexuality in Latin America)
SPANISH 185	Selected Topics in Peninsular Literature and Culture (when topics cover issues of sexuality in peninsular Spain and/or Portugal)
SPANISH 186	Selected Topics in Latin American Literature and Culture (when topics cover issues on sexuality in Latin American literature and culture)
GEN&SEX 100–190 (excluding GEN&SEX 157A and GEN&SEX 157B)	

Residence Requirement for the Minor: A minimum of four upper-division courses required for the minor must be successfully completed at UCI. Two of the four may be taken through the UC Education Abroad Program, provided course content is approved in advance by the appropriate department chair.

Graduate Emphasis in Feminist Studies

The Department of Gender and Sexuality Studies offers an emphasis in Feminist Studies, which is available to all graduate students at UCI. Satisfactory completion of the emphasis is certified by the Graduate Director of Gender and Sexuality Studies.

Admission to the Program

Students may apply for admission to the emphasis following successful completion of either GEN&SEX 200A or GEN&SEX 200B. For complete information about application policies and procedures, refer to the Gender and Sexuality Studies (http://www.humanities.uci.edu/genderandsexualitystudies/graduate) website or contact the Graduate Director.

Emphasis Requirements

Minimum course work for the graduate emphasis in Feminist Studies consists of four courses: two core courses, GEN&SEX 200A-GEN&SEX 200B, a coherent sequence normally taken in consecutive quarters; and any two courses selected from the list of courses in Feminist Studies approved by the Graduate Director, as long as one of these is a graduate course in the student's own department or area of interest. In keeping with the interdisciplinary focus of this emphasis, it is highly recommended that the other be a course from a discipline outside that department or area. The course requirements for Ph.D., M.A., and M.F.A. candidates are the same.

For doctoral students, the qualifying examination and dissertation topic should incorporate Feminist Studies in a meaningful way. One member of the candidate's qualifying examination committee and of the candidate's dissertation committee must be a member of the Gender and Sexuality Studies core or affiliate faculty. There are no requirements concerning qualifying examinations or theses for M.A. or M.F.A. students.

Requirements for Completion

During the final year of their graduate program, students apply and submit a sample of work related to Feminist Studies (10-page minimum paper, video, or other creative work). Upon receipt, the Graduate Director will verify completion of four required graduate courses related to Feminist Studies.

NOTE: The dissertation may be accepted in fulfillment of the sample of work when Feminist Studies is incorporated in a substantive way.

Faculty

Jonathan Alexander, Ph.D. Louisiana State University, *Campus Writing Coordinator and Professor of English; Culture and Theory; Education; Gender and Sexuality Studies* (writing studies, sexuality studies, queer theory, new media studies)

Laura H. Kang, Ph.D. University of California, Santa Cruz, *Department Chair and Associate Professor of Gender and Sexuality Studies; Asian American Studies; Comparative Literature; Culture and Theory* (feminist epistemologies and theories, cultural studies, ethnic studies)

Lilith Mahmud-Abdelwahab, Ph.D. Harvard University, *Assistant Professor of Gender and Sexuality Studies; Anthropology; Culture and Theory* (elites, race and nationalism, cultural capital, secrecy and conspiracy, feminist ethnography, critical studies of Europe)

Catherine Z. Sameh, Ph.D. Rutgers, The State University of New Jersey, *Assistant Professor of Gender and Sexuality Studies*

Jeanne Scheper, Ph.D. University of California, Santa Barbara, *Assistant Professor of Gender and Sexuality Studies; Culture and Theory* (feminist performance studies and visual culture, cultural studies, theories of race, gender and sexuality, trans-Atlantic modernism)

Jennifer Terry, Ph.D. University of California, Santa Cruz, *Associate Professor of Gender and Sexuality Studies; Comparative Literature; Culture and Theory; Gender and Sexuality Studies* (cultural studies, social theory; science and technology studies, formations of gender and sexuality, critical approaches to modernity, American studies in transnational perspective, processes of militarization)

Emily Thuma, Ph.D. New York University, *Assistant Professor of Gender and Sexuality Studies*

Courses

GEN&SEX 20. Queer Studies. 4 Units.
Study of sexuality from the perspective of lesbian, gay, queer, transgender scholarship spanning humanities, social sciences, arts.

(IV, VII)

GEN&SEX 50A. Gender and Feminism in Everyday Life. 4 Units.
What is gender? Why does studying it matter? Explores how feminism has understood not only gender as a category of social analysis, but how gender structures personal identities, family, citizenship, work and leisure, social policy, sexuality, and language.

(IV, VII)

GEN&SEX 50B. Gender and Power. 4 Units.
From workplace to home to schools to prisons, how are societal institutions and politics "gendered"? Examines power and inequalities around gender, race, class, and sexuality in national and transnational contexts.

(IV, VII)

GEN&SEX 50C. Gender and Popular Culture. 4 Units.
An investigation of gender, race, and sexuality in film, TV, video, music, and advertising, with attention to the ways that popular culture shapes understandings of technology, national identities, leisure and work, historical memory, international communication, and multicultural representation.

(IV, VII)

GEN&SEX 60A. Gender and Science. 4 Units.
Examines science from a variety of feminist viewpoints in order to explore how science influences everyday life. Special attention is given to the ways science shapes our understanding of gender, race, and sexuality.

(III)

GEN&SEX 60B. Gender and Law. 4 Units.
Introduction to the relationship between gender, race, sexuality, and the law. Critical thinking about how law defines citizenship, political representation, and democracy, focusing on the history of legal reform undertaken in the name of women as a social group.

(III)

GEN&SEX 70. Special Topics in Gender. 4 Units.
Topics cover issues which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 100A. Knowledge and Social Change. 4 Units.
Explores alternative ways that feminist scholars frame research questions, conduct research or creative activity. Examines challenges that feminist scholarship poses to the academy and the challenges the academy poses to feminist scholars.

GEN&SEX 100B. Feminist Theory. 4 Units.
Introduction to historical traditions in theory and various conceptual frameworks informing scholarship in gender studies, sexuality studies, and women's studies as a field of critical inquiry.

GEN&SEX 100C. Feminist Cultural Studies. 4 Units.
Investigation of the theories and methods that inform the feminist study of culture. Focuses on the interpretation of the visual arts and literature created by, and predominately for, women.

GEN&SEX 110A. Gender, State, and Nation. 4 Units.
Examination of gender and sexuality in relation to the production of identities created through participation in state and nation. Examines complexity of relationship between feminism and nationalism, feminism and the state.

GEN&SEX 110B. Money, Sex, and Power. 4 Units.
Examination of gender and sexuality in relation to the emergence of the modern world, modernity, and capitalism; commodification, circulation, and transnational exchanges relating to race, gender, class, sexuality, religion, and nationality.

GEN&SEX 110C. Producing Gender Transnationally. 4 Units.
Examination of how ideas and formations of gender cross national and international boundaries; encounters between feminist and sexual identity movements; how terms such as "sex" and "gender" change meanings according to time and place.

GEN&SEX 120A. Modern Pleasures. 4 Units.
Examination of the theory and history of pleasure within academic disciplines as well as in social and cultural processes and networks.

GEN&SEX 120B. Image Problems. 4 Units.
Examination of scholarly approaches to gender stereotypes and politics of representation as they present possibilities for critical analysis and produce problems and limitations; how powerful ideas of gender intersect with other forms of social differentiation such as race and class.

GEN&SEX 120C. Practices of Embodiment. 4 Units.
Explores how science, medicine, and law have shaped the understanding of differentiated bodies; examines shifting norms and ideals about producing, shaping, adorning, and dressing gendered bodies across diverse historical, cultural, social, economic, and spatial contexts.

GEN&SEX 139. Topics in Gender Studies. 4 Units.
Various topics in gender studies. Encompasses issues of gender, culture, race and class, including issues of sexualities and social justice.

Repeatability: Unlimited as topics vary.

GEN&SEX 139W. Topics in Gender Studies. 4 Units.
Various topics in gender studies. Encompasses issues of gender, culture, race and class, including issues of sexualities and social justice.

Prerequisite: Satisfactory completion of the Lower-Division writing requirement.

Repeatability: Unlimited as topics vary.

(Ib)

GEN&SEX 155. Topics in Gender and Sexuality Studies. 4 Units.
Designed to provide students with an opportunity to conduct advanced work in Gender and Sexuality Studies.

Repeatability: Unlimited as topics vary.

GEN&SEX 157A. Topics in Queer Studies. 4 Units.
Explores issues in queer studies from one or more of the following perspectives: theoretical, historical, legal, economic, political, sociological, and representation in the arts.

Repeatability: Unlimited as topics vary.

GEN&SEX 157B. Topics in Queer Lives and Knowledge. 4 Units.
Explores the emergence of historical elaboration of non-normative sexual identities, practices, and communities; focuses on medical, legal, literary, aesthetic, scientific, and religious notions about homosexuality and appropriations and subversions of these notions by queer people.

Repeatability: Unlimited as topics vary.

GEN&SEX 165B. Sexuality, Health and Medicine. 4 Units.
Focuses on cultural and political-economic analysis and representations of disease both within the U.S. and globally.

GEN&SEX 165F. Gender and Technology. 4 Units.
Using a variety of disciplinary methods, examines how various technological processes and products produce culturally complex meanings associated with gender and technology.

GEN&SEX 167A. Militarism and Gender. 4 Units.
Examination of feminist approaches to militarism, war, and political violence drawing on representations of women as both victims of and participants in military violence; effects of militarism on formations of gender; effects of military industrial complex on nationalism and identity.

GEN&SEX 168B. The Politics of Style. 4 Units.
Examination of the emergence of style and lifestyle in relation to gender and sexuality; analysis of subcultures, politics, and representation of style in relation to formation of social identities.

GEN&SEX 170. Topics in Gender, Feminism, Literature, and Language. 4 Units.
Topics cover issues in language and literature which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 171. Topics in Gender, Feminism, and History. 4 Units.
Topics cover issues in history which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 171A. Sex and Conquest in Latin America. 4 Units.
Competing ideas of masculinity and femininity, sexual violence, sexual identities, and gendered hierarchies informed how the Spanish engaged in military and religious domination of Mexican and Andean communities, as well as the forms of native resistance throughout colonial Latin America.

Same as HISTORY 160.

GEN&SEX 172. Gender, Race, and Nation in Latin America. 4 Units.
Addresses the importance of gender and race to nation-making in Latin America during the 19th and 20th centuries (1810-1945). Considers how hierarchies between men and women shaped ideas about family, the state, and modernity.

Same as HISTORY 166A, INTL ST 177H.

GEN&SEX 174. Topics in Gender, Feminism, and the Arts. 4 Units.
Topics cover issues in the arts which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 175. Topics in Gender, Feminism, and the Media. 4 Units.
Topics cover issues in the media which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 180. Topics in Gender, Feminism, and Anthropology. 4 Units.
Topics cover issues in Anthropology which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 181. Topics in Gender, Feminism, and Cognitive Psychology. 4 Units.
Topics cover issues in cognitive psychology which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 182. Topics in Gender, Feminism and Economics. 4 Units.
Topics cover issues in economics which relate to women and gender or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 183. Topics in Gender, Feminism, and Sociology. 4 Units.
Topics cover issues in sociology which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 184. Topics in Gender, Feminism, and Political Science. 4 Units.
Topics cover issues in political science which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 185. Topics in Gender, Feminism, and Social Sciences. 4 Units.
Topics cover issues in social sciences which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 187. Topics in Gender, Feminism, and Social Ecology. 4 Units.
Topics cover issues in social ecology which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 188. Topics in Gender, Feminism, and Science. 4 Units.
Topics cover issues in science which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 188A. Race, Gender, and Science. 4 Units.
Perfect for pre-health, science and social science majors wanting to appreciate how science and society interact. Race and gender as biological and socio-cultural constructs are examined. Questions explored: What is disease? What is science? What are social and biological differences.

Same as ANTHRO 128B, CHC/LAT 176.

(VII)

GEN&SEX 189. Topics in Gender, Feminism, and Interdisciplinary Studies. 4 Units.
Topics cover issues in interdisciplinary studies which relate to women or gender, or which are taught from a feminist methodological perspective.

Repeatability: Unlimited as topics vary.

GEN&SEX 190. Topics in Sexualities Studies. 4 Units.
Topics cover issues in the humanities, social sciences, sciences, and arts that relate to critical inquiry of sexualities.

Repeatability: Unlimited as topics vary.

GEN&SEX 197. Senior Seminar in Gender and Sexuality Studies. 4 Units.
Students read advanced scholarship in Gender and Sexuality Studies and complete a major seminar paper.

Prerequisite: Satisfactory completion of the Upper-Division Writing requirement.

Restriction: Gender and Sexuality Studies majors only.

GEN&SEX 198. Directed Group Study. 4 Units.
Special topics through directed reading. Paper required.

Repeatability: Unlimited as topics vary.

GEN&SEX 199. Independent Study . 1-4 Units.
Directed reading and research in consultation with a faculty member. Substantial written work required. Includes independent study, involving 3-12 hours a week.

Repeatability: May be repeated for credit unlimited times.

GEN&SEX 200A. Feminist Knowledge and Social Change. 4 Units.
Provides a broad and introductory overview of Women's Studies and feminist knowledge, including key concepts, theoretical frameworks, disciplinary approaches and methods, and critical debates that have shaped the field.

Repeatability: May be taken for credit 2 times.

GEN&SEX 200B. Problems in Feminist Research. 4 Units.
Colloquium on analytic approaches to interdisciplinary feminist research in Women's Studies and exploration of how feminist knowledges are produced in different academic disciplines.

Prerequisite: GEN&SEX 200A.

Repeatability: May be taken for credit 2 times.

GEN&SEX 201. Special Topics in Feminist Studies. 4 Units.
Seminars on various topics in feminist studies.

Repeatability: Unlimited as topics vary.

GEN&SEX 210A. Graduate Feminist Theory. 4 Units.
In-depth introduction to various theoretical frameworks that have and continue to inform scholarship in Women's Studies including (but not limited to) identity, representation, and political economy.

Repeatability: Unlimited as topics vary.

GEN&SEX 260A. Advanced Seminar in Feminist Studies. 4 Units.
Graduate seminar covering various areas of research within Gender and Sexuality Studies as an interdisciplinary field. Recommended for advanced graduate students.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

GEN&SEX 290. Directed Research. 2-12 Units.
Directed graduate study/research in Gender and Sexuality Studies.

Repeatability: May be taken for credit for 24 units.

Restriction: Graduate students only.

GEN&SEX 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

Undergraduate Program in Global Cultures

322 Humanities Hall; 949-824-6901
http://www.humanities.uci.edu/global_cultures/
Armin Schwegler, **Director**

Undergraduate Program

Global Cultures is an innovative undergraduate major (and minor) in the School of Humanities with an exciting mission: to explore the problems and processes of globalization from a humanistic perspective. The major provides students with twenty-first-century analytical skills and knowledge that is critical to understanding the complexities of the diverse world in which we live. In the process, Global Cultures equips students with the knowledge and tools that lead to successful careers in a wide range of professions and fields.

Global Cultures faculty offer high-quality lectures and, in advanced courses, interactive small group seminars. The major favors a multidisciplinary approach that draws on multiple departments and programs, housed in both the Humanities (including Art History, English, Film and Media Studies, History, Philosophy, Religious Studies, Spanish and Portuguese, and many more) and the Social Sciences (Anthropology, Chicano/Latino Studies, Political Science, Sociology, among others).

Up-to-date examples of the highly diverse courses taught in the major may be found at the Global Cultures (http://www.humanities.uci.edu/global_cultures) website.The curricular offerings of Global Cultures are extraordinarily broad. With this intellectually stimulating learning environment, the major attracts students from a wide range of backgrounds. Global Cultures faculty provide these students with a critical understanding and a strong foundation for practice in a variety of occupations, both domestic and international.

The major requires a total of 14 courses. Six of these courses are specific, and eight are electives (see below). Students are encouraged to augment their foreign language competence beyond the School minimum. Participation in the UC Education Abroad Program is strongly recommended for all Global Cultures majors.

Students majoring or minoring in Global Cultures must choose a primary emphasis (six courses) and a secondary emphasis (two courses) from the list below. Each emphasis essentially consists of a geographic focus. Students may also design their own emphasis in consultation with a program advisor and with the approval of the Global Cultures Committee. All emphases are chosen in consultation with a faculty advisor and/or the approval of the Global Cultures Committee. Examples of how current students are combining their primary and secondary emphases are available at the Global Cultures (http://www.humanities.uci.edu/global_cultures) website.

Emphases

Hispanic, U.S. Latino/Latina, and Luso-Brazilian Cultures: Examines the historical, political, and cultural formations of regions where Spanish and Portuguese are spoken, including Spain, Portugal, Spanish- and Portuguese-speaking countries in the Western Hemisphere, and the Latino/Latina population in the United States.

Africa (Nation, Culture) and Its Diaspora: Examines Africa as a diverse geographical and political expression, including its historical, political, and cultural formation locally, regionally, and globally.

Asia (Nation, Culture) and Its Diaspora: Examines Asia as a diverse geographical and political expression, including its historical and cultural formation locally, regionally, and globally.

Europe and Its Former Colonies: Examines Europe and its former colonies as a diverse geographical and political expression, including its historical and cultural formation locally, regionally, and globally.

Atlantic Rim: Explores the movement of people and cultures in relationship to the historical and contemporary experience of societies that are adjacent to the Atlantic Ocean, including, among others, west Africa, the Americas, the Caribbean, and western and northern Europe, as well as the British archipelago.

Pacific Rim: Explores the movement of people and cultures in relationship to the historical and contemporary experience of societies that are adjacent to the Pacific Ocean, including, among others, India, China, Japan, Korea, Vietnam, the United States, Central and South America, and Malaysia.

Inter-Area Studies: Includes comparative studies of the geographical regions outlined in the above six emphases, for instance, the analysis of Africans in Asia, or the cultural, historical, and political connections between the Atlantic and the Pacific Rim.

Students may also design their own emphasis by combining two or more regional emphases in a non-traditional fashion. For instance, a student may wish to study what is known as “Creole” (oral) literatures, found in multiple locations in Africa, Asia, and the Americas.

Study Abroad Option

Students are encouraged to study abroad, and may be able to satisfy a significant portion of their major requirements abroad. For maximum number of courses allowed and other pertinent details, visit the Global Cultures (http://www.humanities.uci.edu/global_cultures) website.

All courses taken abroad must be approved. Course approval typically involves the following: (1) presentation of syllabi and other pertinent course materials (term papers, exams, etc.) from the foreign host university, and (2) submission of a UCI Humanities Petition form (available online, and to be completed after student's return to UCI) to the Undergraduate Director of the Program in Global Cultures, and to the Office of Undergraduate Study. Students are advised to consult with the Office of Humanities Undergraduate Study (HIB 143) and the Global Cultures Director both before and after their stay abroad. NOTE: See also the residence requirement below.

Career Opportunities

The major prepares students particularly well for careers in all fields in which analysis, judgment, argument, and a wide (global) rather than narrow perspective are important. The Global Cultures major equips students with a knowledge that is critical to understanding the complexities of the diverse world in which we live.

The following careers are especially well suited for Global Cultures majors: business (national as well as international), law, management, education (primary and secondary teaching), politics, public policy, academia, print media, television, foreign service, tourism, travel industry, and graduate studies in a wide variety of fields (business, law, education, public policy, and others).

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center (p. 124) section for additional information.

Requirements for the B.A. Degree in Global Cultures

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Requirements for the Major

A. Complete:	
HISTORY 21A	World: Innovations
HISTORY 21B	World: Empires and Revolutions
HISTORY 21C	World: Wars and Rights
B. Complete:	
GLBLCLT 103A	Global Cultures I
GLBLCLT 103B	Global Cultures II
C. Complete:	
GLBLCLT 191	Global Cultures Senior Seminar
D. Select seven upper-division courses from an approved list. [1]	
E. Select one additional upper- or lower-division course from an approved list. [2]	

1 Five of the courses must focus on one emphasis and two on a second emphasis chosen from the approved course lists on the Global Cultures (http://www.humanities.uci.edu/global_cultures) website. Quarterly consultation with a faculty advisor is also required.

2 The selected course must focus on the primary or secondary emphasis chosen from the approved course lists on the Global Cultures (http://www.humanities.uci.edu/global_cultures) website.

Students are encouraged to augment their language other than English competence beyond the School minimum. Participation in the UC Education Abroad Program is strongly recommended for all Global Cultures majors.

Residence Requirement for the Major: At least five upper-division courses required for the major must be completed successfully at UCI. By petition, two of the five may be taken through the UC Education Abroad Program, provided that course content is approved—usually in advance—by the Director of the Global Cultures Program.

Requirements for the Minor

A. Select two of the following:	
HISTORY 21A	World: Innovations
HISTORY 21B	World: Empires and Revolutions
HISTORY 21C	World: Wars and Rights
B. Complete:	
GLBLCLT 103A	Global Cultures I
GLBLCLT 103B	Global Cultures II
C. Select three upper-division courses from one emphasis.	
D. Select one upper-division course from a second emphasis.	

Residence Requirement for the Minor: A minimum of four upper-division courses required for the minor must be completed successfully at UCI. Two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department chair.

Emphases and Approved Courses: The lists of approved courses are extensive and vary from quarter to quarter, depending upon course scheduling. For complete up-to-date information, consult the Global Cultures (http://www.humanities.uci.edu/global_cultures) website.

Courses

GLBLCLT 103A. Global Cultures I . 4 Units.
Introduction to the processes by which economies, cultural practices, national entities, groups, individuals, and personal identities have undergone globalization. General background and methodological tools for understanding problems and processes of globalization.

Repeatability: Unlimited as topics vary.

GLBLCLT 103B. Global Cultures II . 4 Units.
Introduction to the processes by which economies, cultural practices, national entities, groups, individuals, and personal identities have undergone globalization. Explores how globalization has manifested itself in specific topics, periods, or societies.

Repeatability: Unlimited as topics vary.

GLBLCLT 105. Language Origins: Evolution, Genetics, and the Brain. 4 Units.
Examines how human language(s) may have originated. Studies pertinent techniques (reconstruction) and addresses related questions, including Is our language faculty inborn (i.e., genetically encoded)? Can brain imaging and population genetics research help to unlock this mystery of human evolution?.

Same as HISTORY 135G, ANTHRO 152A, LINGUIS 175.

GLBLCLT 191. Global Cultures Senior Seminar. 4 Units.
Students explore a topic(s) concerning processes and/or problems of globalization from an interdisciplinary perspective and build on their critical and analytical skills when investigating cultural and other phenomena that cut across national borders. Research assignments, class presentations, final seminar paper.

Prerequisite: GLBLCLT 103A and GLBLCLT 103B.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

GLBLCLT 199. Independent Study. 1-4 Units.
Directed reading and research in consultation with a faculty advisor. Substantial written work required.

Repeatability: May be repeated for credit unlimited times.

Department of History

200 Murray Krieger Hall; 949-824-6521
http://www.humanities.uci.edu/history/
Emily S. Rosenberg, **Department Chair**

Undergraduate Program

The undergraduate program in History is designed to develop critical intelligence and to foster an awareness of ourselves and our world through the study of the past. The Department presents a variety of approaches to history, and each emphasizes basic disciplinary skills: weighing evidence, constructing logical arguments, and exploring the role of theory in historical analysis and human action.

The Department offers a number of lower-division courses open to non-majors as well as majors, most of which fulfill part of the UCI general education requirements. The Department requires all majors to take an introductory course in three of six regional histories— Asian history, European history, United States history, Latin American history, Middle East and African history, or Transregional history. These courses are also open to non-majors.

Students who are interested in the study of history but are majoring in other disciplines may minor in History. The minor incorporates elements of the Department's program for majors but allows students enough flexibility to pursue programs in other departments and schools.

Upper-division courses range from the examination of individual nation-states (e.g., Chinese history), to studies of the relations among nation-states (e.g., Emergence of the Modern Middle East), to historical analyses of political, socio-economic, and cultural factors (e.g., Women in the United States). Students are also provided the opportunity for small-group learning experiences in a series of colloquia in social history, political history, international

history, intellectual history, social thought, and comparative history. The colloquia are conducted as discussion groups and involve close reading and analysis of primary and secondary texts. This is a one-quarter seminar in primary materials that culminates in the writing of a research paper.

In addition, History students have the option of pursuing advanced study through programs offered by the Department, the School of Humanities, and the University. Within the Department of History, students have the opportunity to complete an advanced research seminar series or to design their own research project with a faculty advisor through Independent Study.

Specialization in History for Future Teachers

The Specialization in History for Future Teachers is designed to prepare history majors who aspire to earn a post-baccalaureate teaching credential. Through specific history course requirements, courses in the School of Education, and a field work requirement, students will be well positioned for admission to teaching credential programs.

Phi Alpha Theta

Phi Alpha Theta is a charter member of the Association of College Honor Societies for undergraduates, graduates, and faculty within the discipline of history. Becoming a member to the society will grant you honor cords for graduation and allow eligibility for several national and regional scholarships. To become eligible for initiation, students must have achieved junior standing, have completed seven or more history courses in residence at UCI, and have acquired a minimum 3.5 GPA in the major and a minimum 3.3 GPA overall. For more information, please contact the History Undergraduate Program Coordinator.

Study Abroad

The department strongly encourages majors and minors to take advantage of the University's study abroad programs and to experience a different culture, for a quarter or longer, while making progress toward their UCI degree. Moreover, students who are particularly interested in the history of a specific country or region would greatly benefit from direct study and cultural interaction within that country or region. Information about studying abroad can be found at UCI's Study Abroad Center (http://www.studyabroad.uci.edu) website.

Career Opportunities for the History Major

The training and discipline derived from historical studies provide a valuable experience for all educated persons seeking to understand themselves and their world. Many students who complete undergraduate degrees in the Department of History go on to graduate school in a variety of fields, including history, law, business, international relations, and education.

The study of history is valuable preparation for many other careers as well. The strong academic and professional orientation acquired by History majors is necessary to pursue successful careers in such diverse fields as advertising, the non-profit sector, journalism, management, public relations, publishing, international relations,and government service.

The UCI Career Center provides services to students on resume preparation, job search, and interview techniques. See the Career Center (p. 124) for additional information.

Requirements for the B.A. Degree in History

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Departmental Requirements for the Major

Thirteen courses are required:

A. Select three of the following (chosen from three different regions):	
HISTORY 70A	Problems in History: Asia
HISTORY 70B	Problems in History: Europe
HISTORY 70C	Problems in History: United States
HISTORY 70D	Problems in History: Latin America
HISTORY 70E	Problems in History: Middle East and Africa
HISTORY 70F	Problems in History: Transregional History
B. Three upper-division History courses with a regional focus, at least one of which is devoted to the period prior to 1800.	
C. Two additional upper-division History courses outside the regional focus area.	
D. Complete the following:	
HISTORY 100W	Writing About History
HISTORY 190	Colloquium
E. Three additional lower- or upper-division History courses.	

Residence Requirement for the History Major: One course from the History 70 series, HISTORY 100W, HISTORY 190, and three upper-division History courses must be completed successfully at UCI. By petition, two of the six may be taken through the UC Education Abroad Program, provided that course content is approved in advance by the Chair of the History Undergraduate Program Committee.

Requirements for the B.A. Degree in History with a Specialization in History for Future Teachers

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Fifteen courses are required:

A. Select one of the following series:	
HISTORY 21A- 21B- 21C	World: Innovations and World: Empires and Revolutions and World: Wars and Rights
or	
HISTORY 40A- 40B- 40C	Colonial America: New Worlds and Nineteenth-Century U.S.: Crisis and Expansion and Modern America: Culture and Power
B. Complete the following:	
HISTORY 70C	Problems in History: United States
HISTORY 100W	Writing About History
HISTORY 190	Colloquium
C. Select two courses from the following:	
HISTORY 70A	Problems in History: Asia
HISTORY 70B	Problems in History: Europe
HISTORY 70D	Problems in History: Latin America
HISTORY 70E	Problems in History: Middle East and Africa
HISTORY 70F	Problems in History: Transregional History
D. Select one course in California History.	
HISTORY 142A	California in Modern America
HISTORY 151A	Chicana/Chicano History: Pre-Colonial to 1900
HISTORY 151B	Chicana/Chicano History: Twentieth Century
E. Two upper-division U.S. History courses.	
F. Two upper-division non-U.S. History courses.	
G. Select one course from the School of Education.	
EDUC 108	Adolescent Development and Education
EDUC 124	Multicultural Education in K-12 Schools
EDUC 128	Exceptional Learners
EDUC 131	Educational Technology
EDUC 170B	Teaching & Learning Secondary History-Social Studies
EDUC 173	Cognition and Learning in Educational Settings
H. Complete at least two units of field work from EDUC 100 or other relevant experience with prior departmental approval.	

Residence Requirement for the History Major with a Specialization in History for Future Teachers: HISTORY 70C, HISTORY 100W, HISTORY 190, and three upper-division History courses must be completed successfully at UCI. By petition, two of the six may be taken through the UC Education Abroad Program, provided that course content is approved in advance by the Chair of the History Undergraduate Program Committee.

Departmental Requirements for the Minor

Seven courses are required:

A. Select three lower-division History courses.
B. Select four upper-division History courses.

Residence Requirement for the Minor: All four upper-division History courses must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the Chair of the History Undergraduate Program Committee.

Graduate Program

The M.A. and Ph.D. degree programs in History are designed to provide students with both advanced historical skills and a rigorous grounding in historical theory. This combination of theoretical study with training in historical method reflects the Department's conviction that scholars should be encouraged to deal with significant questions about the past and to approach these questions in a methodologically sophisticated way. This approach requires that the student develop the critical abilities necessary to deal with primary sources, secondary syntheses, and the interrelationship of history and theory. Candidates for a Ph.D. in History are expected to gain teaching experience as an integral part of their graduate training. Ordinarily this is accomplished through service as a teaching assistant.

Basic to the curriculum is the Department's course in History and Theory which explores a variety of theoretical issues and methodological concerns that have sparked lively debate among historians in the past decades and remain of urgent concern to twenty-first century historical writing: the relationship between materialist approaches and cultural analysis; subjectivity, gender, sexuality and emotion; religion as a category of historical analysis; "the archive" and archival practice; nationalism and postcolonial epistemologies. Course readings comprise a mix of texts straddling the divide between purely theoretical and historically embedded analyses.

The colloquium, a reading course that examines a field's historiography, enriches the student's knowledge of the main areas of historical research and develops critical reading skills. A colloquium series is offered annually in U.S. history and World history; biennially (depending on demand) in modern European history, early modern European history, Latin American history, East Asian history, South and Southeast Asian history, and Middle Eastern and North African history; and occasionally in medieval history and ancient history. A student may prepare a dissertation in any of these fields.

In addition to the History and Theory sequence and the major field colloquia, students also take a proseminar/research seminar sequence during their first year. The proseminar provides an orientation to the literature on a broad historical subject, and the associated seminar offers guidance in research and writing on problems within this broad area. Students awarded M.A. degrees at other institutions before entering the graduate program at UCI may be exempted from this requirement, subject to evaluation of their M.A. theses.

During the second year of study, Ph.D. students normally take a colloquium series in their second field (although they may also take this series during their first year if desired). They also take a two-quarter research seminar where they have an opportunity to work on problems of their own choosing; students who entered the program with an M.A. degree must also take this seminar. In addition, independent reading and research courses are provided for advanced, specialized study in tutorial form.

Competence in History and Theory is demonstrated by satisfactory completion of HISTORY 200A (http://catalogue.uci.edu/schoolofhumanities/departmentofhistory) and HISTORY 200B (http://catalogue.uci.edu/schoolofhumanities/departmentofhistory). The immediate objective for the doctoral student is to develop two fields of competence in addition to History and Theory. Competence in the two fields is demonstrated by the satisfactory completion of three courses in each of these areas. A comprehensive oral examination on the student's major field follows fulfillment of all degree requirements. However, those students who elect a second field administered by another program or department (e.g., Critical Theory, Asian American Studies, Feminist Studies) must complete requirements, which sometimes include a written examination, for that field.

The subsequent objective, to write a distinctive dissertation, is of crucial importance. To assist in accomplishing both objectives, the Department offers intensive consultation with the faculty as well as a lively intellectual atmosphere. Students have long shared in the decision-making processes of the Department, which engages the entire historical community at UCI in the collective pursuit of excellence. Students profit also from a vigorous visiting speakers program that brings scholars from other campuses and other nations to meet and interact with UCI students and faculty.

Requirements for Admission. Although it is desirable that an applicant have the equivalent of an undergraduate major in History, the Department also considers students who have previously specialized in other subject areas and who show promise of sustained and self-disciplined work in history. Typically, a minimum undergraduate grade point average of 3.3 (B+) is required for admission, with evidence of better work in history. In addition, all applicants are asked to submit three letters of recommendation, scores from the Graduate Record Examination, and an example of written work in history from undergraduate courses. A departmental interview may also be required. Students are accepted for admission for fall quarter only, and the deadline for application for fall admission is January 2. The application deadline to be considered for fellowships is December 15.

Master of Arts in History

Program of Study. Each candidate for the M.A. will choose a graduate advisor who will supervise the student's program. Nine courses are required for the degree: HISTORY 202, HISTORY 203, three courses in a colloquium series, two courses related to a secondary emphasis, and two electives that support preparation for the M.A. exam or thesis. Students who decide to pursue the Ph.D., after completion of the M.A. program, will need to consider Ph.D. course requirements when selecting courses and are required to officially apply to the Ph.D. program.

Time Limits. The M.A. requires a minimum of one year in academic residence and can be completed during that term if full-time study is undertaken. However, it is expected that many M.A. students are employed and need to enroll on a part-time basis. Therefore, students are allowed up to three years of graduate study to complete the degree.

Plan I: Thesis. The master's thesis represents a revision of the first-year research paper, equivalent to a scholarly article of 40–50 typescript pages, under the supervision of a professor in the student's major field and reviewed and approved by a three-member thesis committee, at least two of which must be History faculty members.

Plan II: Comprehensive Examination. At the end of the final quarter the M.A. candidate must pass a comprehensive written or oral examination administered by three faculty members covering the student's major field (e.g., America, Early Modern Europe) and focused upon material assigned in the three-quarter colloquium series.

Language Requirement. Students in the M.A. program whose major field requires use of foreign language sources demonstrate competence in a foreign language in the process of writing the first-year research paper and thesis. Other M.A. students do not have to meet a foreign language or alternative skills requirement.

Doctor of Philosophy in History

Ph.D. students are advised to begin their graduate work at UCI, since those who have taken the M.A. elsewhere will be expected to enroll in the same courses that are required of all incoming students, with the exception of the First-Year Research Seminar. Subject to evaluation of their M.A. theses, these students will be exempted from this requirement. In the second and third years, the greater experience of those who enter with an M.A. may work to their advantage in speeding them to the qualifying examination.

First-Year Review. To be admitted formally into the doctoral program, students must satisfactorily pass a departmental evaluation at the end of their first year of study; this includes students who entered with an M.A. from another institution.

Emphasis in the History of Gender and Sexuality. To complete this emphasis, students take three courses emphasizing feminist studies and/or queer theory in three different fields. At least two of these courses must be taken in the History Department; the third course may be either a History Department course or one of the three core graduate seminars offered through the Department of Gender and Sexuality Studies.

Program of Study. The Department requires doctoral students to prepare themselves in three different areas:

1. History and Theory.
2. The first field (such as Modern Europe), which is designed as a teaching field as well as the focus of the student's dissertation.
3. The second field (such as American History or Critical Theory), which is designed as a second teaching field.

The courses required in this preparation include the History and Theory sequence, colloquium series in both fields, First-Year Proseminar/Research Seminar sequence, and the Second-Year Research Seminar. The normal academic load is three courses per quarter. However, students may be eligible for approved part-time status, which allows them to take a lighter course load at reduced fees for a maximum of two academic years.

Every doctoral student will be assisted by a departmental advisor in the student's general area of study who will be responsible for approving defined fields, guiding the student to consultant faculty, and supervising the examination.

Ph.D. students can be awarded an M.A. after fulfilling requirements for residence, one language requirement, successfully completing 36 units (including 28 in required courses), and the two-hour oral examination with an advisor.

Language Requirements. All students, except as specified below, must demonstrate a reading knowledge of two foreign languages prior to taking the Ph.D. candidacy qualifying examination. Competency in a language may be established either by passing a departmental examination (proctored in the department office) or through extensive language use in one of the research seminars. These specific languages that may be used to satisfy this requirement depend on the students' first fields, subject to their advisors' approval.

Students may substitute for one of their language requirements a sequence of two graduate courses in an allied discipline or relevant methodology (e.g., critical theory, political theory, cultural anthropology, Asian American studies, feminist theory, art history, linguistics, statistics, quantitative methods), at the discretion of their major field advisors. Students choosing this option are normally expected to write a substantial paper and must demonstrate that the allied discipline or methodology used to fulfill the requirement is of value to historical inquiry. The course(s) taken to satisfy a language requirement may not count toward fulfilling the requirement for the second field.

Qualifying Examination and Dissertation. In preparation for the oral Qualifying Examination, the student will present to the Ph.D. Candidacy Committee a portfolio of three papers totaling at least 45 pages on subjects related to the major field (but not from required colloquia courses). Successful completion of this examination results in the student's advancement to Ph.D. candidacy. The normative time for advancement to candidacy is three years. Within one academic quarter of the oral examination, new candidates must meet in a colloquy with their Doctoral Committee to present their dissertation proposal. Once the Doctoral Committee approves the proposal, the student begins intensive work on the dissertation. The research and writing involved in this effort may require from one to four years. At the end of this period an oral defense of the dissertation, focusing on the adequacy of the student's research and thesis, is normally held.

For students who enter with normal academic preparation and pursue a full-time program of study, the normative time to degree for the Ph.D. is seven years. The maximum time permitted is nine years.

Faculty

Emily L. Baum, Ph.D. University of California, San Diego, *Assistant Professor of History*

Sharon B. Block, Ph.D. Princeton University, *Associate Professor of History; Culture and Theory*

Alex Borucki, Ph.D. Emory University, *Assistant Professor of History; African American Studies* (African diaspora, early modern Atlantic world, slave trade, colonial Latin America)

Carolyn P. Boyd, Ph.D. University of Washington, *Professor Emerita of History*

Dickson D. Bruce, Jr., Ph.D. University of Pennsylvania, *Professor Emeritus of History*

Anita Casavantes Bradford, Ph.D. University of California, San Diego, *Assistant Professor of Chicano/Latino Studies; History*

Vinayak Chaturvedi, Ph.D. Cambridge University, *Associate Professor of History; Culture and Theory*

Yong Chen, Ph.D. Cornell University, *Associate Professor of History; Asian American Studies*

Simon A. Cole, Ph.D. Cornell University, *Professor of Criminology, Law and Society; History* (science, technology, law, criminal justice)

Touraj Daryaee, Ph.D. University of California, Los Angeles, *Howard Baskerville Professor of Humanities* and *Professor of History*

Alice Fahs, Ph.D. New York University, *Professor of History*

Sarah Bennett Farmer, Ph.D. University of California, Berkeley, *Associate Professor of History; European Languages and Studies* (modern French history, twentieth-century Europe, social and cultural history)

Catherine Fisk, J.D. University of California, Berkeley, *UCI Chancellor's Professor of School of Law; Criminology, Law and Society; History* (labor and employment law, civil rights)

Richard I. Frank, Ph.D. University of California, Berkeley, *Professor Emeritus of History; Classics* (Roman history, Classical tradition)

Dorothy B. Fujita-Rony, Ph.D. Yale University, *Associate Professor of Asian American Studies; Culture and Theory; History* (U.S. history, Asian American studies)

Howard A. Gillman, Ph.D. University of California, Los Angeles, *Provost and Interim Chancellor* and *Professor of Political Science; Criminology, Law and Society; History; School of Law*

James B. Given, Ph.D. Stanford University, *Professor Emeritus of History*

Qitao Guo, Ph.D. University of California, Berkeley, *Associate Professor of History*

Douglas M. Haynes, Ph.D. University of California, Berkeley, *Associate Vice Provost for Equity and Diversity and Professor of History; African American Studies; Culture and Theory; European Languages and Studies* (social and cultural history of modern Britain, social history of modern medicine)

Lamar M. Hill, Ph.D. University of London, *Professor Emeritus of History*

Karl G. Hufbauer, Ph.D. University of California, Berkeley, *Professor Emeritus of History*

David B. Igler, Ph.D. University of California, Berkeley, *Professor of History*

Adria Imada, Ph.D. New York University, *Associate Professor of History*

Jon S. Jacobson, Ph.D. University of California, Berkeley, *Professor Emeritus of History*

Winston A. James, Ph.D. University of London, *Professor of History; Culture and Theory* (Caribbean, African American, African diaspora)

Michael P. Johnson, Ph.D. Stanford University, *Professor Emeritus of History*

Matthias Lehmann, Ph.D. Freie Universtät Berlin, *Director of the Interdisciplinary Minor in Jewish Studies and Teller Family Chair in Jewish History* and *Associate Professor of History; European Languages and Studies* (early modern and modern Jewish history, Sephardic studies)

Mark A. LeVine, Ph.D. New York University, *Professor of History; Culture and Theory* (modern Middle Eastern history, Islamic studies, histories of empire and globalization)

Lynn Mally, Ph.D. University of California, Berkeley, *Professor Emerita of History*

Nancy Ann McLoughlin, Ph.D. University of California, Santa Barbara, *Assistant Professor of History; European Languages and Studies* (medieval Europe)

Jessica Millward, Ph.D. University of California, Los Angeles, *Assistant Professor of History; African American Studies; Culture and Theory* (U.S., African American gender and women)

Laura J. Mitchell, Ph.D. University of California, Los Angeles, *Associate Professor of History*

Robert G. Moeller, Ph.D. University of California, Berkeley, *Professor of History*

Susan Katharine Morrissey, Ph.D. University of California, Berkeley, *Professor of History*

Keith L. Nelson, Ph.D. University of California, Berkeley, *UCI Endowed Chair* and *Professor Emeritus of History*

Rachel S. O'Toole, Ph.D. University of North Carolina at Chapel Hill, *Associate Professor of History; Culture and Theory* (Colonial Latin America, African Diaspora, colonialisms, race, racism, indigenous histories, Atlantic worlds)

Spencer C. Olin, Ph.D. Claremont Graduate University, *Professor Emeritus of History*

Allison J. Perlman, Ph.D. University of Texas at Austin, *Assistant Professor of History; Film and Media Studies* (history of broadcasting, American social movements, media law and policy, media activism, popular memory)

Kavita S. Philip, Ph.D. Cornell University, *Associate Professor of History; Comparative Literature; Informatics* (science and technology studies, South Asian studies, political ecology, critical studies of race, gender, colonialism, new media, globalization)

Kathryn Ragsdale, Ph.D. University of Chicago, *Lecturer of History*

Renee J. Raphael, Ph.D. Princeton University, *Assistant Professor of History*

Jaime E. Rodriguez, Ph.D. University of Texas at Austin, *Professor Emeritus of History*

Ana Rosas, Ph.D. University of Southern California, *Associate Professor of Chicano/Latino Studies; History*

Emily S. Rosenberg, Ph.D. State University of New York at Stony Brook, *Professor of History*

Vicki L. Ruiz, Ph.D. Stanford University, *UCI Distinguished Professor of History; Chicano/Latino Studies; Culture and Theory* (Chicana/Latina history, U.S. labor, immigration, gender)

Sharon V. Salinger, Ph.D. University of California, Los Angeles, *Professor of History*

Daniel J. Schroeter, Ph.D. University of Manchester, *UCI Endowed Chair* and *Professor Emeritus of History*

Patricia Seed, Ph.D. University of Wisconsin-Madison, *Professor of History*

Timothy Tackett, Ph.D. Stanford University, *Professor Emeritus of History*

Heidi E. Tinsman, Ph.D. Yale University, *Professor of History; Culture and Theory*

Steven Topik, Ph.D. University of Texas at Austin, *Professor of History*

Anne Walthall, Ph.D. University of Chicago, *Professor of History*

Jeffrey N. Wasserstrom, Ph.D. University of California, Berkeley, *UCI Chancellor's Professor of History; History; School of Law*

Jonathan M. Wiener, Ph.D. Harvard University, *Professor of History*

Courses

HISTORY 10. The Holocaust. 4 Units.
Introduction to the history of European Jewish communities before the Holocaust; the origins of Nazi antisemitism; the implementation of the "Final Solution"; Jewish resistance to the Nazis; and attempts in film and literature to represent the Holocaust since 1945.

(IV, VIII)

HISTORY 12. Introductory Topics in History . 4 Units.
Introduces methods and premises of historical study. Topics include introductions to cultural, political, economic, social, and religious history.

Repeatability: Unlimited as topics vary.

(IV)

HISTORY 15A. Native American History. 4 Units.
Introduction to multiple topics: indigenous religious beliefs and sociopolitical organization, stereotypic "images," intermarriage, the fur trade, Native leaders, warfare, and contemporary issues.

(IV, VII)

HISTORY 15C. Asian American Histories. 4 Units.
Examines and compares diverse experiences of major Asian American groups since the mid-nineteenth century. Topics include origins of emigration; the formation and transformation of community; gender and family life; changing roles of Asian Americans in American society. Formerly ASIANAM 60A.

Same as SOC SCI 78A, ASIANAM 50.

((III or IV) and VII).

HISTORY 15D. History of Sexuality in the US . 4 Units.
Explores intertwined histories of sexuality, race, and gender in the US. By examining how different cultures and times viewed sexuality, race and gender, it analyzes relationships between regulation of bodies/behaviors and construction of cultural, economic, and political norms.

(IV, VII)

HISTORY 15E. Memory and Migration: American Families on the Move. 4 Units.
Examines family migration stories as a tool for understanding the intertwined histories of international and domestic migration that have shaped the lives of the diverse peoples of the United States.

(IV, VII)

HISTORY 15F. What to Eat? Immigrants and the Development of American Cuisines. 4 Units.
Relationship between immigration and changing American foodways; impact of several major culinary traditions of immigrants and racial minorities, such as African Americans, Asian Americans, Mexican Americans, Italian Americans, Irish Americans, and Jewish Americans, on America’s gastronomical and socioeconomic landscape.

((III or IV) and VII).

HISTORY 16A. World Religions I. 4 Units.
An introduction to the history, doctrine, culture, and writing of the three "religions of Abraham": Judaism, Christianity, and Islam.

Same as REL STD 5A.

(IV, VIII)

HISTORY 16B. World Religions II. 4 Units.
An introduction to various religious traditions in selected areas of the world—including India and South Asia, East Asia, Africa, and the Americas.

Same as REL STD 5B.

(IV, VIII)

HISTORY 16C. Religious Dialogue. 4 Units.
Lectures and discussion on controversial topics in religion: sexual morality; religious violence; science; treatment of women and girls; religious truth, American Constitutional matters; secularization; the future of religion, and other topics.

Same as REL STD 5C.

(IV, VIII)

HISTORY 18A. Introduction to Jewish Cultures. 4 Units.
Introduction to the diversity of Jewish cultures from ancient to modern times. Surveys the Jewish experience in various societies and civilizations: ancient Mediterranean, Middle East and North Africa, Europe, and the Americas.

(IV, VIII)

HISTORY 21A. World: Innovations. 4 Units.
Treats major themes of world historical development through the mid-seventeenth century, focusing on the Eurasian world, but with secondary emphasis on Africa and the Americas.

(IV, VIII)

HISTORY 21B. World: Empires and Revolutions. 4 Units.
Examines three major transformations that made the world of 1870 dramatically different from that of 1650: e.g., the scientific revolution, industrialization, and the formation of modern states and nations.

(IV, VIII)

HISTORY 21C. World: Wars and Rights. 4 Units.
Considers several major currents of modern history: technological change and its social effects; changes in gender relations; totalitarianism; peasant revolutions and the crisis of colonization; international migration; and ecological problems.

(IV, VIII)

HISTORY 36A. The Formation of Ancient Greek Society: Early Greece. 4 Units.
A survey of ancient Greek civilization from its origins in the Bronze Age to the mid-Archaic period. Examines political and social history, as well as literature, art, religion, and archaeological remains.

Same as CLASSIC 36A.

(IV)

HISTORY 36B. The Formation of Ancient Greek Society: Late Archaic and Classical Greece. 4 Units.
A survey of ancient Greek civilization from the Late Archaic period to the Classical period. Focuses on major institutions and cultural phenomena as seen through the study of ancient Greek literature, history, archaeology, and religion.

Same as CLASSIC 36B.

(IV)

HISTORY 36C. The Formation of Ancient Greek Society: Fourth-Century and Hellenistic Greece. 4 Units.
A survey of ancient Greek civilization from the fourth century BCE through to the Hellenistic period. Focuses on major institutions and cultural phenomena as seen through the study of ancient Greek literature, history, archaeology, and religion.

Same as CLASSIC 36C.

(IV)

HISTORY 37A. The Formation of Ancient Roman Society: Origins to Roman Republic. 4 Units.
A survey of the development of Roman civilization from its eighth century BCE beginnings to the civil wars of the first century BCE. Examines political and social history, as well as literature, art, architecture, and religion.

Same as CLASSIC 37A.

(IV)

HISTORY 37B. The Formation of Ancient Roman Society: Roman Empire. 4 Units.
A survey of Roman civilization from Augustus's consolidation of power following the civil wars of the first century BCE to the crisis of the third century CE. Includes social history, literature, art, architecture, and religion.

Same as CLASSIC 37B.

(IV)

HISTORY 37C. The Formation of Ancient Roman Society: The Fall of Rome. 4 Units.
A survey of Roman civilization from the crisis of the third century CE to the so-called "fall of Rome" in 476 CE. Examines political and social history, as well as literature, art, architecture, and religion.

Same as CLASSIC 37C.

(IV)

HISTORY 40A. Colonial America: New Worlds. 4 Units.
Important themes in the social, economic, political, and cultural development in North America that transformed part of the geographical space into the U.S. Topics include Native Americans, European colonization, African enslavement, borderlands, gender, economic stratification, the American Revolution, the Constitution.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

(IV)

HISTORY 40B. Nineteenth-Century U.S.: Crisis and Expansion. 4 Units.
Explores the transformation of American society, economy, and politics during the nineteenth century. Topics include industrial revolution, slavery, antislavery, women's rights, reform movements, Civil War and Reconstruction, immigration and ethnicity, and cultural and social transformation.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

(IV)

HISTORY 40C. Modern America: Culture and Power. 4 Units.
Important themes in U.S. history in the twentieth and early twenty-first centuries. Topics include corporate capitalism, empire, immigration, race, gender, consumer society, World Wars, Progressiveness, New Deal, Great Society, civil rights, women's movements, Vietnam War, conservative politics, and economic stratification.

Prerequisite: Satisfaction of the UC Entry Level Writing requirement.

(IV)

HISTORY 50. Crises and Revolutions. 4 Units.
Study of turning points in world history, illustrating themes and methods of historical analysis.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

HISTORY 60. The Making of Modern Science. 4 Units.
Surveys the history of science and mathematics since the Scientific Revolution, examining central developments both chronologically and thematically, as well as investigating their significance for contemporary philosophical debates about the role and status of current scientific theories.

Same as LPS 60.

(IV)

HISTORY 70A. Problems in History: Asia. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of Asia, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 70B. Problems in History: Europe. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of Europe, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 70C. Problems in History: United States. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of the United States, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV)

HISTORY 70D. Problems in History: Latin America. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of Latin America, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 70E. Problems in History: Middle East and Africa. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of the history of the Middle East and Africa, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 70F. Problems in History: Transregional History. 4 Units.
An introduction to the historical problems, the issues of interpretation, the primary sources, and the historical scholarship of transregional history, with an emphasis on developing skills in historical essay-writing.

Repeatability: Unlimited as topics vary.

(IV, VIII)

HISTORY 100W. Writing About History. 4 Units.
Specialized courses focusing on history writing and research skills. Each class reflects the instructor's intellectual interests and is conducted as a discussion group. Limited to 18 students. Several short writing assignments and one longer project meeting the upper-division writing requirement.

Prerequisite: HISTORY 12 or HISTORY 15A or HISTORY 15C or HISTORY 15D or HISTORY 16A or HISTORY 16B or HISTORY 16C or HISTORY 18A or HISTORY 21A or HISTORY 21B or HISTORY 21C or HISTORY 40A or HISTORY 40B or HISTORY 40C or HISTORY 60 or HISTORY 70A or HISTORY 70B or HISTORY 70C or HISTORY 70D or HISTORY 70E or HISTORY 70F. Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: History majors have first consideration for enrollment.

(Ib)

HISTORY 102B. Topics in Environmental History. 4 Units.
Explores the many historical interfaces between climate change, modes of production, and culture. Topics include the environmental history of warfare, imperialism, and famine in the nineteenth century and the history of environmental thought.

Repeatability: Unlimited as topics vary.

HISTORY 103. Topics in International Conflicts. 4 Units.
A study of international conflicts from military, social, economic perspectives with a focus on the preparation for and conduct of war and the consequences. Formerly History 100A.

Repeatability: Unlimited as topics vary.

HISTORY 104. Topics in History and Journalism. 4 Units.
A series of lectures on, and discussions of, announced topics in history and journalism and the literature of facts. Examples: "Early Modern Women in the Public Sphere," "Victorian Cultural Critics," and "Writing about War.".

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Recommended: Upper-division students only.

HISTORY 105B. Later Roman Empire. 4 Units.
Creation of a bureaucratic empire; rule by gentry and officers; official culture and rise of Christianity; social conflict and political disintegration.

HISTORY 110A. Europe in the Early Middle Ages. 4 Units.
Survey of Europe between 300 A.D. and 900 A.D. Topics include the breakup of the Roman Empire, barbarian invasions, spread of Christianity, rise of Islam, the Carolingian Empire, and the Vikings.

HISTORY 110B. Europe in the Central Middle Ages. 4 Units.
Survey of European history from ca. 900 to ca. 1300. Topics discussed include the growth of the economy, feudalism, the crusades, the rise of towns, the development of the church, popular heresy, and the rise of large-scale polities.

HISTORY 110C. Europe in the Later Middle Ages. 4 Units.
Survey of European history from ca. 1300 to ca. 1500. Topics include the Black Death, the crisis of the economy, the Hundred Years' War, peasant and urban uprisings, and the Great Schism.

HISTORY 110D. Topics in Medieval Europe. 4 Units.
Studies of the topics in Medieval Europe.

Repeatability: Unlimited as topics vary.

HISTORY 112D. Topics in Early Modern Europe. 4 Units.
Theme-based approach to the main social, political, and cultural developments in Europe between the fifteenth and eighteenth centuries. Topics included Renaissance humanism, Reformation and Counter-Reformation, scientific revolution, court culture and nation building, interactions with non-European peoples, cities and commerce.

Repeatability: Unlimited as topics vary.

HISTORY 114. Topics in Modern European History. 4 Units.
Course content changes with instructor. Topics include the Inquisition; science and religion in modern Europe; sex and society in modern Europe; French revolutions; culture in interwar Europe; the Holocaust; the fall of communism in Eastern Europe.

Repeatability: Unlimited as topics vary.

HISTORY 115C. Europe: Twentieth Century. 4 Units.
World War I and its impact on the modern world; rise of an international Communist movement; regimes created by Mussolini, Hitler, Stalin; World War II; the killing of Europe's Jews; Cold War and collapse of communism.

HISTORY 116A. England in the Early Middle Ages. 4 Units.
Survey of English history from ca. 400 to ca. 1200. Topics include the Anglo-Saxons, the Viking settlement, the Norman Conquest, the Angevin Empire, and the development of royal, legal, and administrative mechanisms.

HISTORY 116B. Later Medieval England. 4 Units.
Survey of English history between ca. 1200 and ca. 1500. Topics include the Magna Carta, the Barons' War, the Welsh and Scottish wars, the development of Parliament, the Hundred Years' War, and the War of the Roses.

HISTORY 118A. Modern Britain: 1700 to 1850. 4 Units.
Examines the major developments in British politics, socioeconomic structure, and culture from 1700-1850. The development of the British nation-state and the fashioning of a national identity. Explores basic questions about British national identity.

HISTORY 118B. Modern Britain: 1850 to 1930. 4 Units.
Examines the social, economic, and political history of Britain from 1850-1930. Post-industrialism, urbanization, population and economic change, increased political participation by working classes and women, consolidation of the empire and the breakup of the United Kingdom.

HISTORY 118C. Modern Britain: 1930 to Present. 4 Units.
Explores Britain from the Second World War to resignation of Margaret Thatcher. Examines Britain's devolution from world power to member of the European Community; transition from a manufacturing to service-based economy; changing demographic and racial composition in light of decolonization.

HISTORY 120B. The French Revolution: 1774-1815. 4 Units.
Emphasis on social, economic, and cultural history of the French Revolution.

HISTORY 120C. France in the Nineteenth Century. 4 Units.
Emphasis on social, economic, and cultural history of France in the Nineteenth Century.

HISTORY 120D. France in the Twentieth Century: 1914 to Present. 4 Units.
Emphasis on social, economic, and cultural history of France from 1914 to present.

HISTORY 120E. History of Paris. 4 Units.
The development of Paris from the beginnings through the present, with emphasis on the last three centuries. The city is examined from the political, social, ecological, and architectural points of view as well as through the perspective of urban planning.

HISTORY 122B. Hitler and the Germans. 4 Units.
Focuses on Hitler's rise to power and Nazi society. Examines Germany's defeat in World War I; the political and cultural experimentation of the 1920s; the causes of Hitler's success; and life in Germany under the Nazis.

HISTORY 123D. Topics in Spanish History. 4 Units.
Topics include Spain in the nineteenth century, the Spanish Civil War, and dictatorship and democracy in modern Spain.

Repeatability: Unlimited as topics vary.

HISTORY 124A. Imperial Russia: 1689-1905. 4 Units.
Political and social developments in Russia from 1689-1905.

HISTORY 124B. Twentieth-Century Russia. 4 Units.
Political and social developments in Twentieth-Century Russia.

HISTORY 126A. The Era of World War I: 1900-1939. 4 Units.
The era of World War I and its political, social and economic history.

HISTORY 126B. The Era of World War II: 1933-45. 4 Units.
The era of World War II and its political, social and economic history.

HISTORY 128A. Women and Gender in Early Modern Europe: 1400-1700. 4 Units.
Explores what it meant to be a woman in early modern Europe. Examines women's lives in early modern Europe while developing skills of historical interpretation. Topics include: notions of masculinity and femininity; "proto-feminism"; marriage and sexuality; female piety and witchcraft.

HISTORY 128C. Topics in the History of Women in Europe. 4 Units.
Studies in selected areas of history of European women. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 130A. Jewish History, Ancient to Early Modern Times. 4 Units.
The history of the Jewish people from their origins in the ancient world to the 1700s. Social, religious, and intellectual life of Jewish communities in the Middle East, North Africa, and Europe.

HISTORY 130B. Modern Jewish History. 4 Units.
History of the Jews in Europe, the Middle East, North Africa, and the United States from the early-eighteenth century to recent times. Emancipation, assimilation, religious reform, antisemitism, Zionism, socialism, the Holocaust, and modern Israel are the major themes.

HISTORY 130C. Topics in the Jewish History. 4 Units.
Studies in selected areas of Jewish history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 131A. History of Zoroastrianism. 4 Units.
Reviews major trends in the history of Zoroastrianism.

Same as REL STD 131A.

HISTORY 131B. Ancient Persia. 4 Units.
Survey of the history of Persia in antiquity.

HISTORY 131C. Medieval Persia. 4 Units.
A survey of Persian history in the context of Late Antique and Medieval Islamic history.

HISTORY 131D. Modern Iran. 4 Units.
The history of Iran from the end of the Safavid Empire in the eighteenth century to the present.

HISTORY 131E. Topics in Iranian History. 4 Units.
Topics include the cultural, political, intellectual, social, and/or economic histories of Iran.

Repeatability: Unlimited as topics vary.

HISTORY 132A. Israel and Palestine. 4 Units.
Origins of Zionism in the nineteenth century, Arab-Jewish conflicts in Palestine, emergence of Palestinian nationalism, formation of the Israeli nation after 1948, and the development of the Palestinian movement. Focus on Palestinian and Israeli society and culture. Formerly History 132.

HISTORY 132B. The Emergence of the Modern Middle East. 4 Units.
Offers a survey of the history of the Middle East from the nineteenth century to the present time. Formerly History 133A.

HISTORY 132G. Topics in Islamic History. 4 Units.
The evolution of Islam as a religion within the social, political, and economic histories of various Muslim societies throughout its 14 centuries. Introduces major concepts, practices, and texts of Islam, and key historical events associated with them. Formerly History 131.

Repeatability: Unlimited as topics vary.

HISTORY 132H. Topics in Middle Eastern History. 4 Units.
Topics include the cultural, political, intellectual, social, and/or economic histories of one or many regions of the Middle East.

Repeatability: Unlimited as topics vary.

HISTORY 134A. Africa: Societies and Cultures. 4 Units.
Introduction to the variety of cultures, political organizations, social structures, and artistic expressions created by Africans over a broad time span. Indigenous development of African societies in distinct regions of the continent. Issues, themes, processes for understanding history of Africa.

HISTORY 134B. Modern Africa. 4 Units.
Explores the last 200 years of history in Africa, from the end of the Atlantic slave trade through colonization to independence.

HISTORY 134C. Topics in the History of Africa. 4 Units.
Studies in selected areas of African history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 134D. Topics in South African History. 4 Units.
Introduction to important historical events and processes in Southern Africa. Focuses on particular themes and explores how those themes change over time. Topics include: changing ideas about race, the development of class structures, identity formation, the role of gender.

Repeatability: Unlimited as topics vary.

HISTORY 134E. History of the African Diaspora. 4 Units.
Examines the causes and consequences of the multiple diasporas of African peoples since the sixteenth century in the Atlantic world, especially the Americas and Europe.

Same as AFAM 137.

HISTORY 135B. Crossing the World's Oceans: From Sail to Steam. 4 Units.
Explores the basics of oceanography, the evolution of ships and sailing in the ancient Mediterranean world, the North Atlantic, Polynesia, the South China Sea, the Arab Indian Ocean, the global oceanic world, and the discovery of celestial and terrestrial navigation.

HISTORY 135D. Maps from Prehistory to the Present. 4 Units.
Examines how technology has assisted in creating visual representations of place, space, and time beginning in ancient Babylonia to the present day.

HISTORY 135E. Topics in the History of Science and Technology. 4 Units.
Studies in selected areas of science and technological history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 135G. Language Origins: Evolution, Genetics, and the Brain. 4 Units.
Examines how human language(s) may have originated. Studies pertinent techniques (reconstruction) and addresses related questions, including Is our language faculty inborn (i.e., genetically encoded)? Can brain imaging and population genetics research help to unlock this mystery of human evolution?.

Same as GLBLCLT 105, ANTHRO 152A, LINGUIS 175.

HISTORY 136D. Topics in the History of Medicine and Health Care. 4 Units.
Studies in selected areas of Medicine and Health Care history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 136E. History of Epidemics and Infectious Disease. 4 Units.
Examines how epidemics tax political, economic, and spiritual resources and challenge prevailing medical theories and practices. Looks at how society has responded to epidemics and disease throughout history, beginning in antiquity and ending in the present.

HISTORY 140A. Early America: 1492-1740. 4 Units.
Examines the history of the land that became the first 13 states of the United States, from early attempts at exploration and discovery to the economic growth and demographic heterogeneity that marked the white settlements of the early 1700s.

HISTORY 140B. Revolutionary America: 1740-1790. 4 Units.
An exploration of why 13 continental colonies, whose commercial and cultural connections with Britain far exceed their interaction with one another, resisted imperial reform after 1763 to the point of war in 1775 and independence the following year.

HISTORY 142A. California in Modern America. 4 Units.
California as a case study of national trends and as a unique setting: its specific problems and culture. Major themes include: colonization, immigration, race relations, agricultural development, industrialization, urbanization, working class movements, social conflict, and political reform.

HISTORY 142B. Topics in American Social and Economic History. 4 Units.
Studies in selected areas of American social and economic history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 144G. Topics in American Cultural and Intellectual History. 4 Units.
Studies in selected areas of American cultural and intellectual history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 146D. Sex in the U.S. to 1860. 4 Units.
Perspectives on sexual behavior in colonial and U.S. history to c. 1860. Mainstream and non-mainstream sexual practices, beliefs, identities. Asks why various ideas of sexual behavior developed and how they related to religious, racial, ethnic, political, cultural belief systems.

HISTORY 146E. Gender in Nineteenth-Century America. 4 Units.
A social and cultural history of women's lives in nineteenth-century America, examining how racial, sexual, class identities were constructed by women themselves and by their surrounding culture. Topics include slavery, anti-slavery movement, domesticity, experience of the Civil War.

HISTORY 146H. Topics in Women and Gender Relations in the United States. 4 Units.
Studies in selected areas of women and gender relations in the United States. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 148B. Topics in Multicultural U.S. History. 4 Units.
Examines the variety of cultural expressions through which the people who came to inhabit the United States historically signify their collective identities.

Repeatability: Unlimited as topics vary.

HISTORY 150. Topics in African American History. 4 Units.
Studies in selected areas of African American history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as AFAM 138.

HISTORY 151A. Chicana/Chicano History: Pre-Colonial to 1900. 4 Units.
Examines social history of the southwest region from antiquity to 1900. Discusses major questions, theory and research methods pertinent to Chicanas/Chicanos. Themes include: indigenous empires, conquest, colonialism, social stratification, ideology, marriage, sexuality, industrial capitalism, accommodation and resistance.

Same as CHC/LAT 132A.

HISTORY 151B. Chicana/Chicano History: Twentieth Century. 4 Units.
Examines social history of the Southwest with emphasis on Mexican-origin people. Discusses major questions, theory and research methods pertinent to Chicana/Chicano history. Themes explored include: immigration, xenophobia, class struggle, leadership, generational cohorts, unionization, education, barrioization, ethnicity, patriarchy, sexuality.

Same as CHC/LAT 132B.

HISTORY 151C. Latinas in the Twentieth Century U.S.. 4 Units.
Latinas in the U.S. from 1900 to present, offering a diversity of their cultures, regional histories, sexualities, generations, and classes.

Same as CHC/LAT 135.

HISTORY 152. Topics in Asian-American History. 4 Units.
Introduction to important themes in the history of people of Asian ancestry in the United States from the nineteenth century to the present.

Repeatability: Unlimited as topics vary.

HISTORY 152A. Asian American Labor. 4 Units.
Explores history of Asian Americans and work from the nineteenth century to the present. Areas of study include migration, colonialism, family, social organization, and work culture.

Same as ASIANAM 137.

HISTORY 152B. Asian American and African American Relations. 4 Units.
Addresses relationships of Asian American and African American communities in the United States. Topics include race, class, gender, labor, economic systems, political mobilization, community, civil rights, activism, cultural expression.

Same as AFAM 117, ASIANAM 167.

HISTORY 153. American Legal History. 4 Units.
Introduction to American legal case materials, to legal categories and ways of thinking, and to selected topics in U.S. legal history. Does not offer a chronological survey of the development of law in the United States.

HISTORY 158A. U.S. as a Global Power. 4 Units.
Examines post-World War II cultural, economic, and strategic patterns that have shaped U.S. relations with the world. Presents diverse perspectives on issues such as nationalism, anticommunism, secrecy and covert action, economic influences, the media's role, and race, gender, and class-related.

HISTORY 160. Sex and Conquest in Latin America. 4 Units.
Competing ideas of masculinity and femininity, sexual violence, sexual identities, and gendered hierarchies informed how the Spanish engaged in military and religious domination of Mexican and Andean communities, as well as the forms of native resistance throughout colonial Latin America.

Same as GEN&SEX 171A.

HISTORY 161A. Indian and Colonial Societies in Mexico. 4 Units.
Examines the history of Colonial Mexico from prehistoric times to the eighteenth century. Focuses on the social, economic, and political evolution of the new Mexican society which resulted from the "meeting" of two cultures.

HISTORY 161C. Twentieth-Century Mexico. 4 Units.
Examines the history of contemporary Mexico beginning with the Mexican Revolution and concluding with the present administration. Social, economic, and political effects of the Revolution; formation of a "one-party democracy"; economic transformation of the nation; the present crisis.

Same as CHC/LAT 133B.

HISTORY 162. Topics in Brazilian History. 4 Units.
Studies in selected areas of Brazilian history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 163. Coffee and Capitalism. 4 Units.
History of consumption and production of coffee over the centuries, and coffee's cultural, economic, social, political consequences. Coffee's social life as a drug, symbol of hospitality, religious rite, sociability and bourgeois lifestyle, commodity, source of livelihoods, imperial revenues, corporate profits.

Same as INTL ST 111B.

HISTORY 164A. Caribbean History: Colonization to Emancipation. 4 Units.
Exploration of the history of the archipelago from pre-Columbian times to the end of slavery; examining the impact of European colonization, decimation of the indigenous populations, African slavery, resistance, and emancipation; the unity and diversity of experience in region.

Same as AFAM 134A.

HISTORY 164B. Caribbean History: Emancipation to Independence. 4 Units.
Post-emancipation and anti-colonial struggles ending with political independence for most of the region. Examines social, political, economic, cultural dimensions of post-emancipation period, including large-scale migration to Central America, the U.S., and Britain; the region's global cultural and political contribution.

Same as AFAM 134B.

HISTORY 165. Race and Empire in Colonial Latin America. 4 Units.
Explores how native people of Latin America with enslaved and free African incorporated and defied Spanish and Portuguese colonization. Focuses on religious adaptions, resistance movements, legal systems, and the emergence of multicultural communities to explain how race shaped European empires.

Same as ANTHRO 162C.

HISTORY 166. U.S. Intervention in Latin America. 4 Units.
Explores political, economic, social, and cultural ties that bind Latin America to the United States. Focuses on U.S. intervention and Latin American response from early nineteenth century to present day. Case studies include Mexico, Guatemala, Cuba, Chile, and Central America.

Same as INTL ST 177D, SOC SCI 123A, CHC/LAT 150.

HISTORY 166A. Gender, Race, and Nation in Latin America. 4 Units.
Addresses the importance of gender and race to nation-making in Latin America during the 19th and 20th centuries (1810-1945). Considers how hierarchies between men and women shaped ideas about family, the state, and modernity.

Same as INTL ST 177H, WOMN ST 172.

HISTORY 166B. Revolution and Reaction in Cold War Latin America. 4 Units.
Explores Latin American experiences of revolutionary change and military dictatorship during the Cold War (1945-1990). Pays particular attention to the lives of women, peasants, workers, and the urban middle classes. Case studies include Guatemala, Cuba, Chile, Argentina, Nicaragua, and Mexico.

Same as INTL ST 177G.

HISTORY 166C. Cuban Society and Revolution. 4 Units.
Explores the causes, development, and legacy of the 1959 Revolution. Themes include economic dependency, democracy, race, gender, culture, and the always volatile relations between Cuba and the United States.

Same as POL SCI 153G, INTL ST 177E, CHC/LAT 157.

HISTORY 166D. Revolution in Latin America. 4 Units.
Presents a comparative analysis of the causes, development, and consequences of selected revolutionary movements, focusing on outbreaks in Mexico, Bolivia, Cuba, Chile, Nicaragua, and Grenada. Explores topics of state formation, economic nationalism, social justice, ethnicity, and role of international affairs.

Same as CHC/LAT 151B, SOC SCI 173N, INTL ST 177C.

HISTORY 169. Topics in Latin American History. 4 Units.
Studies in selected areas of Latin American history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 170D. Premodern East Asia. 4 Units.
Introduction to histories of China, Korea, and Japan from the earliest states to about 1600. Topics include: state formation and dissolution; the role of ideology and how it changes; religious beliefs and values; agriculture, commerce, and industry; changing family values.

HISTORY 170E. East Asia: 1600-1895. 4 Units.
Introduction to China, Korea, and Japan from about 1600 to 1895. Establishment of Qing Chinese, late Choson Korean, and Tokugawa Japanese sociopolitical orders and their characteristics, plus major cultural developments. Responses to Western impact and the rise of Meiji Japan.

HISTORY 170F. East Asia Since 1895. 4 Units.
Introduction to the turbulent modern histories of China, Korea, and Japan since 1895. An overarching concern is to understand the evolution of modern East Asia and its place for humankind's future.

HISTORY 170G. Topics in the History of Asia. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of Asia.

Repeatability: Unlimited as topics vary.

HISTORY 171D. Chinese History to 1800. 4 Units.
A survey of the history of China to 1800.

HISTORY 171E. Chinese History: 1800-1949. 4 Units.
An examination of Chinese society and thought from the late-eighteenth century to the 1949 revolution. Focuses on the role of intellectuals; popular culture; women in Chinese society; developments in commerce and urban life; rebellion; foreign imperialism.

HISTORY 171G. Topics in the History of China. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of China.

Repeatability: Unlimited as topics vary.

HISTORY 172D. Age of the Samurai. 4 Units.
Topics include the simultaneous elaboration of a civilian aristocratic tradition and the military ethos, the conflict between martial and economic values in the context of an expanding economy, and the development of Japan's indigenous religions, art, and literature.

HISTORY 172E. Imperial Japan. 4 Units.
Topics in the rise of modern Japan include the relationship between centralization and imperialism, democracy and fascism, industrialization and feminism in the context of the complex and competing forces that shaped Japan's experience in the modern world.

HISTORY 172F. Postwar Japan. 4 Units.
From the ashes of defeat to economic superpower, from poverty to material consumerism, from the ethic of diligence and fortitude to hedonism. Addresses what these changes have meant for ordinary people, as well as government policy and Japan's international position.

HISTORY 172G. Topics in the History of Japan. 4 Units.
Topics include the cultural, political, economic, social, intellectual and religious history of Japan.

Repeatability: Unlimited as topics vary.

HISTORY 173D. Korean History to 1800. 4 Units.
A general survey of the history of Korea to 1800. Focuses on internal sociopolitical development, major cultural trends, and foreign relations. Students are introduced to various interpretive approaches in the historiography.

HISTORY 173E. Korean History: 1800-1945. 4 Units.
An examination of Korean society and culture in tumultuous transition, focusing on some new challenges for the Choson Dynasty and its abortive reform effort, external imperialist pressures, and the Japanese colonial rule.

HISTORY 173F. Korean History Since 1945. 4 Units.
Topics include the national liberation, origins of conflict between two rival regimes, South Korea's emergence as a major player in the international political economy, some salient characteristics of the North Korean Marxist state, triumph of democracy, and prospect for reunification.

HISTORY 173G. Topics in the History of Korea. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of Korea.

Repeatability: Unlimited as topics vary.

HISTORY 174G. Topics in the History of South Asia. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of South Asia.

Repeatability: Unlimited as topics vary.

HISTORY 175G. Topics in the History of Southeast Asia. 4 Units.
Topics include the cultural, political, economic, social, intellectual, and religious history of Southeast Asia.

Repeatability: Unlimited as topics vary.

HISTORY 180. Special Studies in Social History. 4 Units.
Studies in selected areas of social history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 181. Special Studies in Economic History. 4 Units.
Studies in selected areas of economic history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 182. Special Studies in Intellectual-Cultural History. 4 Units.
Studies in selected areas of intellectual-cultural history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 183. Special Studies in International History. 4 Units.
Studies in selected areas of international history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 184. Special Studies in Comparative History. 4 Units.
Studies in selected areas of comparative history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 185. Special Studies in Social Theory. 4 Units.
Studies in selected areas of social theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 190. Colloquium . 4 Units.
Specialized courses dealing primarily with close reading and analysis of primary and secondary works; required reports and papers. Each colloquium reflects the instructor's intellectual interests and is conducted as a discussion group. Limited to 18 students.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. History majors have first consideration for enrollment.

HISTORY 193. Advanced Research Seminar I. 4 Units.
The first course in a two-quarter advanced research sequence, this course allows upper-division history majors to undertake significant research and writing under close faculty supervision.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: History majors only. Upper-division students only.

HISTORY 194. Advanced Research Seminar II. 4 Units.
Second course in a two-quarter advanced research sequence. Allows upper division history majors to undertake significant research and writing under close faculty supervision.

Prerequisite: HISTORY 193. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: History majors only. Upper-division students only.

HISTORY 197. Internships in Public History. 4 Units.
Students will sharpen their abilities to research, critically interpret, and present history by “doing history” beyond the formal classroom. Internships, which introduce students to the field of “public history,” include working as archivists, oral historians, project advisers, and exhibit curators.

Grading Option: Pass/no pass only.

Restriction: Upper-division students only. History majors only.

HISTORY 198. Directed Group Study. 4 Units.
Special topics through directed reading. Paper required.

Repeatability: Unlimited as topics vary.

HISTORY 199. Independent Reading. 1-4 Units.
Investigation of special topics through directed reading. Paper required.

Repeatability: May be repeated for credit unlimited times.

HISTORY 200A. History and Theory. 4 Units.
Introduction to role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. (200A and 200B required for History Ph.D. students; 200C optional.).

Same as HUMAN 200A.

HISTORY 200B. History and Theory. 4 Units.
Introduction to role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. (200A and 200B required for History Ph.D. students; 200C optional.).

Same as HUMAN 200B.

HISTORY 200C. History and Theory . 4 Units.
Introduction to role of theory in historical writing, focusing on several major theorists, their relation to their setting, the structure of their thought, and its application to significant historical issues. (200A and 200B required for History Ph.D. students; 200C optional.).

Repeatability: Unlimited as topics vary.

Same as HUMAN 200C.

HISTORY 202. Proseminar. 4 Units.
Topical courses devoted to the literature of a broad historical subject, e.g., the absolutist state, the French Revolution, comparative industrialization, women's history.

Repeatability: Unlimited as topics vary.

Restriction: History graduate students only.

HISTORY 203. First-Year Research Seminar. 4 Units.
Devoted to research and writing on questions connected with proseminar topics. Normally required of all entering graduate students. Includes review of the current state of the literature and practical experience in conducting research and writing a research paper.

Prerequisite: HISTORY 202.

Repeatability: May be taken for credit 1 times as topics vary.

HISTORY 204A. Second-Year Research Seminar. 4 Units.
Two-quarter sequence required of all Ph.D. students. Taken during the second year of the Ph.D. program; not required for M.A. students. Includes review of current state of the literature and practical experience in conducting research and writing a research paper.

Restriction: History graduate students only.

HISTORY 204B. Second-Year Research Seminar. 4 Units.
Two-quarter sequence required of all Ph.D. students. Taken during the second year of the Ph.D. program; not required for M.A. students. Includes review of current state of the literature and practical experience in conducting research and writing a research paper.

Prerequisite: HISTORY 204A.

Restriction: History graduate students only.

HISTORY 220A. The Literature and Interpretations of Early Modern Europe: Society and Economy. 4 Units.
Studies in selected areas of society and economy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 220B. The Literature and Interpretations of Early Modern Europe: Political History. 4 Units.
Studies in selected areas of political history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 220C. The Literature and Interpretations of Early Modern Europe: Intellectual & Cultural History. 4 Units.
Studies in selected areas of intellectual and cultural history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 230A. The Literature and Interpretations of Modern European History: Europe, 1789-1848. 4 Units.
Studies in selected areas of Europe, 1789-1848. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 230B. The Literature and Interpretations of Modern European History: Europe, 1850-1914. 4 Units.
Studies in selected areas of Europe, 1850-1914. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 230C. The Literature and Interpretations of Modern European History: Europe, 1914-1989. 4 Units.
Studies in selected areas of Europe, 1914-1989. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 240A. The Literature and Interpretations of World History: Approaches to World History. 4 Units.
Overview of major directions of inquiry in world history and their implications for teaching and research. Topics will include cultural, sociological, economic, and political frameworks.

Repeatability: Unlimited as topics vary.

Restriction: History graduate students only.

HISTORY 240B. The Literature and Interpretations of World History: Topics in World History. 4 Units.
Selected historical issues and periods viewed from a global perspective. Examples include: environmental history, media studies, political economy. May be repeated two times for graduate credit other than fulfillment of field requirement.

Repeatability: Unlimited as topics vary.

Restriction: History graduate students only.

HISTORY 240C. The Literature and Interpretations of World History: Advanced Research in World History. 4 Units.
Studies in selected areas of advanced research in world history. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: History graduate students only.

HISTORY 250A. The Literature and Interpretations of Latin American History: Colonial Period. 4 Units.
Studies in selected areas of the Colonial Period. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 250B. The Literature and Interpretations of Latin American History: Nineteenth Century. 4 Units.
Studies in selected areas of nineteenth century. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 250C. The Literature and Interpretations of Latin American History: Twentieth Century. 4 Units.
Studies in selected areas of twentieth century. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 260A. The Literature and Interpretations of American History: Seventeenth & Eighteenth Centuries. 4 Units.
Studies in selected areas of seventeenth and eighteenth centuries. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 260B. The Literature and Interpretations of American History: Nineteenth Century. 4 Units.
Studies in selected areas of the nineteenth century. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 260C. The Literature and Interpretations of American History: Twentieth Century. 4 Units.
Studies in selected areas of the twentieth century. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

HISTORY 273. Research Methods in Chinese History. 4 Units.
Introduces major tools for research in Qing and twentieth-century Chinese history as well as an introduction to research tools for earlier periods.

HISTORY 274A. Seminar in Chinese History: 1100-1750. 4 Units.
The development of Chinese society and culture from 1100-1750. May be used to fulfill the First-Year Research requirement.

Repeatability: Unlimited as topics vary.

HISTORY 274B. Seminar in Chinese History: 1600-1937. 4 Units.
The development of Chinese society and culture from 1600-1937. May be used to fulfill the First-Year Research requirement.

Repeatability: Unlimited as topics vary.

HISTORY 274C. Seminar in Chinese History: 1850-Present. 4 Units.
The development of Chinese society and culture from 1850 to the present. May be used to fulfill the First-Year Research requirement.

Repeatability: Unlimited as topics vary.

HISTORY 275A. Approaches to Islam in the Middle East/Maghrib. 4 Units.
Examines methodologies and approaches to the study of Muslim culture and history in the Middle East and North Africa in medieval and modern times.

Restriction: History graduate students only.

HISTORY 275B. Ottoman and Modern Middle East. 4 Units.
Explores historiographic questions pertaining to the Middle East under Ottoman domination, the encounter with colonialism and modernity, and transitions in the post-colonial period.

Restriction: History graduate students only.

HISTORY 275C. The Maghrib Since 1500. 4 Units.
Focus on the societies and cultures of the region corresponding to today's Libya, Tunisia, Algeria, and Morocco during the Ottoman regencies, Sharifian Morocco, colonial occupation, and post-independence periods.

Restriction: History graduate students only.

HISTORY 280A. China. 4 Units.
Studies in literatures and interpretations of Chinese history.

HISTORY 280B. Japan. 4 Units.
Studies in literatures and interpretations of Japanese history.

HISTORY 280C. Korea. 4 Units.
Studies in literatures and interpretations of Korean history.

HISTORY 280D. South Asia . 4 Units.
Studies in literatures and interpretations of South Asian history.

HISTORY 290. Special Topics . 4 Units.
Lectures, readings, and discussion on subjects more limited in scope than those included in the year-long colloquium series.

Repeatability: Unlimited as topics vary.

HISTORY 291. Directed Reading. 4-12 Units.
Reading courses focused on specialized topics.

Repeatability: May be repeated for credit unlimited times.

Restriction: History graduate students only.

HISTORY 295. Special Methods. 4 Units.
Development of particular research skills.

HISTORY 298. Experimental Group Study. 4-12 Units.
Open to four or more students.

Repeatability: May be repeated for credit unlimited times.

HISTORY 299. Dissertation Research. 4-12 Units.
Specifically designed for students researching and writing their dissertations.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Advancement to Ph.D. candidacy.

HISTORY 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Special Programs

This section includes a variety of special programs that are available through the School of Humanities. Click on the tabs above for information about each program.

Click here for the list of Courses in Humanities (p. 641).

Minor in Humanities and Law

85 Humanities Instructional Building; 949-824-6525
http://www.humanities.uci.edu/humlaw/
Jeffrey Helmreich, **Director**

The minor in Humanities and Law is comprised of courses in the School of Humanities that UCI graduates have found to be useful in developing skills and knowledge that prepare them for law-related careers. One set of courses develops skills in critical reading, writing, and analysis that are necessary in dealing with legal issues. Another set presents theoretical and analytical perspectives on ethical, political, and social issues relevant to the law. A final set focuses on specific legal issues from a humanistic perspective. Lower-division requirements primarily develop foundational skills in the first set, whereas upper-division requirements build on these skills by addressing the concerns from the other sets. The minor does not include how-to courses on particular legal practices.

Requirements for the Minor

A. Complete:	
PHILOS 2	Puzzles and Paradoxes
or	
PHILOS 29	Critical Reasoning
B. Select one of the following groups of courses:	
Group 1	
HUMAN 1A- 1AS- 1B- 1BS- 1C- 1CS	Humanities Core Lecture and Humanities Core Writing and Humanities Core Lecture and Humanities Core Writing and Humanities Core Lecture and Humanities Core Writing
and one of the following courses if not used for the Humanities Core Alternative: [1]	
PHILOS 4	Introduction to Ethics
or PHILOS 5	Contemporary Moral Problems
or PHILOS 9	Feminist Moral and Political Philosophy
Group 2	
PHILOS 1	Introduction to Philosophy
PHILOS 4	Introduction to Ethics
PHILOS 5	Contemporary Moral Problems
or PHILOS 9	Feminist Moral and Political Philosophy
plus select one of the following:	
PHILOS 9	Feminist Moral and Political Philosophy [2]
PHILOS 10	History of Ancient Philosophy
PHILOS 11	History of Medieval Philosophy
PHILOS 12	History of Modern Philosophy

PHILOS 13	History of Contemporary Philosophy
C. Six courses from among a list of quarterly approved courses, at least one each from philosophy, history, and literature or classics. [3]	

1 The Humanities Core Alternative is also an option. Visit the School of Humanities Undergraduate Study (http://www.humanities.uci.edu/undergrad/current/school_req1.php) website for additional information.

2 PHILOS 9 can be selected if not used above.

3 Consult the Humanities and Law (http://www.humanities.uci.edu/humlaw) website for currently approved courses.

Students considering a career in law are strongly encouraged to take advantage of other law-related courses offered across the campus and of extracurricular activities such as the Pre-Law Society.

Residence Requirement for the Minor: Four upper-division courses required for the minor must be successfully completed at UCI. Two of the four may be taken through the UC Education Abroad Program, provided course content is approved in advance by the appropriate department chair.

Interdisciplinary Minor in Asian Studies

http://www.humanities.uci.edu/asianstudies/

Dorothy J. Solinger, **Co-Director, School of Social Sciences**
dorjsoli@uci.edu

Qitao Guo, **Co-Director, School of Humanities**
guoq@uci.edu

The countries and cultures of Asia are significant participants in the world community. They present compellingly different models for social organization, historical development, and cultural commitments. The many countries of this large and complex region provide challenges and opportunities whether one plans to be a scholar, a business person, or a diplomat. The minor in Asian Studies draws upon the expertise of faculty throughout UCI to create opportunities for students to explore Asian topics in a variety of fields, to develop advanced language skills, and to acquire a broader perspective as they apply the disciplinary training of their major field to effective and informed studies of Asian subjects. The minor is open to all UCI students.

Requirements for the Minor

Students choose one country and language of specialization. At the present the Asian Studies minor focuses on China, Japan, or Korea.

Requirements for the minor are met by taking eight courses (of which no more than four may be lower-division) as specified below.

A. Select one of the following: [1]	
HISTORY 170D	Premodern East Asia
HISTORY 170E	East Asia: 1600-1895
HISTORY 170F	East Asia Since 1895
B. Three quarters of course work in one Asian language of specialization beyond the first-year level. Approved courses are:	
1. Second-, third-, or fourth-year language: [2]	
CHINESE 2A- 2B- 2C	Intermediate Mandarin Chinese and Intermediate Mandarin Chinese and Intermediate Mandarin Chinese
CHINESE 2DA- 2DB- 2DC	Intermediate Mandarin Chinese - Dialect Background Track and Intermediate Mandarin Chinese - Dialect Background Track and Intermediate Mandarin Chinese - Dialect Background Track
CHINESE 2MA- 2MB- 2MC	Intermediate Mandarin Chinese - Mandarin Background Track and Intermediate Mandarin Chinese - Mandarin Background Track and Intermediate Mandarin Chinese - Mandarin Background Track
CHINESE 3A- 3B- 3C	Advanced Mandarin Chinese and Advanced Mandarin Chinese and Advanced Mandarin Chinese
CHINESE 101A- 101B- 101C	Fourth-Year Mandarin Chinese and Fourth-Year Mandarin Chinese and Fourth-Year Mandarin Chinese
JAPANSE 2A- 2B- 2C	Intermediate Japanese and Intermediate Japanese and Intermediate Japanese

JAPANSE 3A- 3B- 3C	Advanced Japanese and Advanced Japanese and Advanced Japanese
JAPANSE 101A- 101B- 101C	Fourth Year Japanese and Fourth Year Japanese and Fourth Year Japanese
KOREAN 2A- 2B- 2C	Intermediate Korean and Intermediate Korean and Intermediate Korean
KOREAN 2KA- 2KB- 2KC	Intermediate Korean for Students with a Previous Background in Korean and Intermediate Korean for Students with a Previous Background in Korean and Intermediate Korean for Students with a Previous Background in Korean
KOREAN 3A- 3B- 3C	Advanced Korean and Advanced Korean and Advanced Korean
KOREAN 101A- 101B- 101C	Fourth Year Korean and Fourth Year Korean and Fourth Year Korean
Other sequences in Asian languages as available.	
2. Either Classical Chinese or Classical Japanese:	
CHINESE 100A- 100B- 100C	Classical Chinese and Classical Chinese and Classical Chinese
JAPANSE 100A- 100B	Classical Japanese and Classical Japanese (plus a third quarter of Japanese language study)
3. Literature courses taught in the original language: [3]	
CHINESE 115	Chinese Literature: Advanced Texts
JAPANSE 115	Japanese Literature: Advanced Texts
KOREAN 115	Korean Literature: Advanced Texts
Or graduate seminars	
C. Four additional courses selected from an approved list. [4]	
1. At least two of these courses must be taken in one (or more) department(s) other than the student's major department.	
2. The courses must cover at least two different Asian countries, one of which is the country of language specialization.	
3. No more than two of the courses may be lower-division (and only one may be lower-division if any combination of second- or third-year East Asian language is used for the language required above).	

1 Students may petition to substitute other History courses that focus on Asia.

2 These courses require placement examinations given by the Academic Testing Center. Students who, for example, place out of CHINESE 2B would then take CHINESE 2C, CHINESE 3A-CHINESE 3B to meet the requirement.

3 These courses have a prerequisite of completion of the fourth-year language sequence or its equivalent.

4 Available at the Asian Studies Minor (http://www.humanities.uci.edu/asianstudies) website.

NOTE: A maximum overlap of two courses is permitted between this minor and a student's major.

Residence Requirement for the Minor: Four upper-division (or graduate) courses must be successfully completed at UCI. Two of the four may be taken through the UC Education Abroad Program, provided course content is approved in advance by the appropriate department chair.

Interdisciplinary Minor in Jewish Studies

400 Murray Krieger Hall; 949-824-6735
http://www.humanities.uci.edu/jewishstudies/
Matthias Lehmann, **Director**

The minor in Jewish Studies is an interdisciplinary program which introduces students to the many facets of Jewish cultures through the study of the history, philosophy, art, literature, languages, and social and political institutions of Jews from ancient to modern times. The minor provides students with grounding in areas of fundamental importance to the Humanities and Social Sciences, supporting and enriching the students' majors. The minor may

be taken in tandem with any major and prepares students for graduate programs in Jewish Studies. The interdisciplinary approach of Jewish studies exposes students to a wide range of disciplines, and like other established liberal arts fields, provides a foundation for pursuing a range of careers.

Requirements for the Minor

A. Complete:	
HISTORY 18A	Introduction to Jewish Cultures
B. Select at least four upper-division courses from the approved list on the Jewish Studies Web site. [1]	
C. Select three additional courses from the approved list on the Jewish Studies Web site, and which may include:	
HEBREW 1A- 1B- 1C	Fundamentals of Hebrew and Fundamentals of Hebrew and Fundamentals of Hebrew
HEBREW 2A- 2B- 2C	Intermediate Hebrew and Intermediate Hebrew and Intermediate Hebrew
REL STD 5A	World Religions I

1 Students should consult the Jewish Studies (http://www.humanities.uci.edu/jewishstudies) website. With the approval of the Director, other relevant courses may satisfy the requirements for the minor.

Residence Requirement for the Minor: At least four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department chair.

Interdisciplinary Minor in Latin American Studies

322 Humanities Hall; 949-824-6901
http://www.humanities.uci.edu/latinamericanstudies/

Latin America is a complex cultural and historical region created by Spanish and Portuguese colonization in the New World and which encompasses territories and peoples from the southernmost tip of South America to the Caribbean Islands and the United States. As an area born out of a series of conquests, migrations, contacts, and conflicts, it is transcultural, multi-lingual, and multi-ethnic. It has been a vital part of the formation of the modern world even as it has continued to function as a source for the expression of economic, political, and cultural alternatives to dominant Western formations. The minor provides deeper knowledge and expertise in this region for students interested in a variety of careers. It complements the disciplinary training of a students' major field by asking that students engage with Latin America through a variety of disciplines and by working with faculty across different schools at UCI.

Requirements for the Minor

Requirements for the minor are met by taking eight courses (of which no more than three may be lower-division) as specified below. No more than four courses may be taken in any one single department.

A. Complete one of the following core courses:	
SPANISH 50	Latin America, U.S. Latino, and Iberian Cultures
HISTORY 70D	Problems in History: Latin America
HUMAN 100	Latin America and the Caribbean
B. One course from each of the following three categories—History, Culture, and Social Sciences—selected from the approved list on the Latin American Studies Web site. [1]	
C. Four additional courses selected from the approved list. [1]	

1 The approved list is available at the Latin American Studies (http://www.humanities.uci.edu/latinamericanstudies) website.

With the approval of the director, other relevant courses also may satisfy the requirements for the minor.

Residence Requirement for the Minor: Four upper-division courses required for the minor must be completed successfully at UCI. Two of the four may be taken through the UC Education Abroad Program, provided course content is approved in advance by the appropriate department chair.

Additional Interdisciplinary Minors

Information about the following two minors in available in the School of Social Sciences (p. 1555) section of the *Catalogue.*

The **minor in Conflict Resolution** provides skills in conflict analysis and resolution and a useful understanding of integrative institutions at the local, regional, and international levels.

The **minor in Chicano/Latino Studies** is designed to provide an awareness, knowledge, and appreciation of the language, history, culture, literature, sociology, anthropology, politics, social ecology, health, medicine, and creative (art, dance, film, drama, music) accomplishments in the Chicano/Latino communities.

Information about the following minors is available in the Interdisciplinary Studies (p. 1081) section of the *Catalogue.*

The **minor in Civic and Community Engagement** seeks to provide students with the knowledge, skills, attitudes, and values to engage as citizens and active community members in the twenty-first century. The minor is distinguished both by *what* students learn, and by *how* they learn it.

The **minor in Global Sustainability** trains students to understand the changes that need to be made in order for the human population to live in a sustainable relationship with the resources available on this planet.

The **minor in the History and Philosophy of Science** explores how science is actually done and how it has influenced history, and is concerned with determining what science and mathematics are, accounting for their apparent successes, and resolving problems of philosophical interest that arise in the sciences.

The **minor in Native American Studies** focuses on history, culture, religion, and the environment. The three core courses serve as an introduction to the Native American experience from the perspective of different historical periods and frameworks of analysis.

Academic English/English as a Second Language Program

335 Humanities Instructional Building; 949-824-6781
http://www.humanities.uci.edu/esl/

Robin Scarcella, Ph.D. University of Southern California, *Director of the Academic English/English as a Second Language Program and Professor of Academic English and English as a Second Language and of Education* (linguistics, language development emphasis)

Academic English 20A-B-C-D through 29 are for students who have been admitted to UCI and whose scores on the Academic English placement test indicate the need for additional work in Academic English/English as a second language. The majority of Academic English courses are required to be completed as a Pass/Not Pass only grade option which will apply toward the 12 baccalaureate unit limit students may receive for P/NP only coursework toward graduation requirements. Students will receive workload credit for Academic English courses taken beyond this 12-unit limit but will not receive additional credits applicable to the bachelor's degree.

Faculty

Susan W. Akhavan, M.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Kurt R. Buhanan, Ph.D. University of California, Irvine, *Lecturer of Academic English/English as a Second Language; European Languages and Studies; Humanities*

Andrea C. Cano, M.S. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

Rachel E. Cerdenio, M.A. University of San Francisco, *Lecturer of Academic English/English as a Second Language*

Catherine Coleman, M.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Andrea M. Cons, Ph.D. University of California, Irvine, *Lecturer of Academic English/English as a Second Language*

Susan E. Earle-Carlin, Ph.D. Hofstra University, *Lecturer of Academic English/English as a Second Language*

Brenna L. Hall, M.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Colleen R. Hildebrand, M.A. University of Colorado Boulder, *Lecturer of Academic English/English as a Second Language*

Daniel C. Hogan, M.A. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

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Christine M. Krumm, M.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Karen R. Lenz, M.A. University of California, Irvine, *Lecturer of Academic English/English as a Second Language*

Kathie Levin, Ph.D. , *Lecturer of Academic English/English as a Second Language*

Jacob E. Ludwig, M.A. , *Lecturer of Academic English/English as a Second Language*

Catherine J. Michener, M.A. Boston College, *Lecturer of Academic English/English as a Second Language*

Victorya S. Nam, M.A. Biola University, *Lecturer of Academic English/English as a Second Language*

Ines C. Poblet, M.A. , *Lecturer of Academic English/English as a Second Language*

Aziz-Ul-Haq Qureshi, M.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Kelley M. Ruble, M.A. University of California, San Diego, *Lecturer of Academic English/English as a Second Language*

Gina A. Ruggiero, M.A. The New School, *Lecturer of Academic English/English as a Second Language*

Vanessa L. Russell, M.A. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

Kimberly D. Samaniego, M.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Robin C. Scarcella, Ph.D. University of Southern California, *Professor of Academic English/English as a Second Language; Education*

Arnold K. Seong, M.F.A. University of Washington, *Lecturer of Academic English/English as a Second Language*

Paul J. Spencer, M.A. , *Lecturer of Academic English/English as a Second Language*

Heather Stern, M.S. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

Robin S. Stewart, M.A. University of California, Irvine, *Lecturer of Academic English/English as a Second Language*

Anna K. Striedter, Ph.D. University of California, San Diego, *Lecturer of Academic English/English as a Second Language*

Debra S. Thiercof, M.S. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

Tri Chan Tran, Ph.D. University of California, Los Angeles, *Lecturer of Academic English/English as a Second Language; Language Learning Program*

Catherine Vimuttinan, M.A. University of Southern California, *Lecturer of Academic English/English as a Second Language*

Christa I. Westaway, M.F.A. California State University, Long Beach, *Lecturer of Academic English/English as a Second Language*

Brandon S. Wolff, M.A. University of San Francisco, *Lecturer of Academic English/English as a Second Language*

Mary Ellen Rice Wynn, M.A. California State University, Fullerton, *Lecturer of Academic English/English as a Second Language*

Jessica L. Yant, M.F.A. University of Southern California, *Lecturer of Academic English/English as a Second Language*

Courses

AC ENG 20A. Academic Writing. 5 Units.
Grammar, sentence structure, paragraph and essay organization of formal written English. Course may be offered online.

Prerequisite: Placement into AC ENG 20A.

Grading Option: Pass/no pass only.

AC ENG 20B. Academic Writing. 5 Units.
Grammar, sentence structure, paragraph and essay organization of formal written English. Course may be offered online.

Prerequisite: AC ENG 20A or placement into AC ENG 20B.

Grading Option: Pass/no pass only.

AC ENG 20C. Essentials of Academic Writing. 5 Units.
Grammar, sentence structure, paragraph and essay organization of formal written English. Course may be offered online.

Prerequisite: AC ENG 20B or placement into AC ENG 20C.

Grading Option: Pass/no pass only.

AC ENG 20D. Academic Writing. 5 Units.
Grammar, sentence structure, paragraph and essay organization of formal written English. Course may be offered online.

Prerequisite: AC ENG 20C.

Grading Option: Pass/no pass only.

AC ENG 22A. Academic English Reading and Vocabulary. 2 Units.
Intensive reading exercises with occasional practice in extensive reading, focusing on comprehension, development of vocabulary, syntax, rhetorical features, reading strategies, and study skills.

Prerequisite: Placement into AC ENG 22A.

Grading Option: Pass/no pass only.

AC ENG 22B. ESL Reading and Vocabulary. 2 Units.
Extensive reading and discussion with emphasis on journal articles, textbook chapters, notetaking, and the interpretation of charts, diagrams, tables, and figures.

Grading Option: Pass/no pass only.

AC ENG 23A. ESL Pronunciation I. 2 Units.
Designed for international graduate students. Provides an emphasis on pronunciation. Development of listening and speaking skills in five fundamental areas: pronunciation, intonation, word stress, listening comprehension, and informal campus communication. Presentations of personal experiences and reports on graphs.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 23B. ESL Conversation II. 2 Units.
Designed for international graduate students. Provides an emphasis on conversational fluency. Further development of listening and speaking skills: review of English sounds, sentence stress, and rhythm. Oral reports, debates, and reports on graphs and surveys.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 23C. ESL Advanced Communication III. 2 Units.
Designed for international graduate students with advanced communication skills. Further development of listening and speaking skills: review of minimal pairs, consonant blends, intonation, stress and rhythm. Oral presentations emphasized utilizing graphs, syllabi, academic terms, and video presentations on academic work.

Prerequisite: AC ENG 23A or AC ENG 23B.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 24. ESL International TA Workshop. 2 Units.
Designed for advanced-level international students preparing to be teaching assistants. Provides extensive practice in oral and written communication skills associated with teaching introductory-level college courses and participating in academic presentations and discussions. Review and analysis of language problems.

Prerequisite: AC ENG 23A or AC ENG 23B or AC ENG 23C.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 28. Grammar. 2-4 Units.
A full review of English grammar covering the following areas: grammar terms, verb tenses, verb forms, conditionals, passive and word forms, punctuation, sentence structure. The concepts are applied in targeted sentence and paragraph writing practice.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

AC ENG 29. Special Topics in ESL. 2 Units.
Directed and individualized work in English as a second language not covered in the AC ENG 20, 21, 22 sequence. Course may be offered online.

Grading Option: Pass/no pass only.

Repeatability: Unlimited as topics vary.

AC ENG 139W. Advanced Academic Writing Across the Curriculum. 4 Units.
Designed for transfer students who speak English as a second language. Focuses on developing academic reading and writing skills including essay content, organization, vocabulary, and grammar. Academic content also covered.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

Humanities Language Learning Program

http://www.humanities.uci.edu/hllp/
Cynthia L. Claxton, **Director**

The learning of languages other than English is a crucial component of humanistic inquiry and essential to fostering global literacy in students and to internationalizing the University of California, Irvine. The mission of the Humanities Language Learning Program (HLLP) is to support the learning and teaching of languages other than English on the UC Irvine campus, provide instruction in languages not associated with undergraduate or graduate degree programs, foster intellectual and pedagogical connections between the fields of applied linguistics and the humanities, and provide local and national leadership in raising the profile and prominence of language learning as part of a university education in a rapidly changing, globally interconnected world.

The following languages are offered through the HLLP: Arabic, Persian, Hebrew, and Vietnamese. Students who would like to enroll in a HLLP language class should complete a language background questionnaire. This questionnaire is available on the HLLP Language Placement Information (http://www.humanities.uci.edu/hllp/llod/placement_table.php) website and should be submitted online. Students with previous exposure to Arabic, Hebrew, Persian, or Vietnamese may also need to take a placement test. These tests are administered by the UCI Academic Testing Center. Information about the testing schedule and test registration may be found on the Testing Center (http://www.testingcenter.uci.edu) website. Send any questions about placement to HLLP Director Cynthia Claxton (cynthia.claxton@uci.edu).

See **Language Other Than English Placement and Progression.**

Humanities Language Learning Program Peer-to-Peer Language Mentor Program

The HLLP Peer-to-Peer Language Mentor Program is designed both as a supplement to more formal language learning within the classroom and as a means for students not enrolled in language classes to maintain their language skills. Each language mentor will be paired with one to three mentees. Mentor and mentee(s) will meet for at least one hour each week and will engage in various activities conducted in the target language. These activities may include (but are not limited to) conversations in the target language; watching a film, television show, or news program in the target language; cooking a meal or snack that is typical of the culture of the target language; attending an appropriate cultural event, museum exhibition, or performance; producing a creative work (including dance) that is appropriate to the target culture; presentation of specialized vocabulary by the mentor (e.g., medical vocabulary); listening to music of the target culture; going to an ethnic grocery store or restaurant, etc. All conversation revolving around these activities should be in the target language to the greatest degree possible. Both the mentor and the mentee(s) will keep a journal and will reflect on each week's meeting and activities. Mentor and mentee(s) will also be required to attend two whole group meetings each quarter, one at the beginning of the quarter and one at the end.

Students must submit an application in order to participate in the program and the applications will be evaluated by the faculty of the Humanities Language Learning Program. Once chosen, mentors and mentees will be instructed to enroll in a 1 unit P/NP class corresponding to their language and level of participation.

Selection Requirements for Mentors (Arabic10A, Hebrew 10A, Persian 10A, Vietnamese 10A):

- High-Intermediate to Advanced-level language skills (particularly oral language skills) in target language
- Sophomore to senior standing
- 2.7 (B-) G.P.A.
- Sincere interest in fostering the development of language skills of mentee(s)
- Leadership skills
- Active participation in planning of weekly activities
- Ability to meet with mentee(s) on a weekly basis and to attend whole group meetings

Selection Requirements for Mentees (Arabic 10B, Hebrew 10B, Persian 10B, Vietnamese 10B):

- Enrollment in an HLLP language is desirable, but not required
- Freshman to senior standing
- Commitment to improving speaking skills in target language
- Active participation in weekly activities
- Ability to meet with mentor on a weekly basis and to attend whole group meetings

Arabic Courses

ARABIC 1A. Fundamentals of Arabic. 5 Units.
Designed for students with little or no exposure to Arabic. Using real world texts, provides a firm foundation in the orthography, grammar, syntax, and vocabulary of Modern Standard Arabic. Introduces students to Arab world cultures. Course may be offered online.

Prerequisite: Placement into ARABIC 1A.

Overlaps with ARABIC S1AB.

Restriction: ARABIC 1A and ARABIC S1AB may not be taken for full credit.

ARABIC 1B. Fundamentals of Arabic. 5 Units.
Designed for students with little or no exposure to Arabic. Using real world texts, provides a firm foundation in the orthography, grammar, syntax, and vocabulary of Modern Standard Arabic. Introduces students to Arab world cultures. Course may be offered online.

Prerequisite: ARABIC 1A or placement into ARABIC 1B. ARABIC 1A with a grade of C or better.

Overlaps with ARABIC S1AB, ARABIC S1BC.

Restriction: ARABIC 1B and ARABIC S1AB and ARABIC S1BC may not be taken for full credit.

ARABIC 1C. Fundamentals of Arabic. 5 Units.
Designed for students with little or no exposure to Arabic. Using real world texts, provides a firm foundation in the orthography, grammar, syntax, and vocabulary of Modern Standard Arabic. Introduces students to Arab world cultures.

Prerequisite: ARABIC 1B or ARABIC S1AB or placement into ARABIC 1C. ARABIC 1B with a grade of C or better. ARABIC S1AB with a grade of C or better.

Overlaps with ARABIC S1BC.

Restriction: ARABIC 1C and ARABIC S1BC may not be taken for full credit.

(VI)

ARABIC S1AB. Introductory Arabic. 7.5 Units.
First half of first-year Arabic. Designed for students with little or no exposure to Arabic. Provides students with firm foundation in orthography, grammar, syntax, and vocabulary of written and spoken Modern Standard Arabic. Course may be offered online.

Prerequisite: Placement in ARABIC 1A or ARABIC S1AB.

Overlaps with ARABIC 1A, ARABIC 1B.

Restriction: ARABIC S1AB and ARABIC 1A and ARABIC 1B may not be taken for full credit.

ARABIC S1BC. Introductory Arabic. 7.5 Units.
Second half of first-year Arabic. Continuation of S1AB, or for students with limited exposure to Arabic. Provide firm foundation in orthography, grammar, syntax, and vocabulary of written and spoken Modern Standard Arabic. Course may be offered online.

Prerequisite: ARABIC 1B or ARABIC S1AB or placement into ARABIC 1B or ARABIC 1C. ARABIC 1B with a grade of C or better. ARABIC S1AB with a grade of C or better.

Overlaps with ARABIC 1B, ARABIC 1C.

Restriction: ARABIC S1BC and ARABIC 1B and ARABIC 1C may not be taken for full credit.

(VI)

ARABIC 2A. Intermediate Arabic Language and Culture. 4 Units.
Designed for students to advance their Arabic language skills to intermediate level. Students will develop their understanding of grammar and syntax to a more sophisticated level. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: ARABIC 1C or ARABIC S1BC or placement into ARABIC 2A. ARABIC 1C with a grade of C or better. ARABIC S1BC with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ARABIC 2B. Intermediate Arabic Language and Culture. 4 Units.
Designed for students to advance their Arabic language skills to intermediate level. Students will develop their understanding of grammar and syntax to a more sophisticated level. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: ARABIC 2A or placement into ARABIC 2B. ARABIC 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ARABIC 2C. Intermediate Arabic Language and Culture. 4 Units.
Designed for students to advance their Arabic language skills to intermediate level. Students will develop their understanding of grammar and syntax to a more sophisticated level. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: ARABIC 2B or placement into ARABIC 2C. ARABIC 2B with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

ARABIC 10A. Arabic Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. ARABIC 10A is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

ARABIC 10B. Arabic Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. ARABIC 10B is for language mentees.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

ARABIC 150. Modern Arabic Literature in Translation. 4 Units.
In English. Major works in Arabic literature and culture in context.

Repeatability: Unlimited as topics vary.

ARABIC 199. Independent Study. 4 Units.
Research paper required.

Repeatability: May be repeated for credit unlimited times.

Hebrew Courses

HEBREW 1A. Fundamentals of Hebrew. 5 Units.
Designed for students with little or no exposure to Hebrew. Introduction to modern Israeli Hebrew. Students learn the writing system and basics of grammar via latest pedagogical materials and real-world texts. Topics in Jewish culture and Biblical Hebrew are included.

Prerequisite: Placement into HEBREW 1A.

HEBREW 1B. Fundamentals of Hebrew. 5 Units.
Designed for students with little or no exposure to Hebrew. Introduction to modern Israeli Hebrew. Students learn the writing system and basics of grammar via latest pedagogical materials and real-world texts. Topics in Jewish culture and Biblical Hebrew are included.

Prerequisite: HEBREW 1A or placement into HEBREW 1B. HEBREW 1A with a grade of C or better.

HEBREW 1C. Fundamentals of Hebrew. 5 Units.
Designed for students with little or no exposure to Hebrew. Introduction to modern Israeli Hebrew. Students learn the writing system and basics of grammar via latest pedagogical materials and real-world texts. Topics in Jewish culture and Biblical Hebrew are included.

Prerequisite: HEBREW 1B or placement into HEBREW 1C. HEBREW 1B with a grade of C or better.

(VI)

HEBREW 2A. Intermediate Hebrew. 4 Units.
Designed for students to advance their Hebrew language skills from introductory to intermediate level. Emphasizes development of meaningful communicative skills and critical study of Hebrew culture. Students develop reading, writing, speaking, listening, grammatical, and cultural skills.

Prerequisite: HEBREW 1C. HEBREW 1C with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

HEBREW 2B. Intermediate Hebrew. 4 Units.
Designed for students to advance their Hebrew language skills from introductory to intermediate level. Emphasizes development of meaningful communicative skills and critical study of Hebrew culture. Students develop reading, writing, speaking, listening, grammatical, and cultural skills.

Prerequisite: HEBREW 2A. HEBREW 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

HEBREW 2C. Intermediate Hebrew. 4 Units.
Designed for students to advance their Hebrew language skills from introductory to intermediate level. Emphasizes development of meaningful communicative skills and critical study of Hebrew culture. Students develop reading, writing, speaking, listening, grammatical, and cultural skills.

Prerequisite: HEBREW 2B. HEBREW 2B with a grade or C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

HEBREW 10A. Hebrew Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. HEBREW 10A is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

HEBREW 10B. Hebrew Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. HEBREW 10B is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

HEBREW 50. Hebrew and Israeli Culture. 4 Units.
Examination of subjects relevant to the culture of Israel and Judaism in their historical and modern day contexts through the study of film, literature, religious texts, artistic representations, etc.

(IV, VIII)

HEBREW 199. Independent Study. 4 Units.
Research paper required.

Repeatability: May be repeated for credit unlimited times.

Persian Courses

PERSIAN 1A. Fundamentals in Persian. 5 Units.
Designed for students with little or no exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills and fosters college-level literacy in Persian culture.

Prerequisite: Placement into PERSIAN 1A.

Overlaps with PERSIAN S1AB.

Restriction: PERSIAN 1A and PERSIAN S1AB may not be taken for full credit.

PERSIAN 1B. Fundamentals in Persian. 5 Units.
Designed for students with little or no exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills and fosters college-level literacy in Persian culture.

Prerequisite: PERSIAN 1A or placement into PERSIAN 1B. PERSIAN 1A with a grade of C or better.

Overlaps with PERSIAN S1AB, PERSIAN S1BC.

Restriction: PERSIAN 1B and PERSIAN S1AB and PERSIAN S1BC may not be taken for full credit.

PERSIAN 1C. Fundamentals in Persian. 5 Units.
Designed for students with little or no exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills and fosters college-level literacy in Persian culture.

Prerequisite: PERSIAN 1B or PERSIAN S1AB or placement in PERSIAN 1C. PERSIAN 1B with a grade of C or better. PERSIAN S1AB with a grade of C or better.

Overlaps with PERSIAN S1BC.

Restriction: PERSIAN 1C and PERSIAN S1BC may not be taken for full credit.

(VI)

PERSIAN S1AB. Fundamentals of Persian. 7.5 Units.
First half of first-year Persian. Designed for students with little or no exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills. Fosters college-level literacy in Persian culture.

Prerequisite: Placement into PERSIAN S1AB.

Overlaps with PERSIAN 1A, PERSIAN 1B.

Restriction: PERSIAN S1AB and PERSIAN 1A and PERSIAN 1B may not be taken for full credit.

PERSIAN S1BC. Fundamentals of Persian. 7.5 Units.
Second half of first-year Persian. Continuation of S1AB, or for students with limited exposure to Persian. Students learn the modern writing system and grammar of Persian. Facilitates basic reading, writing, and speaking skills. Fosters college-level literacy in Persian culture.

Prerequisite: PERSIAN S1AB or PERSIAN 1B or placement into PERSIAN S1BC. PERSIAN S1AB with a grade of C or better. PERSIAN 1B with a grade of C or better.

Overlaps with PERSIAN 1B, PERSIAN 1C.

Restriction: PERSIAN S1BC and PERSIAN 1B and PERSIAN 1C may not be taken for full credit.

(VI)

PERSIAN 2A. Intermediate Persian. 4 Units.
Designed for students to advance their Persian language skills from introductory to intermediate level. Student will advance their understanding of grammar and syntax. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: PERSIAN 1C or PERSIAN S1BC or placement into PERSIAN 2A. PERSIAN 1C with a grade of C or better. PERSIAN S1BC with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

PERSIAN 2B. Intermediate Persian. 4 Units.
Designed for students to advance their Persian language skills from introductory to intermediate level. Students will advance their understanding of grammar and syntax. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: PERSIAN 2A or placement into PERSIAN 2B. PERSIAN 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

PERSIAN 2C. Intermediate Persian. 4 Units.
Designed for students to advance their Persian language skills from introductory to intermediate level. Students will advance their understanding of grammar and syntax. Facilitates intermediate-level reading, writing, and speaking skills. Fosters college-level cultural literacy.

Prerequisite: PERSIAN 2B or placement in PERSIAN 2C. PERSIAN 2B with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

PERSIAN 3A. Advanced Persian. 4 Units.
Students improve Persian language skills and grammatical knowledge. Explores tenth- to twentieth-century Persian poetry and prose (e.g., Rudaki, Ferdowsi, Bahar, Nima Yushij).

Prerequisite: PERSIAN 2C. PERSIAN 2C with a grade of C or better.

(VIII)

PERSIAN 3B. Advanced Persian. 4 Units.
Students improve their Persian language skills and grammatical knowledge. Explores tenth- to twentieth-century Persian poetry and prose (e.g., Rudaki, Ferdowsi, Bahar, Nima Yushij).

Prerequisite: PERSIAN 3A. PERSIAN 3A with a grade of C or better.

(VIII)

PERSIAN 10A. Persian Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. PERSIAN 10A is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

PERSIAN 10B. Persian Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. PERSIAN 10B is for language mentees.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

PERSIAN 50. Persian Culture. 4 Units.
Study of varied topics in Persian culture, area studies, and society, both in the present and in historical perspective. Topics are not normally repeated for a two-year period.

Repeatability: Unlimited as topics vary.

(IV, VIII)

Vietnamese Courses

VIETMSE 1A. Fundamentals of Vietnamese. 5 Units.
Designed for students with little or no exposure to Vietnamese. Natural approach with emphasis on four fundamental skills of listening, speaking, reading, and writing. Conducted in Vietnamese.

Prerequisite: Placement into VIETMSE 1A.

Overlaps with VIETMSE S1AB.

Restriction: VIETMSE 1A and VIETMSE S1AB may not be taken for full credit.

VIETMSE 1B. Fundamentals of Vietnamese. 5 Units.
Designed for students with little or no exposure to Vietnamese. Natural approach with emphasis on four fundamental skills of listening, speaking, reading, and writing. Conducted in Vietnamese.

Prerequisite: VIETMSE 1A or placement in VIETMSE 1B. VIETMSE 1A with a grade of C or better.

Overlaps with VIETMSE S1AB, VIETMSE S1BC.

Restriction: VIETMSE 1B and VIETMSE S1AB and VIETMSE S1BC may not be taken for full credit.

VIETMSE 1C. Fundamentals of Vietnamese. 5 Units.
Designed for students with little or no exposure to Vietnamese. Natural approach with emphasis on four fundamental skills of listening, speaking, reading, and writing. Conducted in Vietnamese.

Prerequisite: VIETMSE 1B or VIETMSE S1AB or placement in VIETMSE 1C. VIETMSE 1B with a grade of C or better. VIETMSE S1AB with a grade of C or better.

Overlaps with VIETMSE S1BC.

Restriction: VIETMSE 1C and VIETMSE S1BC may not both be taken for credit.

(VI)

VIETMSE S1AB. Fundamentals. 7.5 Units.
First half of first-year Vietnamese. Designed for students with little or no exposure to Vietnamese. Emphasis is on mastery of the basic language skills of understanding, speaking, reading, and writing.

Overlaps with VIETMSE 1A, VIETMSE 1B.

Restriction: VIETMSE S1AB and VIETMSE 1A and VIETMSE 1B may not be taken for full credit.

VIETMSE S1BC. Fundamentals. 7.5 Units.
Second half of first-year Vietnamese. Designed for students with little or no exposure to Vietnamese. Emphasis is on mastery of the basic language skills of understanding, speaking, reading, and writing.

Prerequisite: VIETMSE S1AB or VIETMSE 1B or placement into VIETMSE 1B or VIETMSE 1C. VIETMSE 1B with a grade of C or better. VIETMSE S1AB with a grade of C or better.

Restriction: VIETMSE S1BC and VIETMSE 1B and VIETMSE 1C may not be taken for full credit.

(VI)

VIETMSE 2A. Intermediate Vietnamese. 4 Units.
Designed for students to advance their Vietnamese language skills from introductory to intermediate level. Designed to develop writing and reading skills and communicative skills in authentic situations. Students are introduced to aspects of Vietnamese culture relating to lesson topics.

Prerequisite: VIETMSE 1C or VIETMSE S1BC or placement into VIETMSE 2A. VIETMSE 1C with a grade of C or better. VIETMSE S1BC with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

VIETMSE 2B. Intermediate Vietnamese. 4 Units.
Designed for students to advance their Vietnamese language skills from introductory to intermediate level. Designed to develop writing and reading skills and communicative skills in authentic situations. Students are introduced to aspects of Vietnamese culture relating to lesson topics.

Prerequisite: VIETMSE 2A or placement into VIETMSE 2B. VIETMSE 2A with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

VIETMSE 2C. Intermediate Vietnamese. 4 Units.
Designed for students to advance their Vietnamese language skills from introductory to intermediate level. Designed to develop writing and reading skills and communicative skills in authentic situations. Students are introduced to aspects of Vietnamese culture relating to lesson topics.

Prerequisite: VIETMSE 2B or placement into VIETMSE 2C. VIETMSE 2B with a grade of C or better.

Restriction: School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

VIETMSE 10A. Vietnamese Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. VIETMSE 10A is for language mentors.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

VIETMSE 10B. Vietnamese Peer-to-Peer Language Mentor Program. 1 Unit.
Peer-to-Peer Language Mentor Program in which student mentors work with student mentees to increase the language skills of both participants. One hour weekly meetings. VIETMSE 10B is for language mentees.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 4 times.

VIETMSE 150. Vietnamese Literature and Culture in Translation. 4 Units.
Major works in Vietnamese literature and culture in context.

Repeatability: Unlimited as topics vary.

Emphasis in Critical Theory

179 Humanities Instructional Building; 949-824-6720
http://www.hnet.uci.edu/cte/

An emphasis in Critical Theory, under the supervision of the Committee on Critical Theory, is available for doctoral students in all departments at UCI upon approval of the student's faculty advisor or associate dean in accordance with departmental policy. Ph.D. students may, with Committee approval, complete the emphasis in addition to the degree requirements of their graduate program. Although there is no change in the existing Ph.D. program requirements or procedures, if the student wishes to have a letter (signed by the Dean and by the Director of Critical Theory) testifying that the student has satisfactorily added this theoretical dimension to the graduate program, then additional requirements must be met. Critical theory at UCI is understood in the broad sense as the study of the shared assumptions, problems, and commitments of the various discourses in the humanities. The faculty regards critical theory not as an adjunct to the study of one of the traditional humanistic disciplines but as a necessary context for the study of any humanistic discipline.

Admission to the emphasis may be granted by the Critical Theory Committee in response to the student's petition. The petition normally is submitted by the middle of the second year of graduate study, after completion of one Humanities 270 seminar, and upon the recommendation of the Workshop's instructor or a faculty representative of the student's department.

Requirements: (1) a three-quarter Critical Theory Workshop, conducted preferably by a team of instructors, conceived as a reading group, and developed with the input of all participants, where significant texts are discussed and analyzed in class. No term papers are required, and the course is graded Satisfactory/Unsatisfactory only. Students receive credit for this course only in the spring quarter. For the first two quarters, the course is 0 units with IP grading; (2) three HUMAN 270 courses offered under the supervision of the Committee. At least three such courses will be offered each quarter; (3) participation in two mini-seminars (six–eight hours) offered by visiting scholars (and sponsored by the Committee) on the visiting scholar's ongoing research; and (4) a dissertation that reflects the students' preparation in critical theory; alternatively, a research paper written under the guidance of one or more of the Emphasis faculty and submitted to the Director.

Department of Philosophy

85 Humanities Instructional Building; 949-824-6525
http://www.humanities.uci.edu/philosophy/
Sven Bernecker, **Department Chair**

Philosophy addresses itself to questions that arise insistently in every area of human experience and in every discipline within the university. Each discipline inevitably poses problems concerning the nature of the standards appropriate to it and the place of its subject matter within the total framework of human knowledge. If we are to understand science or art or literature, or such human practices as religion and moral thought, we are bound to address ourselves to philosophical issues relating to their nature, the uses of reason appropriate to them, and the contributions they make to our understanding and appreciation of ourselves and the world in which we live.

Careers for the Philosophy Major

The study of argument and the precision and clarity of thought and writing required of Philosophy majors are excellent preparation for a variety of careers. Many undergraduates trained in Philosophy go on to professional schools in medicine, business, or law. The analytical skills developed in Philosophy courses are especially useful in legal education; indeed, many UCI Philosophy graduates have been successful at top law schools. Former Philosophy students have also used their skills to advantage in careers in government, business, teaching, law enforcement, and computer programming. Many Philosophy majors also continue their education at the graduate level, either in philosophy or a related discipline.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center (p. 124) section for additional information.

Undergraduate Program

Instruction in philosophy relies essentially upon discussion in which students are active participants. Wherever possible, therefore, classes are limited in size in order to permit sustained interchanges between students and instructor.

Some of the courses offered are of general interest to all students. Others are designed to explore issues that arise in selected and special disciplines such as art or science. The undergraduate advisor should be consulted for advice about courses best suited to the specialized needs of particular students.

The program of course offerings is also designed for those Philosophy majors whose intention may be either to enter some professional school upon graduation (e.g., law) or to engage in graduate work in philosophy.

The faculty encourages Philosophy majors and minors to seriously consider expanding their perspective through an experience of study abroad. The Study Abroad Center, which includes the University's Education Abroad Program (UCEAP) and the International Opportunities Program (IOP), assists students in taking advantage of many worldwide opportunities for study and research. Specifically, those interested in analytic philosophy could consider the EAP programs in the United Kingdom, Canada, Sweden, Australia, and New Zealand, and those interested in Continental philosophy could consider the EAP programs in France, Germany, and Italy. See the Study Abroad Center section of the *Catalogue* or an academic counselor for additional information.

Requirements for the B.A. Degree in Philosophy

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Departmental Requirements for the Major

A. Select one of the following:

PHILOS 1	Introduction to Philosophy
PHILOS 2	Puzzles and Paradoxes
PHILOS 4	Introduction to Ethics

PHILOS 5	Contemporary Moral Problems
B. Select one of the following:	
PHILOS 30	Introduction to Symbolic Logic
PHILOS 104	Introduction to Logic
C. Select two of the following:	
PHILOS 10	History of Ancient Philosophy
PHILOS 11	History of Medieval Philosophy
PHILOS 12	History of Modern Philosophy
PHILOS 13	History of Contemporary Philosophy
D. Complete:	
PHILOS 101	Introduction to Metaphysics
PHILOS 102	Introduction to the Theory of Knowledge
or	
PHILOS 102W	Introduction to the Theory of Knowledge
PHILOS 103	Introduction to Moral Philosophy
E. Select five of the following: [1]	
PHILOS 100W	Writing Philosophy
PHILOS 105–199	

[1] Students planning to pursue graduate school are strongly advised to take PHILOS 105A and PHILOS 105B.

Residence Requirement: At least five upper-division courses required for the major must be completed successfully at UCI.

Departmental Requirements for the Minor in Philosophy

A. Select three of the following:	
PHILOS 1	Introduction to Philosophy
PHILOS 2	Puzzles and Paradoxes
PHILOS 4	Introduction to Ethics
PHILOS 5	Contemporary Moral Problems
PHILOS 10	History of Ancient Philosophy
PHILOS 11	History of Medieval Philosophy
PHILOS 12	History of Modern Philosophy
PHILOS 13	History of Contemporary Philosophy
PHILOS 22	Introduction to Law and Society
PHILOS 23	Introduction to Problems of Self and Mind
PHILOS 30	Introduction to Symbolic Logic
B. Complete four additional upper-division courses selected from PHILOS 100W–199. (PHILOS 199 may be taken for four units only.)	

Residence Requirement for the Minor: Four upper-division courses must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department chair.

Graduate Program

The Ph.D. program in Philosophy is jointly and cooperatively administered by the Department of Philosophy in the School of Humanities and the Department of Logic and Philosophy of Science (LPS) in the School of Social Sciences. The graduate program has two distinct tracks—the Philosophy track and the LPS track—both of which begin from a common core of shared requirements in history of philosophy, logic, ethics, and metaphysics/epistemology. Students are advised to apply to the track whose faculty, areas of specialization, and curriculum most closely correspond to their interests. The Philosophy track is described here. See the Department of Logic and Philosophy of Science for a description of the LPS track.

UCI's Philosophy Department is committed to providing students a well-rounded graduate education, including central areas of contemporary philosophy and a solid foundation in the history of philosophy. While many of our students choose to specialize in the history of Philosophy or the Continental tradition, areas in which the Department enjoys international recognition, students with other areas of specialization are welcome and well represented. Those with interests in mathematics, the natural sciences, or the social sciences are encouraged to take courses in Logic and Philosophy of Science and to include LPS faculty members on their dissertation committees. The cooperative two-track program provides students the benefits of faculty expertise in a host of areas.

Every year the Philosophy Department invites distinguished philosophers from other universities to present their work to faculty and graduate students. Participation in this colloquium series, though not mandatory, contributes significantly to graduate education. Colloquia sponsored by Logic and Philosophy of Science might also be of interest to Philosophy track students.

Every new graduate student is assigned a faculty member whose purpose is to oversee the student's progress through the major requirements for the advanced degree. The student consults with this faculty member each quarter about progress and any administrative or academic difficulties. Each student's overall record is evaluated by the Philosophy Department each year, customarily during the first two weeks of April. When the student has satisfied the residency requirement and the distribution, tools of research, and portfolio requirements, the Candidacy Committee supervises the qualifying examination and the development of a dissertation project, and the subsequent writing of the dissertation itself. The Chair of this committee is the principal person with whom the graduate student will consult on the dissertation.

Master of Arts in Philosophy

There is no list of courses required for the M.A. degree. The M.A. program in Philosophy takes one year at a minimum. The student may elect to follow either of the following routes to the degree: write a thesis on a subject to be chosen in consultation with an advisor and defend the thesis in an oral examination, or satisfy the logic and portfolio requirements for the Philosophy track. Refer to the Graduate Division section for information on the minimum number of courses required for the M.A. degree.

Advancement to candidacy for the M.A. degree is not automatic, but requires formal application to the Dean of the Graduate Division via the Philosophy Department Office. Application must be made with the recommendation of the Philosophy Department and must take place before the beginning of the quarter in which the student expects to receive the degree.

Doctor of Philosophy in Philosophy

There is no set number of courses required for the Philosophy track, so that work can be tailored to the individual student's needs and interests. However, as a prerequisite for the Ph.D. degree, every student is required to have some experience in teaching.

Normative time to degree in the Philosophy track is seven years for the normally qualified student. Time to advancement to candidacy is four years. Time in candidacy is three years. Maximum time to degree permitted is nine years. A master's degree is not a prerequisite for the Ph.D. The following items are requirements for the Ph.D. degree.

First-Year Seminar. An examination of some standard works in the history of philosophy, value theory, metaphysics, or epistemology required of all first-year Philosophy graduate students in the School of Humanities.

Distribution Requirements. Students are required to take a range of courses designed to expose them to the various historical periods and fields of philosophy. When course offerings are announced, students are notified about which courses can be used to satisfy which requirements. In some cases, the requirement satisfied will ultimately depend on the content of the student's term paper(s).

The Distribution Requirements are:

1. **History.** To satisfy this requirement, students must receive a grade of B or better in at least four courses covering at least three of the following areas: Ancient, Medieval, Modern Empiricism, Modern Rationalism, Kant, Nineteenth Century, and Twentieth Century.
2. **Field.** To satisfy this requirement, students must receive a grade of B or better in two courses in value theory, one course in logic, and two courses in metaphysics/epistemology, broadly construed.

These requirements must be completed by the end of the seventh quarter in residence.

Tools of Research. This requirement allows students to pursue the tool which they and their advisors deem most useful for their area of concentration, either a language other than English or some course of study outside philosophy. To satisfy this requirement, a student must pass an examination in a single appropriate language other than English or receive a grade of B or better in each of three appropriate graduate-level courses in a discipline other than philosophy.

The two-hour foreign language examination (administered by the Philosophy Department) requires students to translate, with the aid of a dictionary, passages from one or two philosophical authors. For the second option, courses of study outside philosophy will be approved (by the Philosophy Department Director of Graduate Studies) when they bear on a student's area of philosophical concentration. Though the courses must be in a discipline other than philosophy, they may in fact be taught in the Philosophy Department or the LPS Program (e.g., a course in mathematical logic taught by an LPS faculty member).

This requirement must be completed by the end of the twelfth quarter in residence.

The Portfolio. A portfolio of at least two papers is an extended writing sample designed to demonstrate a student's ability (a) to understand, analyze, and evaluate positions and arguments in the philosophical literature, and (b) to formulate and defend an original philosophical thesis. These virtues must be displayed at a level of sophistication that indicates the student's ability to write a Ph.D. dissertation.

The portfolio must be submitted to the Graduate Coordinator at the end of the fifth week of the student's sixth quarter in residence. Portfolios will be evaluated by the entire faculty of the Philosophy Department. (Philosophy track students may request that relevant LPS faculty also be present at the evaluation meeting.)

Prospectus Examination. In preparation for the prospectus examination, students choose a dissertation advisor and a dissertation committee. They consult with their thesis advisor and other appropriate faculty to prepare a reading list on their area of concentration and a brief dissertation proposal with a comprehensive bibliography. The exam is an oral exam and must be completed by the end of the ninth quarter in residence. The prospectus exam is to determine whether the dissertation project is viable and promises results that will fulfill standards expected for a dissertation in the profession.

Candidacy Examination. In preparation for the candidacy examination, students prepare at least a draft chapter of their dissertation, an outline of the organization of the work, and update their prospectus and bibliography in consultation with their dissertation advisor and their dissertation committee. Students apply for candidacy by filing appropriate forms, including a list (devised in consultation with their advisor) of appropriate members for their Candidacy Committee; one of these, the External Examiner, must come from outside the Department of Philosophy. The Committee is then appointed by the Philosophy Department, on behalf of the Dean of the Graduate Division and the Graduate Council, to administer the oral candidacy examination on the prospectus and draft chapter(s) to determine whether or not the student will be approved to continue work on the dissertation.

The Candidacy Examination must be completed by the end of the twelfth quarter in residence. The Philosophy Department Chair, on behalf of the Dean of the Graduate Division and the Graduate Council, then appoints a Doctoral Committee (typically taken from the Candidacy Committee and naturally including the dissertation advisor) to supervise the writing of the dissertation.

Dissertation Defense. Students must defend their dissertation during an oral examination administered by their Doctoral Committee.

Program in Law and Graduate Studies (J.D./Ph.D.). Highly qualified students interested in combining the study of Law with graduate qualifications in Philosophy are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students in this program pursue a coordinated curriculum, leading to a J.D. degree from the School of Law in conjunction with a Ph.D. degree in Philosophy. Students must be admitted to both programs separately in order to pursue the concurrent Program in Law and Graduate Studies. Students admitted to the Program in Law and Graduate Studies have to complete all of the requirements of each degree. The normative time for completion of the Program in Law and Graduate Studies is eight years for the J.D./Ph.D. combination. Additional information is available from PLGS Director's office, (949) 824-4158, or by e-mail to plgs@law.uci.edu. A full description of the program, with links to all relevant application information, can be found at the School of Law Concurrent Degree Programs (http://www.law.uci.edu/plgs) website.

The Salzburg Exchange Program

The Department of Philosophy and the Department of Logic and Philosophy of Science jointly administer an Exchange Program with the University of Salzburg. The program has two parts. The Scholarly Exchange provides opportunities for faculty and graduate students in Philosophy and LPS to visit Salzburg and for faculty and graduate students from Salzburg to visit one or the other of the UCI units. The Program also sponsors joint conferences, held alternately in Irvine and in Salzburg; these are co-sponsored by Salzburg and the UCI Interdisciplinary Program in the History and Philosophy of Science.

To be eligible for the Salzburg Exchange, a graduate student must have advanced to candidacy. The selected student spends one semester in Salzburg, usually teaching one course in the general area of the thesis topic. An upper-division course may be taught in English, but lower-division courses must be taught in German. (Some previous visitors have learned serviceable German by attending a Goethe institute during the preceding summer.) Typically, a Salzburg visitor will receive a Salzburg Fellowship intended to cover travel expenses, and a stipend; those who teach while in Salzburg will also receive a salary intended to cover living expenses (including health and dental insurance).

Application should be made to the Philosophy Department's Salzburg Exchange Director by November 1 and should include a curriculum vita and syllabi for possible courses to be taught. The Director and/or the Philosophy Department Graduate Coordinator should be consulted for further information.

Optional Emphasis in Critical Theory

The School of Humanities offers an emphasis in Critical Theory that can be appended to the Philosophy track. A student interested in the emphasis begins by taking the three-quarter Critical Theory Workshop. With the recommendation of a workshop instructor or a Critical Theory faculty member in the Philosophy Department, the student may then apply to the Critical Theory Committee for admission to the emphasis. Emphasis students must complete the following requirements in addition to the usual Philosophy track requirements.

The Critical Theory Workshop. Students must successfully complete the three-quarter Critical Theory Workshop. This sequence is conceived as a reading group, normally conducted by a team of instructors, and developed with the input of all participants. Significant texts are discussed and analyzed in class; no term papers are required. (Students receive 0 units and In-progress grades for the fall and winter quarters; passing students receive 4 units and a Satisfactory grade for the spring quarter.

Advanced Critical Theory Requirement. Students must receive a grade of B or better in three HUMAN 270 courses offered under the supervision of the Critical Theory Committee. At least three such courses will be offered each year. With the approval of the Philosophy Department, these courses can be used to satisfy the tools of research requirement.

Mini-Seminar Requirement. Students must participate in two committee-sponsored mini-seminars (six–eight hours each) offered by visiting scholars on their ongoing research.

Research Paper Requirement. Students must complete a research paper under the guidance of a three-member committee, selected in consultation with the Director; at least one member must be from outside of the Philosophy Department. This paper may (but need not) be part of the portfolio or dissertation.

Upon completion of the emphasis requirements, a letter certifying that fact, signed by the Dean of Humanities and the Director of the Critical Theory Emphasis, will be added to the student's dossier.

Optional Emphasis in Feminist Studies

A graduate emphasis in Feminist Studies also is available. Refer to the Gender and Sexuality Studies (p. 893) section of the *Catalogue* for information.

Faculty

Jeffrey A. Barrett, Ph.D. Columbia University, *Professor of Logic and Philosophy of Science; Philosophy*

Ermanno Bencivenga, Ph.D. University of Toronto, *Professor of Philosophy; Humanities*

Sven D. Bernecker, Ph.D. Stanford University, *Professor of Philosophy*

Marcello Fiocco, Ph.D. University of California, Santa Barbara, *Associate Professor of Philosophy*

Margaret P. Gilbert, Ph.D. Oxford University, *Abraham I. Melden Chair in Moral Philosophy* and *Professor of Philosophy*

Sean Greenberg, Ph.D. Harvard University, *Associate Professor of Philosophy*

Jeremy Heis, Ph.D. University of Pittsburgh, *Associate Professor of Logic and Philosophy of Science; Philosophy*

Jeffrey S. Helmreich, Ph.D. University of California, Los Angeles, *Assistant Professor of Philosophy; School of Law*

Aaron J. James, Ph.D. Harvard University, *Professor of Philosophy*

Stephen N. Jolley, Ph.D. Cambridge University, *Professor Emeritus of Philosophy*

Bonnie D. Kent, Ph.D. Columbia University, *Professor of Philosophy*

Joseph F. Lambert, Ph.D. Michigan State University, *Professor Emeritus of Philosophy*

Penelope J. Maddy, Ph.D. Princeton University, *UCI Distinguished Professor of Logic and Philosophy of Science; Mathematics; Philosophy* (philosophy of mathematics and logic, meta-philosophy)

Alan Nelson, Ph.D. University of Illinois at Chicago, *Professor Emeritus of Philosophy*

Casey C. Perin, Ph.D. University of California, Berkeley, *Associate Professor of Philosophy*

Gerasimos X. Santas, Ph.D. Cornell University, *Professor Emeritus of Philosophy*

Martin Schwab, Ph.D. Heidelberg University, *Professor Emeritus of Philosophy; Comparative Literature; European Languages and Studies* (philosophy and aesthetics)

Brian Skyrms, Ph.D. University of Pittsburgh, *UCI Distinguished Professor of Logic and Philosophy of Science; Economics; Philosophy*

David W. Smith, Ph.D. Stanford University, *Professor of Philosophy*

P. Kyle Stanford, Ph.D. University of California, San Diego, *Professor of Logic and Philosophy of Science; Philosophy*

Kai Wehmeier, Ph.D. University of Münster, *Director, Center for the Advancement of Logic, its Philosophy, History, and Applications and Professor of Logic and Philosophy of Science; Philosophy*

Nicholas P. White, Ph.D. Harvard University, *Professor Emeritus of Philosophy* (Greek philosophy, ethics, epistemology)

Peter W. Woodruff, Ph.D. University of Pittsburgh, *Professor Emeritus of Philosophy*

Courses

PHILOS 1. Introduction to Philosophy. 4 Units.
A selection of philosophical problems, concepts, and methods, e.g., free will and cause and substance, personal identity, the nature of philosophy itself.

(IV)

PHILOS 2. Puzzles and Paradoxes. 4 Units.
Introduction to the formal tools needed to comprehend and evaluate philosophical arguments and theoretical reasoning in general.

(IV, Vb)

PHILOS 4. Introduction to Ethics. 4 Units.
Selected topics from the history of ethics, e.g., the nature of the good life and the moral justification of conduct.

(IV)

PHILOS 5. Contemporary Moral Problems. 4 Units.
Selected moral issues of current interest, e.g., abortion, sexual morality, euthanasia, capital punishment, reverse discrimination, civil disobedience, or violence.

(IV)

PHILOS 6. Philosophy and Psychoanalysis. 4 Units.
An analysis of Freudian psychoanalytic theory and therapy, and its significance for such classical philosophical problems such as the mind-body problem, self-identity and self-deception, psyche and consciousness, innatism, and the origins of moral behavior.

(IV)

PHILOS 7. Introduction to Existentialism. 4 Units.
An analysis of themes in phenomenology and existentialism and their philosophical origins, e.g., consciousness, self and other, freedom and individuality.

(IV)

PHILOS 9. Feminist Moral and Political Philosophy. 4 Units.
Selected topics in moral and political philosophy analyzed from feminist perspectives, e.g., gender-based differences in moral attitudes and virtues, hidden in traditional accounts of political obligation, and feminism and sexual orientation.

Prerequisite: Recommended: PHILOS 4.

(IV)

PHILOS 10. History of Ancient Philosophy. 4 Units.
Examination of the central philosophical themes developed by the pre-Socratics, Socrates, Plato, Aristotle, the Stoics, the Epicureans, and the Skeptics.

(IV)

PHILOS 11. History of Medieval Philosophy. 4 Units.
A study of some of the major theological and philosophical texts from the Medieval period.

Prerequisite: Recommended: PHILOS 10.

(IV)

PHILOS 12. History of Modern Philosophy. 4 Units.
A study of major developments in western philosophy from Descartes to Kant with readings from Descartes, Leibniz, Locke, Berkeley, Hume, and Kant.

Prerequisite: Recommended: PHILOS 10 or PHILOS 11.

(IV)

PHILOS 13. History of Contemporary Philosophy. 4 Units.
A study of recent philosophical developments in Anglo-American and Continental philosophy with readings from such figures as Russell, Moore, Wittgenstein, Quine, Heidegger, and Sartre.

Prerequisite: Recommended: PHILOS 12.

(IV)

PHILOS 22. Introduction to Law and Society. 4 Units.
What constitutes a legal system? What does it mean for a society to have a system as a part of the social fabric. Examines the social status of law and its use as a tool for fashioning society.

(III)

PHILOS 23. Introduction to Problems of Self and Mind. 4 Units.
Study of basic problems in metaphysics: What am I? A mind, a soul, a body? A social being? A bioorganism? Am I the same person today, yesterday, and tomorrow? Is there a story of my life that captures my essence?.

(IV)

PHILOS 29. Critical Reasoning. 4 Units.
Introduction to analysis and reasoning. The concepts of argument, premise, and conclusion, validity and invalidity, consistency and inconsistency. Identifying and assessing premises and inferences. Deductive versus inductive reasoning, and introduction to the probability calculus. Evaluating definitions. Informal fallacies.

Same as LPS 29.

(II, Vb)

PHILOS 30. Introduction to Symbolic Logic. 4 Units.
An introduction to the symbolism and methods of the logic of statements, including evaluation of arguments by truth tables, the techniques of natural deduction and semantic tableaux.

Same as LPS 30.

(Vb)

PHILOS 31. Introduction to Inductive Logic. 4 Units.
Philosophical questions concerning the foundations of scientific inference, e.g., the traditional problem of induction, the Goodman paradox, the concept of cause, Mill's method of inductive reasoning, probability calculus, different interpretations of probability, and their interaction in inductive reasoning.

Same as LPS 31.

(II, Va)

PHILOS 40. Special Topics in Philosophy. 4 Units.
Lectures on selected topics at the lower-division level.

Repeatability: Unlimited as topics vary.

PHILOS 100W. Writing Philosophy. 4 Units.
Discussion of those aspects of writing of special importance in philosophy, e.g., philosophical terminology, techniques for evaluating arguments, philosophical definitions and theories. At least 4,000 words of assigned composition based on philosophical readings.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as LPS 100W.

Restriction: Upper-division students only.

(Ib)

PHILOS 101. Introduction to Metaphysics. 4 Units.
A study of one or more of the problems of "first philosophy," e.g., substance, free will, causation, abstract entities, identity.

PHILOS 102. Introduction to the Theory of Knowledge. 4 Units.
A study of one or more of the basic issues in epistemology, e.g., the role of perception in the acquisition of knowledge, the nature of evidence, the distinction between belief and knowledge, and the nature of truth and certainty.

Same as LPS 102.

PHILOS 102W. Introduction to the Theory of Knowledge. 4 Units.
A study of one or more of the basic issues in epistemology, e.g., the role of perception in the acquisition of knowledge, the nature of evidence, the distinction between belief and knowledge, and the nature of truth and certainty.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Overlaps with PHILOS 102, LPS 102.

(Ib)

PHILOS 103. Introduction to Moral Philosophy. 4 Units.
A study of one or more of the problems of contemporary moral philosophy, e.g., the nature of justice, liberalism versus conservatism, happiness and its relation to virtue and right conduct, the objectivity of moral standards.

PHILOS 104. Introduction to Logic. 4 Units.
Introduction to sentence logic, including truth tables and natural deduction; and to predicate logic, including semantics and natural deduction.

Same as LPS 104.

PHILOS 105A. Elementary Set Theory. 4 Units.
An introduction to the basic working vocabulary of mathematical reasoning. Topics include: sets, Boolean operations, ordered n-tuples, relations, functions, ordinal and cardinal numbers.

Same as LPS 105A.

PHILOS 105B. Metalogic. 4 Units.
Introduction to formal syntax (proof theory) and semantics (model theory) for first-order logic, including the deduction, completeness, compactness, and Löewenheim-Skolem theorems.

Prerequisite: PHILOS 105A.

Same as LPS 105B.
Overlaps with MATH 150.

PHILOS 105C. Undecidability and Incompleteness. 4 Units.
Introduction to the formal theory of effective processes, including recursive functions, Turing machines, Church's thesis, and proofs of Göedel's incompleteness theorem for arithmetic, and Church's undecidability theorem for first-order logic.

Prerequisite: PHILOS 105B.

Same as LPS 105C.
Overlaps with MATH 152.

PHILOS 106. Topics in Logic . 4 Units.
Selected topics in mathematical or philosophical logic.

Prerequisite: LPS 105B or PHILOS 105B.

Repeatability: Unlimited as topics vary.

Same as LPS 106.

PHILOS 108. Topics in Induction, Probability, and Decision Theory. 4 Units.
Selected topics in induction, probability, and decision theory.

Repeatability: Unlimited as topics vary.

Same as LPS 108.

PHILOS 110. Topics in Ancient Philosophy. 4 Units.
Selected topics from the writings of Plato and Aristotle, e.g., Aristotle's criticisms of Plato's metaphysics, ethics, or politics.

Repeatability: May be taken for credit 2 times as topics vary.

PHILOS 111. Topics in Medieval Philosophy. 4 Units.
Studies of some of the major issues of concern to Medieval philosophers, e.g., universals, the nature and existence of God, faith, and reason.

Repeatability: May be taken for credit 2 times as topics vary.

PHILOS 113. Topics in Modern Philosophy. 4 Units.
Focuses on the works of central philosophical figures of modern Philosophy (e.g., Descartes, Leibniz, Hobbes, Locke, Hume, Kant) or on the treatment of one or more central philosophical problems by a number of these figures.

Repeatability: Unlimited as topics vary.

Same as LPS 113.

PHILOS 114. Topics in Nineteenth-Century Philosophy. 4 Units.
Studies of some of the major figures after Kant (e.g., Hegel, Nietzsche, Marx, Kierkegaard), especially in German idealism and social thought.

Repeatability: Unlimited as topics vary.

PHILOS 115. Topics in History of Analytic Philosophy. 4 Units.
Review of central theories or figures in the history of analytic philosophy. Emphasis on writings of Frege, Russell, Schlick, Carnap, and Quine. Topics include the nature of meaning and truth, the synthetic/analytic distinction, and scientific knowledge.

Repeatability: Unlimited as topics vary.

Same as LPS 115.

PHILOS 116. Topics in Continental Philosophy. 4 Units.
Studies of some of the major figures (e.g., Husserl), movements (e.g., phenomenology, existentialism) in early twentieth-century continental European thought.

Repeatability: Unlimited as topics vary.

PHILOS 120. Topics in Metaphysics. 4 Units.
Examines central philosophical questions concerning our own fundamental nature and that of the world around us (e.g., causation and necessity, determination, free will, personal identity, the mind-body problem).

Repeatability: Unlimited as topics vary.

Same as LPS 120.

PHILOS 121. Topics in the Theory of Knowledge . 4 Units.
One or more topics in the theory of knowledge, e.g., the nature of rational justification, of perceptual knowledge, of a priori knowledge.

Repeatability: Unlimited as topics vary.

Same as LPS 121.

PHILOS 122. Topics in Philosophy of Mind. 4 Units.
Selected topics involving the concept of mind, e.g., the relation between mind and body, the self, personal identity, consciousness, the unconscious.

Repeatability: Unlimited as topics vary.

PHILOS 123. Topics in Philosophy of Religion. 4 Units.
Critical examination of concepts involved in the theological literature, e.g., the nature and existence of God, miracles, the problem of evil, divine command theories in ethics.

Repeatability: Unlimited as topics vary.

PHILOS 130. Topics in Moral Philosophy. 4 Units.
Selected topics in ethics.

Repeatability: Unlimited as topics vary.

PHILOS 131A. Applied Ethics. 4 Units.
Topics may include capital punishment, world hunger, obligations to future generations, environmental ethics, animal rights, economic justice, sexual morality, affirmative action, racism and sexism, or legalization of drugs.

PHILOS 131C. Medical Ethics. 4 Units.
Analysis of moral issues concerning health care. Topics may include: just allocation of scarce medical resources, the doctor/patient relationship, genetic engineering, surrogate motherhood, abortion, euthanasia, or social policy concerning AIDS.

PHILOS 132. Topics in Political and Social Philosophy. 4 Units.
Selected topics in social and political philosophy, e.g., the functions of government, the justification of political authority, the nature of democracy, the varieties of liberty, and social justice. Readings from classical and contemporary sources.

Repeatability: Unlimited as topics vary.

PHILOS 133. Topics in Philosophy of Law. 4 Units.
Selected topics concerning legal systems and the concept of law, e.g., the nature and purpose of law, the nature of authority, the relationship between law and morality, law and political-economic systems.

Repeatability: Unlimited as topics vary.

PHILOS 140. Topics in Philosophy of Science. 4 Units.
Selected topics in contemporary philosophy of science, e.g., the status of theoretical entities, the confirmation of theories, the nature of scientific explanation.

Repeatability: Unlimited as topics vary.

Same as LPS 140.

PHILOS 141A. Topics in Philosophy of Physics. 4 Units.
Selected topics in the philosophy of physics, e.g., the interpretation of quantum mechanics, the nature of spacetime, the problem of quantum field theories.

Repeatability: Unlimited as topics vary.

Same as LPS 141A.

PHILOS 141B. Geometry and Spacetime. 4 Units.
An examination of the foundations of the special theory of relativity, with emphasis on the geometry of Minkowski spacetime, and its relation to both Euclidean and non-Euclidean (hyperbolic) plane geometries.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

Same as LPS 141B.

PHILOS 141C. Philosophy of Quantum Mechanics. 4 Units.
An examination of the standard von Neumann-Dirac formulation of quantum mechanics. The quantum measurement problem is discussed along with several proposed solutions, including GRW, many-worlds, man-minds, and Bohm's theory.

Same as LPS 141C.

PHILOS 141D. Probability and Determinism. 4 Units.
An examination of a cluster of interrelated issues concerning probability, determinism, logic, and the foundations of quantum mechanics.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

Same as LPS 141D.

PHILOS 142W. Writing/Philosophy of Biology. 4 Units.
Philosophy of biology, e.g., scientific method in biology, the structure of evolutionary theory, teleology, ethics, and evolution. Course work includes one 4,000-word and four 1,000-word papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as LPS 142W, BIO SCI E142W.

Restriction: Juniors only.

(Ib)

PHILOS 143. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as LPS 143, PSYCH 123P.

Restriction: Psychology and Philosophy majors have first consideration for enrollment.

PHILOS 144. Topics in Philosophy of Social Science. 4 Units.
Selected topics in the philosophy of the social sciences, e.g., is their goal to understand behavior or to predict and control it?; are they normative and the natural sciences not?; do they incorporate philosophical doctrines about language and mind?.

Repeatability: Unlimited as topics vary.

Same as LPS 144.

PHILOS 145. Topics in Philosophy of Language. 4 Units.
Selected topics in the philosophy of language, e.g., the nature of meaning, mechanisms of reference, speech acts.

Repeatability: Unlimited as topics vary.

Same as LPS 145, LINGUIS 141.

PHILOS 146. Topics in Philosophy of Logic. 4 Units.
Selected topics in the philosophy of logic, e.g., the nature of logical truth and our knowledge of it, the status of propositions, definite descriptions, and existential presuppositions.

Repeatability: Unlimited as topics vary.

Same as LPS 146.

PHILOS 147. Topics in Philosophy of Mathematics. 4 Units.
Selected historical and contemporary topics in the philosophy of mathematics, e.g., mathematical truth and ontology, mathematical knowledge, the nature and role of proof, the workings of mathematics in application.

Repeatability: Unlimited as topics vary.

Same as LPS 147.

PHILOS 150. Phenomenology . 4 Units.
A study of the foundations of phenomenology in Husserl and its background in Bolzano, Frege, Brentano, Meinong, Kant, and Descartes.

PHILOS 151. Existentialism. 4 Units.
A study of such central existentialist thinkers as Heidegger and Sartre.

Prerequisite: Recommended: PHILOS 7 or PHILOS 150.

PHILOS 190. Special Topics in Philosophy. 4 Units.
Lectures on selected topics to be given by regular faculty and visiting faculty.

Repeatability: Unlimited as topics vary.

PHILOS 199. Directed Special Studies. 2-4 Units.
Independent study on a research topic supervised by a faculty member.

Repeatability: May be repeated for credit unlimited times.

PHILOS 200. Special Topics in Philosophy. 4 Units.
Seminars on selected topics to be given by regular faculty and visiting faculty.

Repeatability: Unlimited as topics vary.

PHILOS 201. First-Year Seminar. 4 Units.
An examination of some standard works in the history of philosophy, value theory, metaphysics, or epistemology; required of all first-year Philosophy graduate students in the School of Humanities.

Repeatability: May be taken for credit 2 times.

Restriction: Philosophy graduate students and Logic & Philosophy of Science graduate students only.

PHILOS 205A. Set Theory. 4 Units.
The basic working vocabulary of mathematical reasoning. Topics include: sets, Boolean operations, ordered n-tuples, relations, functions, ordinal and cardinal numbers.

Same as LPS 205A.

PHILOS 205B. Metalogic. 4 Units.
Formal syntax (proof theory) and semantics (model theory) for first-order logic, including the deduction, completeness, compactness, and Loewenheim-Skolem theorems.

Prerequisite: PHILOS 205A or LPS 205A.

Same as LPS 205B.

PHILOS 205C. Undecidability and Incompleteness. 4 Units.
Formal theory of effective processes, including recursive function, Turing machines, Church's thesis, and proofs of Goedel's incompleteness theorem for arithmetics, and Church's undecidability for first-order logic.

Prerequisite: PHILOS 205B or LPS 205B.

Same as LPS 205C.

PHILOS 206. Topics in Logic . 4 Units.
Studies in selected areas of logic. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 206.

PHILOS 210. Topics in Ancient Philosophy. 4 Units.
Studies in selected areas of ancient philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 211. Topics in Medieval Philosophy. 4 Units.
Studies in selected areas of medieval philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 212. Topics in Renaissance Philosophy. 4 Units.
Studies in selected areas of renaissance philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 213. Topics in Modern Philosophy. 4 Units.
Studies in selected areas of modern philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 213.

PHILOS 214. Topics in Nineteenth-Century Philosophy. 4 Units.
Studies in selected areas of nineteenth-century philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 215. Topics in Analytic Philosophy. 4 Units.
Studies in selected areas of analytic philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 215.

PHILOS 216. Topics in Continental Philosophy. 4 Units.
Studies in selected areas of continental philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 218. Topics in Contemporary Philosophy. 4 Units.
Studies in selected areas of contemporary philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 220. Topics in Metaphysics. 4 Units.
Studies in selected areas of metaphysics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 220.

PHILOS 221. Topics in Epistemology. 4 Units.
Studies in selected areas of epistemology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 221.

PHILOS 222. Topics in Mind and Action. 4 Units.
Studies in selected areas of mind and action. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 230. Topics in Ethics . 4 Units.
Studies in selected areas of ethics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 232. Topics in Political and Social Philosophy. 4 Units.
Studies in selected areas of political and social philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 232.

PHILOS 234. Topics in Aesthetics . 4 Units.
Studies in selected areas of aesthetics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 240. Topics in Philosophy of Science. 4 Units.
Studies in selected areas of philosophy of science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 240.

PHILOS 241. Topics in Philosophy of Physics. 4 Units.
Studies in selected areas of philosophy of physics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 241.

PHILOS 243. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as LPS 243, PSYCH 231P.

PHILOS 244. Topics in Philosophy of Social Science. 4 Units.
Studies in selected areas of philosophy and social science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 244.

PHILOS 245. Topics in Philosophy of Language. 4 Units.
Studies in selected areas of philosophy of language. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 245.

PHILOS 246. Topics in Philosophy of Logic. 4 Units.
Studies in selected areas of philosophy of logic. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 246.

PHILOS 247. Topics in Philosophy of Mathematics. 4 Units.
Studies in selected areas of philosophy of mathematics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as LPS 247.

PHILOS 250. Topics in Existentialism and Phenomenology. 4 Units.
Studies in selected areas of existentialism and phenomenology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

PHILOS 298. Independent Study. 4-12 Units.
Independent research with Philosophy faculty.

Repeatability: May be repeated for credit unlimited times.

PHILOS 299. Directed Research. 4-12 Units.
Directed research with Philosophy faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Humanities graduate students only.

PHILOS 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Humanities graduate students only.

Undergraduate Program in Religious Studies

400 Murray Krieger Hall; 949-824-6735
http://www.humanities.uci.edu/religious_studies/

Jack Miles, **Director**

Undergraduate Program

Religious Studies includes an interdisciplinary major and minor that focus on the comparative understanding of the various ways different peoples, across space and through time, have developed their religious ideas, values, systems, beliefs, rituals, and traditions in response to fundamental questions of human existence. The curriculum seeks to provide a wide-ranging academic understanding and knowledge of the religious experience in society through study in the Schools of Humanities, Social Sciences, and Social Ecology, and the Claire Trevor School of the Arts. As an interdisciplinary academic discipline, the study of religion offers a rigorous, systematic, and dispassionate intellectual inquiry into various aspects of religious systems, their practitioners and outlooks, and their goals and expressions. It employs a wide variety of approaches and methods in order to understand the role of religion in both human experience and thought.

Students in the Religious Studies major complete an emphasis in either Judaism/Christianity/Islam or in World Religious Traditions.

Careers for the Religious Studies Major

Majoring in Religious Studies is an excellent preparation for living in a multicultural society and for a variety of careers in counseling, teaching, commerce, writing, government, the arts, and professional religious leadership. The major's emphasis on broad understanding, critical thinking skills, and clear written expression provides an effective springboard for graduate study in the humanities and social science or professional schools in medicine, law, or business.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center (p. 124) section for additional information.

Requirements for the B.A. Degree in Religious Studies

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

Requirements for the Major

A. Complete:	
REL STD 5A	World Religions I
REL STD 5B	World Religions II
REL STD 5C	Religious Dialogue
REL STD 110	Thinking about Religion: Theories and Methodologies
B. Select six upper-division electives, two in each of the following categories: [1]	
1. Judaism/Christianity/Islam	
2. World Religious Traditions	
3. Thematic Approaches to Religion	
C. Completion of an emphasis in either Judaism/Christianity/Islam or in World Religious Traditions: select two additional upper-division courses from either category 1 or 2 above.	

[1] Selected from the approved lists published on the Religious Studies (http://www.humanities.uci.edu/religious_studies) website. For examples of approved courses, see below. One relevant lower-division course may be substituted for an upper-division course, with prior approval.

Studying Abroad: Students are encouraged to study abroad and may be able to satisfy a significant portion of their requirements abroad. Courses taken abroad must be approved by the Director of Religious Studies in order to be applied toward major requirements.

Residence Requirement for the Major: A minimum of five upper-division courses required for the major must be completed successfully at UCI.

Requirements for the Minor

REL STD 5A	World Religions I
REL STD 5B	World Religions II
REL STD 5C	Religious Dialogue
REL STD 110	Thinking about Religion: Theories and Methodologies
Four upper-division electives selected from the three categories under B above, including at least one course from both categories 1 and 2. Two of the four courses must be outside of the student's major. One relevant lower-division course may be substituted for an upper-division course, with prior approval.	

Residence Requirement for the Minor: Four upper-division courses required for the minor must be completed successfully at UCI. Two of the four may be taken through the UC Education Abroad Program, provided course content is approved by the Director of the Religious Studies program.

Categories and Approved Courses

The complete list of approved courses varies from quarter to quarter, depending upon course scheduling. For complete up-to-date information on approved courses, please consult the Religious Studies (http://www.humanities.uci.edu/religious_studies) website.

Courses

REL STD 5A. World Religions I. 4 Units.
An introduction to the history, doctrine, culture, and writing of the three "religions of Abraham": Judaism, Christianity, and Islam.

Same as HISTORY 16A.

(IV, VIII)

REL STD 5B. World Religions II. 4 Units.
An introduction to various religious traditions in selected areas of the world—including India and South Asia, East Asia, Africa, and the Americas.

Same as HISTORY 16B.

(IV, VIII)

REL STD 5C. Religious Dialogue. 4 Units.
Lectures and discussion on controversial topics in religion: sexual morality; religious violence; science; treatment of women and girls; religious truth, American Constitutional matters; secularization; the future of religion, and other topics.

Same as HISTORY 16C.

(IV, VIII)

REL STD 17. An Economic Approach to Religion. 4 Units.
Introduction to how basic economic concepts such as demand, supply, consumption, production, competition, free-riding, innovation, regulation, and rent-seeking can be applied to understand observed religious behavior.

Same as ECON 17.

(III)

REL STD 21. Philosophy and Religion. 4 Units.
Examines the intersection of religion and philosophy from a standpoint that does not presuppose previous academic study of either. Both Western and Eastern traditions and perspectives may be explored.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 56. Society and Religion. 4 Units.
A critical and personal examination of the varieties of religious and spiritual experience human beings are undergoing in contemporary society. The role of conscious understanding and unconscious conditioning regarding religion and spirituality.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 60. Gender and Religion. 4 Units.
A presentation in selected issues in the study of gender and religion.

Repeatability: May be taken for credit 3 times as topics vary.

(III, VIII)

REL STD 90. Aspects of Religion. 4 Units.
A presentation of selected issues in the study of religion.

Repeatability: May be taken for credit 3 times as topics vary.

(IV)

REL STD 91. Aspects of Asian Religions. 4 Units.
A survey course of a specific Asian religious tradition such as Hinduism, Buddhism, Taoism, Confucianism, or Shinto in its manifestation in Asia or in its transmission to the Americas.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 100. Topics in the Study of Religion. 4 Units.
The intersection of religious belief and practices with selected subjects of continuing interest.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 103. Topics in the Philosophy of Religion. 4 Units.
Critical examination of philosophical concepts in religious scripture and theology, e.g., the nature and existence of God, miracles, the problem of evil, divine command theories in ethics. May include both Eastern and Western religious traditions.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 106. Topics in Gender and Religion. 4 Units.
Critical examination of how religious beliefs and practices have shaped (and been shaped by) attitudes toward gender and sexuality in modern and/or premodern society.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 110. Thinking about Religion: Theories and Methodologies. 4 Units.
A survey and investigation of the major thinkers, theories, and methodologies in the study of religions. Designed to develop the student's ability to analyze and articulate theoretical arguments; includes a paper on relevant Religious Studies topics.

Prerequisite: REL STD 5A and REL STD 5B and REL STD 5C.

Restriction: Religious Studies Majors only.

REL STD 112B. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.

Same as SOC SCI 130B, PSYCH 172S, LPS 140B.

REL STD 115. Religion and World Politics. 4 Units.
Examines the relationship between religion and world politics historically and today, focusing on connections with peace/war, democracy, human rights, secularism(s), and globalization. Covers major debates, scholarship, concepts, and theories through class exercises, exams, and essays.

Prerequisite: POL SCI 41A or INTL ST 11 or INTL ST 12 or REL STD 5A or REL STD 5B or REL STD 5C.

Same as POL SCI 146B, INTL ST 151B.

REL STD 120. Asian Religious Traditions. 4 Units.
Studies involving (but not limited to) Hinduism, Buddhism, Confucianism, Taoism, Shinto and Shamanism, including both elite and doctrinal aspects and forms of more popular religiosity.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 130. Jewish, Islamic, and Middle Eastern Religious Traditions. 4 Units.
Character and evolution of Egyptian, Jewish, Zoroastrian, Muslim, and other religious communities of the region from their formative periods to the present era.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 131A. History of Zoroastrianism. 4 Units.
Reviews major trends in the history of Zoroastrianism.

Same as HISTORY 131A.

REL STD 140. Early Western Religious Traditions. 4 Units.
Religious perspectives of the Mediterranean and European regions from the earliest times to approximately 1500 C.E.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 141. Recent Western Religious Traditions. 4 Units.
Studies related to Catholic, Protestant, and Orthodox Christianity as well as alternative belief systems in Europe of the early modern and modern eras.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 150. Religion in the Americas. 4 Units.
Religious belief and social context in North and South America from the earliest human societies to the present.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 160. Diaspora Religions. 4 Units.
Examination of what happens to belief and practice as religious communities are scattered geographically.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 170. Comparative Studies in Religion. 4 Units.
Systematic comparisons of different religious and quasi-religious traditions, their beliefs and practices.

Repeatability: May be taken for credit 3 times as topics vary.

REL STD 190. Senior Colloquium. 4 Units.
Reading and group discussion of selected texts under the direction of an instructor. Paper required.

Repeatability: May be taken for credit 3 times as topics vary.

Restriction: A minimum of two students must enroll.

REL STD 199. Independent Study. 1-4 Units.
Directed reading and research in consultation with a faculty member. Substantial written work required.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

Department of Spanish and Portuguese

322 Humanities Hall; 949-824-6901
http://www.humanities.uci.edu/spanishandportuguese/
Luis F. Avilés, **Department Chair**

The Department of Spanish and Portuguese offers programs of study leading to the B.A. degree in Spanish with emphases in Literature and Culture, Spanish for Future Teachers, and Cinema: Spain, Latin America, and U.S. Latino; and the M.A. and Ph.D. degrees in Spanish with specializations in Spanish, Latin American, and Chicano/Latino Literatures and Cultures.

While members of the faculty are recognized nationally and internationally for their research, creative writing, and contributions to the academic profession, one of the Department's highest priorities is to maintain teaching excellence. The Department’s goal is to provide students with a level-specific, solid education in the diverse fields of study that are offered. Many of the undergraduate and graduate courses reflect the faculty's interest in bringing together historical, critical-theoretical, and interdisciplinary perspectives in the study of literature and other cultural artifacts such as film. At the graduate level, students are encouraged to take courses in other UCI programs such as, for example, Women's Studies, the Critical Theory Emphasis, Comparative Literature, and Film and Media Studies.

Undergraduate Program

Beginning Spanish Language Courses

The beginning and intermediate Spanish language curriculum consists of six courses: SPANISH 1A-SPANISH 1B-SPANISH 1C and SPANISH 2A-SPANISH 2B-SPANISH 2C. This series is designed to teach students the four fundamental linguistic skills: speaking, understanding, reading, and writing Spanish. Using the Communicative Approach, these foundation courses have the objective to provide foreign language skills that facilitate successful transitioning into more advanced Spanish. At the same time, these beginning Spanish classes are an excellent portal for study abroad, be that in Spain or in Latin America. For an overview of relevant study sites, visit the Study Abroad Center (http://www.cie.uci.edu) website.

All students must adhere to the placement policies listed hereafter. Students with prior knowledge of Spanish may need to take the Spanish placement test.

Spanish Placement

To enroll in SPANISH 1A or any Spanish course through the 3A/3B level:

Students *without* previous background in Spanish must take a copy of their high school transcript to their academic counseling office to activate their eligibility to enroll in SPANISH 1A or SPANISH 1AB.

Students *with* previous high school background in Spanish wanting to enroll in any through SPANISH 3A/SPANISH 3B course at UCI for the first time must take the placement test. Eligibility to enroll in any SPANISH 1A through SPANISH 3A/SPANISH 3B course at UCI will be based on the result of that placement test.

Students *with* a previous course (or courses) in Spanish from another college or university who want to enroll in any SPANISH 1A through SPANISH 3A/SPANISH 3B course at UCI must take a copy of their college transcripts to the Humanities Undergraduate Counseling Office in order to receive authorization to enroll in the next course.

Students who graduated from a high school in a Spanish-speaking country, or who graduated from a Spanish Academy, must take a copy of their transcripts to the Language Curriculum Director, Humanities Hall 322, to determine where they should be placed.

Students who have already met the UCI language other than English general education or breadth requirement with SAT Subject Test scores, International Baccalaureate (IB) scores, or Advanced Placement (AP) examination and plan to enroll in a Spanish course at UCI are still required to take the Spanish placement test. Students cannot earn units or grade points at UCI in courses from which they have been exempted on the basis of IB or AP credit, even if the placement test result recommends enrollment in such a level.

Students currently enrolled in any SPANISH 1A through SPANISH 2B course at UCI will be eligible to enroll for the next course within the series without having to take the placement test, provided they receive a C or better.

To enroll in SPANISH 3A, SPANISH 3B, or beyond: An active prerequisite check system is in place for SPANISH 3A and SPANISH 3B. In order to enroll in SPANISH 3A or SPANISH 3B a student must have passed SPANISH 2C or received a score in the range of 91–99 on the Spanish placement test. Students who score 100 or above on the Spanish placement test may proceed to upper-division Spanish courses upon the recommendation of the Language Curriculum Director.

Placement testing is offered throughout the academic year (summer included). For details about registering for a placement test, contact the
Academic Testing Center
3040 Anteater Instruction and Research Building
(949) 824-6207
e-mail: testoff@uci.edu
http://www.testingcenter.uci.edu

Placement test results are valid for one calendar year.

On-campus Spanish language immersion program ("La Casa Nuestra"): UC Irvine offers students the opportunity to live in an on-campus housing unit in Arroyo Vista where Spanish can be spoken on a daily basis. The name of this Spanish-only housing unit is *La Casa Nuestra.*

La Casa Nuestra is a residential Spanish language immersion program that relies on participants to comply with the Spanish-Only Language Rule that applies to all shared living spaces within the *Casa*. The rule applies at all times, including evenings and weekends. Residents may choose to speak English (or other languages) in their bedrooms, but, in the spirit of the *Casa*, are encouraged to make an effort to speak Spanish, even in their rooms, whenever possible. The program is open to all UCI students with 2-3 years of high school Spanish and/or 1 year of college Spanish. Visit the La Casa Nuestra information on the Department of Spanish and Portuguese Undergraduate Program (http://www.humanities.uci.edu/spanishandportuguese/program/undergrad.php) website.

Bachelor's Degree in Spanish

The B.A. program in Spanish is devoted to the study of the languages and cultures of Spanish-speaking countries. Students are encouraged to participate in UC Irvine's *La Casa Nuestra* housing program, which offers Spanish-language immersion on a 24/7 basis as described above.

Students select one of three emphases:

1. Literature and Culture;
2. Spanish for Future Teachers; or
3. Cinema: Spain, Latin America, and U.S. Latino.

Each of these emphases strives to teach students to speak Spanish with fluency, and to carry out academic work in this language. NOTE: An emphasis may be chosen upon declaring the Spanish major, or at a later stage. The major, however, goes far beyond mere language learning, as it is designed to offer a broad humanistic education. The courses explore the literatures and cultures of Spain and Latin America from their first manifestations to the present. The faculty approach this rich cultural legacy from an interdisciplinary perspective that puts Latin American and Spanish texts in dialogue with other fields of knowledge such as anthropology, linguistics, history, women's studies, and studies on globalization, among others. The program also offers courses in Spanish and Latin American film, as well as in visual culture. Unless stated otherwise, courses in the three emphases are taught in Spanish.

By the end of the first year, students attain mastery of the basic structure of the language and ability to converse on everyday topics, as well as to read and write at an elementary level. In the second year, emphasis is put on gradually raising the level of the student's ability to read and write. Two third-year courses (SPANISH 3A and SPANISH 3B) stress composition and grammar. Furthermore, a course in phonetics (SPANISH 113A) aims to perfect pronunciation and presents historical and dialect variants of Spanish. SPANISH 107 (Advanced Spanish Grammar) helps students solidify fine points

of grammar. In addition to giving students a sense of literary history, the introductory courses in literature (SPANISH 101A, SPANISH 101B), also to be taken in the third year, introduce students to elements of literary research and writing. The courses in Hispanic culture (SPANISH 110A, SPANISH 110B, SPANISH 110C) combine a panoramic overview with a close look at a specific country or topic, and require a final research project. Upper-division literature and film courses offer a more detailed analysis of specific texts and require a final research paper.

The faculty encourages students who are serious about improving their Spanish language ability in reading, writing, and speaking to take advantage of opportunities to immerse themselves in the Spanish language by studying in Argentina, Chile, Mexico, Spain, or other Spanish-speaking countries through various study abroad programs administered through UCI's Study Abroad Center. Programs are available for the summer, one quarter, one semester, or one year. This allows students to complete a significant portion of their bachelor's degree requirements in Spain or Latin America (for details, see Residence Requirements below). While abroad, students are given the opportunity to improve their Spanish in a natural context, and to enjoy exposure to other cultures. Once back at UCI, students who have studied abroad typically use this newly gained knowledge to excel in advanced upper-division courses, and to successfully enter graduate school programs or the career path of their choice. See the Study Abroad Center section of the *Catalogue* or an academic counselor for additional information.

Double Major: Students in the B.A. program often double major. Double majoring in Spanish and a second department provides the best of both worlds: the requirements for the Spanish major give students the linguistic and humanistic skills that will qualify them for diverse career paths, while the second degree provides students with the additional expertise they are seeking. Together, these bachelor's degrees will reward students with a distinctively competitive edge. A double major is especially useful for pre-med, pre-law, and other students (future teachers included) who want an extensive education in the natural or social sciences and a strong liberal arts program as well.

Requirements for the B.A. Degree in Spanish

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 625)**.**

All students must meet the Language Other Than English Placement and Progression policies. (p. 625)

Departmental Requirements for the Major

SPANISH 2C or the equivalent is a prerequisite to SPANISH 3A or SPANISH 3B. SPANISH 3A and SPANISH 3B are the prerequisites for most of the upper-division courses. SPANISH 3A can be taken concurrently with SPANISH 3B, though it is recommended that students take these two courses in sequence.

Students must choose one of the following emphases:

1. Emphasis in Literature and Culture	
A. Complete:	
SPANISH 3A	Grammar and Composition
SPANISH 3B	Composition and Grammar
SPANISH 101A	Introduction to Iberian Literature and Culture
SPANISH 101B	Introductory Studies to Latin America Literature and Culture
SPANISH 107	Advanced Spanish Grammar
or SPANISH 113A	Spanish Phonetics
SPANISH 119	Textual Analysis and Interpretation
SPANISH 190	Colloquium
B. Six additional upper-division Spanish courses (taken in the Department of Spanish and Portuguese), of which at least four must be in literature and culture.	
2. Emphasis in Spanish for Future Teachers [1]	
A. Complete:	
SPANISH 3A	Grammar and Composition
SPANISH 3B	Composition and Grammar
SPANISH 15	Advanced Spanish Conversation
SPANISH 101A	Introduction to Iberian Literature and Culture
SPANISH 101B	Introductory Studies to Latin America Literature and Culture
SPANISH 107	Advanced Spanish Grammar
SPANISH 113A	Spanish Phonetics
SPANISH 113B	Introduction to Spanish Linguistics
SPANISH 119	Textual Analysis and Interpretation
B. Three upper-division Spanish courses.	
3. Emphasis in Cinema: Spain, Latin America, and U.S. Latino	
A. Complete:	

SPANISH 3A	Grammar and Composition
SPANISH 3B	Composition and Grammar
SPANISH 101A	Introduction to Iberian Literature and Culture
SPANISH 101B	Introductory Studies to Latin America Literature and Culture
SPANISH 107	Advanced Spanish Grammar
or SPANISH 113A	Spanish Phonetics
SPANISH 119	Textual Analysis and Interpretation
SPANISH 190	Colloquium
B. Complete:	
FLM&MDA 85A	Introduction to Film and Visual Analysis
C. Five upper-division electives:	
1. Four must be in film:	
(a) One film course may come from any department	
(b) Three film courses must be taken in the Department of Spanish and Portuguese	
2. One literature course taught in Spanish, from the Department of Spanish and Portuguese	

1 Students who wish to pursue a career in teaching are encouraged to complete the minor in Educational Studies in tandem with the emphasis. The following courses are recommended in fulfillment of the minor in Educational Studies: EDUC 108, EDUC 124, EDUC 128, EDUC 131, EDUC 173, EDUC 349; EDUC 160 and EDUC 160L, or two quarters of HUMAN 195.

Residence Requirement for the Major (all emphases): At least five upper-division courses required for the major must be completed successfully at UCI. By petition, two of the five may be taken through the UC Education Abroad Program, providing course content is approved by the Humanities Office of Undergraduate Study and the Undergraduate Director of the Department of Spanish and Portuguese. See also the Study Abroad Option information below.

Study Abroad Option

Students are encouraged to study abroad, possibly satisfying a significant portion of their major requirements abroad. For the maximum number of courses allowed and other pertinent details, see the Spanish Undergraduate Program (http://www.humanities.uci.edu/spanishandportuguese/program/undergrad.php) website.

All courses taken abroad must be approved. Approval typically involves the following: (1) presentation of syllabi and other pertinent course materials (term papers, exams, etc.) from the host university, and (2) submission of a UCI Humanities Petition form (available online, and to be completed after the student's return to UCI) to the Undergraduate Director of the Department of Spanish and Portuguese, and to the Humanities Office of Undergraduate Study (HIB 143). Students are advised to consult with the Undergraduate Director and the Humanities Office of Undergraduate Study, both before and after their stay abroad. See also the Residence Requirement above.

Career Opportunities

With over 400 million speakers, Spanish is the third most widely spoken language in the world, which explains in part why Spanish has such a growing global reach and rapidly increasing national and international appeal—in business, education, the media, sports, as well as elsewhere. Knowledge of the Spanish language and cultures has thus become highly marketable in many professions (nursing, the entertainment and/or travel industry, tourism, among others).

The Spanish B.A. degree prepares students to have ready access to careers that require advanced knowledge of the Spanish language and the multiple cultures associated with it. At the same time, competitive students in the program obtain a solid preparation for graduate school. The students' graduate career paths vary widely and include literary and/or cultural studies, teaching, nursing, law/ business, nonprofit organizations, medicine, sociology, and other specialties.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. For additional information, visit the Career Center (http://www.career.uci.edu) and the Department's Careers in Foreign Language (http://www.humanities.uci.edu/spanish/career.htm) websites.

Requirements for the Spanish Minor

All students are subject to the Language Other Than English Placement and Progression (p. 625) **policies.**

A. Complete the following:	
SPANISH 3A	Grammar and Composition
SPANISH 3B	Composition and Grammar

B. Four upper-division departmental Spanish courses, one of which may be taught in English (excluding SPANISH 150).

C. SPANISH 15 or one additional upper-division departmental Spanish course (excluding SPANISH 150).

NOTE: SPANISH 2C (or equivalent) is a prerequisite to Spanish minor requirements.

Residence Requirement for the Spanish Minor: At least four upper-division courses required for the minor must be completed successfully at UCI. By petition, two of the four may be taken through the UC Education Abroad Program, providing course content is approved in advance by the appropriate department or committee chair.

Graduate Program

All graduate courses in the Department are taught in either Spanish or Portuguese, unless otherwise indicated in the course description.

Master of Arts in Spanish

The Master of Arts degree in Spanish is a two-year program of study designed to expose the beginning graduate student to all periods of peninsular, Latin American, and Chicano/Latino literature and culture. The degree is awarded upon the successful completion of course work and written and oral comprehensive examinations. A minimum of eight graduate seminars must be completed in the Department of Spanish and Portuguese with a letter grade. Students are required to take one course in Theory (SPANISH 239A or SPANISH 239B). Master's candidates must complete a minimum of three quarters of course work in the Department; the maximum time to complete the master's program is two years. The M.A. exam must be taken no later than the sixth quarter of graduate study. Students entering with a bachelor's degree must satisfy the requirements for a master's degree before they proceed toward a Ph.D. This includes the master's level examinations and course work. Normally only students intending to work toward the Ph.D. are admitted to the graduate program.

Doctor of Philosophy in Spanish

The Department of Spanish and Portuguese offers a Ph.D. degree in Spanish with a specialization in Spanish, Spanish-American, or Chicano/Latino literatures and cultures. The program integrates period and genre studies with work in literary and critical theory, linguistics, sociohistorical studies, and cultural studies. The Department seeks to professionalize its Ph.D. candidates not as narrow specialists but rather as scholars and critics acquainted with a range of fields that relate to and enhance their discipline. Graduate emphases in Comparative Literature, Critical Theory, and Women's Studies are available; other areas of study (for example, film, history) may be designed with approval from the student's Ph.D. guidance committee. The Department has been traditionally committed to excellence in teaching, both in its own practice and in the formation of its graduates.

Language Requirements

An additional foreign language (with proficiency equivalent to the 2C level) is required; this requirement may be satisfied by examination or course work. The selection of a foreign language must be approved by the student's guidance committee and is based on the specific research interests and field of study of the candidate.

Course Requirements

A minimum of 16 courses beyond the B.A. or eight beyond the M.A. are required. One course in linguistics (diachronic or synchronic), and one graduate course in Luso-Brazilian literature and culture are required at the Ph.D. level. Note that these requirements may include course work completed in the master's program; the remaining elective courses are selected with the approval of the student's guidance committee to prepare for the doctoral examination and the dissertation. Students are encouraged to take more than the minimum number of required courses.

Continuing students and students who transfer into the doctoral program from elsewhere must take a minimum of eight graduate courses at UCI, of which six must be in the Department of Spanish and Portuguese. With regard to students who enter the Ph.D. program with their master's degree from another institution, the Ph.D. guidance committee will determine the number of courses that will be accepted.

A student may pursue the Ph.D. with an emphasis in Comparative Literature by taking a minimum of five courses in the Comparative Literature program.

Time to Degree

The normative time for completion of the Ph.D. is seven years; four years to candidacy, three years in candidacy. The maximum time permitted is eight years.

Teaching

The Department recognizes its responsibility to train all Ph.D. candidates as teachers and requires that all doctoral students with no prior teaching experience complete a minimum of three quarters of language teaching (SPANISH 399). Moreover, all doctoral students are encouraged to complete a teaching practicum by co-teaching an upper-division course with a professor and enrolling in SPANISH 292, which is graded Satisfactory/Unsatisfactory only.

Qualifying Examination

Upon completion of course work, the Ph.D. student advances to candidacy by passing the written and oral qualifying examinations by unanimous decision. The qualifying examination requires the student to develop two topics in close consultation with the examination committee. One topic must

present a critical problem from a historical perspective, while the other may focus on a more specific area within the student's major field of interest. Students are encouraged to incorporate theoretical and interdisciplinary components into the formulation of their topics. A two-hour oral examination that includes discussion of the written examinations is also required. The normative time for advancement to candidacy is four years.

Dissertation

A dissertation topic is chosen by the candidate in consultation with the dissertation director and committee, and normally falls within the major field covered by the qualifying examinations. The candidate presents a study plan to the dissertation committee, which approves the proposal and a preliminary research outline. The student submits drafts of chapters to the dissertation director who corrects and approves the drafts and circulates them to other committee members for commentary.

Spanish Course Enrollment Authorization and Course Equivalencies

Enrollment Authorization: See the Language Other Than English Placement (p. 625) information for specific Spanish placement information, click on the "Major" tab above. Students with prior college course(s) must take a copy of their college transcripts to the Humanities Undergraduate Counseling Office for enrollment authorization.

NOTE: Spanish 1A, S1AB, and 1AB are open only to students who have no prior knowledge of Spanish. Students must take a copy of their high school transcript to their academic counseling office to activate their eligibility to enroll in Spanish 1A, S1AB, or 1AB. Equivalent sequences/courses may not be repeated for credit.

Lower-Division Course Equivalencies: A chart showing the lower-division Spanish course equivalencies is available on the Department of Spanish and Portuguese (http://www.humanities.uci.edu/spanishandportuguese) website.

Faculty

Ana Maria Amar Sanchez, Ph.D. University of Buenos Aires, *Professor of Spanish and Portuguese*

Luis Avilés, Ph.D. Brown University, *Associate Professor of Spanish and Portuguese; Comparative Literature; Culture and Theory; European Languages and Studies* (Golden Age literature and critical theory)

Anne J. Cruz, Ph.D. Stanford University, *Professor Emerita of Spanish and Portuguese*

Lucia G. Cunningham, Ph.D. University of Kansas, *Professor Emerita of Spanish and Portuguese*

Ivette Hernandez-Torres, Ph.D. Brown University, *Associate Professor of Spanish and Portuguese*

Adriana M. Johnson, Ph.D. Duke University, *Associate Professor of Comparative Literature; Film and Media Studies; Spanish and Portuguese* (Latin American literature and film, subaltern studies, postcolonial studies, politics and culture)

Horacio Legras, Ph.D. Duke University, *Associate Professor of Spanish and Portuguese*

Viviana A. Mahieux, Ph.D. Harvard University, *Associate Professor of Spanish and Portuguese*

Miriam V. Mora Quilon, M.A. Indiana University, *Lecturer of Spanish and Portuguese*

Alejandro Morales, Ph.D. Rutgers, The State University of New Jersey, *Professor of Chicano/Latino Studies; Spanish and Portuguese*

Santiago Morales-Rivera, Ph.D. Harvard University, *Assistant Professor of Spanish and Portuguese; European Languages and Studies* (contemporary Spanish intellectual history, literature and culture)

Gonzalo Navajas, Ph.D. University of California, Los Angeles, *Professor of Spanish and Portuguese; Culture and Theory; European Languages and Studies* (eighteenth through twentieth-first century Spanish literature and intellectual history, film, critical theory, cultural criticism, creative writing)

Dayle S. Nunez, Ph.D. Stanford University, *Professor Emeritus of Spanish and Portuguese*

Hector H. Orjuela, Ph.D. University of Kansas, *Professor Emeritus of Spanish and Portuguese*

Julian I. Palley, Ph.D. University of New Mexico, *Professor Emeritus of Spanish and Portuguese*

Armin Schwegler, Ph.D. University of California, Berkeley, *Professor of Spanish and Portuguese; Linguistics*

Jacobo Sefami, Ph.D. University of Texas at Austin, *Professor of Spanish and Portuguese*

Juan Villegas, Ph.D. University of Chile, *Professor Emeritus of Spanish and Portuguese*

Zidia O. Webb, M.A. Michigan State University, *Lecturer with Security of Employment Emeritus of Spanish and Portuguese*

Portuguese Courses

PORTUG 121. Topics in Luso-Brazilian Literature. 4 Units.
In English. Contextualized study of a major author, current, or genre in Brazilian, Portuguese, and/or Lusophone African literature. Examples: Gender, Race, and Sexualities in Postcolonial Lusophone Literatures; Women and Writing in Brazil and Portugal; The Short Story.

Repeatability: Unlimited as topics vary.

PORTUG 190. Individual Study. 4 Units.
Individual study with Portuguese faculty.

PORTUG 243. Studies in Luso-Brazilian Literature and Culture. 4 Units.
Critical analysis of selected literary works from Portugal and/or Brazil. Contextualizes the works within their historical and literary specificity, and discusses pertinent theoretical issues raised by them. Taught in Portuguese.

Prerequisite: Reading knowledge of Portuguese.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PORTUG 290. Individual Study. 4 Units.
Individual study.

Restriction: Graduate students only.

Spanish Courses

SPANISH 1A. Fundamentals of Spanish. 5 Units.
Communicative approach with emphasis on conversational skills: the students and their environment, their experiences, and their opinions about issues. Reading and writing skills also introduced.

Prerequisite: Placement into SPANISH 1A.

Overlaps with SPANISH 1AB, SPANISH S1AB.

Restriction: SPANISH 1A and SPANISH 1AB and SPANISH S1AB may not be taken for full credit.

SPANISH 1AB. Fundamentals Intensive Spanish. 10 Units.
An intensive, proficiency-oriented, and task-based approach, designed to develop basic oral communicative abilities in Spanish. Reading and writing skills, along with an an introduction to Hispanic cultures.

Prerequisite: Placement into SPANISH 1A.

Overlaps with SPANISH 1A, SPANISH 1B, SPANISH S1AB.

Restriction: SPANISH 1AB and SPANISH 1A and SPANISH 1B and SPANISH S1AB may not be taken for full credit.

SPANISH 1B. Fundamentals of Spanish. 5 Units.
Communicative approach with emphasis on conversational skills: the students and their environment, their experiences, and their opinions about issues. Reading and writing skills also introduced.

Prerequisite: SPANISH 1A or placement into SPANISH 1B. SPANISH 1A with a grade of C or better.

Overlaps with SPANISH 1AB, SPANISH S1AB.

Restriction: SPANISH 1B and SPANISH 1AB and SPANISH S1AB may not be taken for full credit.

SPANISH 1C. Fundamentals of Spanish. 5 Units.
Communicative approach with emphasis on conversational skills: the students and their environment, their experiences, and their opinions about issues. Reading and writing skills also introduced.

Prerequisite: SPANISH 1AB or SPANISH 1B or SPANISH S1AB or placement into SPANISH 1C. SPANISH 1AB with a grade of C or better. SPANISH 1B with a grade of C or better. SPANISH S1AB with a grade of B or better.

Overlaps with SPANISH S1BC.

Restriction: SPANISH 1C and SPANISH S1BC may not be taken for full credit.

(VI)

SPANISH S1AB. Fundamentals of Spanish. 7.5 Units.
First half of first-year Spanish in an intensified form. Communicative approach with emphasis on conversational skills.

Prerequisite: Placement into SPANISH 1A.

Overlaps with SPANISH 1A, SPANISH 1B, SPANISH 1AB.

Restriction: SPANISH S1AB and SPANISH 1A and SPANISH 1B and SPANISH 1AB may not be taken for full credit.

SPANISH S1BC. Fundamentals of Spanish. 7.5 Units.
Second half of first-year Spanish in an intensified form. Communicative approach with emphasis on conversational skills.

Prerequisite: (SPANISH S1AB) or (SPANISH 1B) or (placement into SPANISH 1B) or (placement into SPANISH 1C) or (SPANISH 1A). SPANISH S1AB with a grade of C or better. SPANISH 1B with a grade of C or better. SPANISH 1A with a grade of B or better.

Overlaps with SPANISH 1B, SPANISH 1C, SPANISH 1AB.

Restriction: SPANISH S1BC and SPANISH 1B and SPANISH 1C and SPANISH 1AB may not be taken for full credit.

(VI)

SPANISH 2. Accelerated Intermediate Spanish. 12 Units.
An accelerated course that covers the second year of Spanish in one quarter. The course replicates the conditions of immersion programs and is designed for highly motivated students.

Prerequisite: SPANISH 1C or SPANISH S1BC or placement into SPANISH 2. SPANISH 1C with a grade of B or better. SPANISH S1BC with a grade of B or better.

Overlaps with SPANISH S2AB, SPANISH S2BC, SPANISH 2A, SPANISH 2AB, SPANISH 2B, SPANISH 2C.

Restriction: SPANISH 2 and SPANISH S2AB and SPANISH S2BC and SPANISH 2AB and SPANISH 2B and SPANISH 2C may not be taken for full credit. Approval of Spanish Undergraduate Director required. Open to sophomores, juniors, and seniors only. Course will be confirmed or cancelled at the end of the second week of the enrollment window period, depending on enrollment.

(VIII)

SPANISH 2A. Intermediate Spanish. 4 Units.
Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: SPANISH 1C or SPANISH S1BC or placement into SPANISH 2A. SPANISH 1C with a grade of C or better. SPANISH S1BC with a grade of C or better.

Overlaps with SPANISH 2AB, SPANISH S2AB, SPANISH 2.

Restriction: SPANISH 2A and SPANISH S2AB and SPANISH 2 may not be taken for full credit. School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

SPANISH 2AB. Intermediate Intensive Spanish. 8 Units.
Intensive intermediate course designed to improve student's abilities in reading, writing, speaking, and comprehension, including a thorough introduction to Hispanic cultures. Throughout the course the grammatical component of the language is gradually reviewed and tested.

Prerequisite: SPANISH 1C or SPANISH S1BC or placement into SPANISH 2A. SPANISH 1C with a grade of C or better. SPANISH S1BC with a grade of C or better.

Overlaps with SPANISH 2A, SPANISH 2B, SPANISH S2AB, SPANISH 2.

Restriction: SPANISH 2AB and SPANISH 2A and SPANISH 2B and SPANISH S2AB and SPANISH 2 may not be taken for full credit.

(VIII)

SPANISH 2B. Intermediate Spanish. 4 Units.
Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: SPANISH 2A or placement into SPANISH 2B. SPANISH 2A with a grade of C or better.

Overlaps with SPANISH 2AB, SPANISH S2AB, SPANISH 2.

Restriction: SPANISH 2B and SPANISH 2AB and SPANISH S2AB and SPANISH 2 may not be taken for full credit. School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

SPANISH 2C. Intermediate Spanish. 4 Units.
Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: SPANISH 2AB or SPANISH 2B or SPANISH S2AB or placement into SPANISH 2C. SPANISH 2AB with a grade of C or better. SPANISH 2B with a grade of C or better. SPANISH S2AB with a grade of B or better.

Overlaps with SPANISH S2BC, SPANISH 2.

Restriction: SPANISH 2C and SPANISH S2BC and SPANISH 2 may not be taken for full credit. School of Humanities and International Studies majors have first consideration for enrollment.

(VIII)

SPANISH S2AB. Intermediate Spanish. 6 Units.
First half of second-year Spanish in an intensified form. Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: SPANISH 1C or SPANISH S1BC or placement into SPANISH 2A. SPANISH 1C with a grade of C or better. SPANISH S1BC with a grade of C or better.

Overlaps with SPANISH 2A, SPANISH 2B, SPANISH 2AB, SPANISH 2.

Restriction: SPANISH S2AB and SPANISH 2A and SPANISH 2B and SPANISH 2AB and SPANISH 2 may not be taken for full credit.

(VIII)

SPANISH S2BC. Intermediate Spanish. 6 Units.
Second half of second-year Spanish in an intensified form. Conversation, reading, and composition skills are developed using texts of literary and social interest. Emphasis on grammar review.

Prerequisite: (SPANISH 2B) or (SPANISH S2AB) or (placement into SPANISH 2B) or (placement into SPANISH 2C) or (SPANISH 2A). SPANISH 2B with a grade of C or better. SPANISH S2AB with a grade of C or better. SPANISH 2A with a grade of B or better.

Overlaps with SPANISH 2B, SPANISH 2C, SPANISH 2AB, SPANISH 2.

Restriction: SPANISH S2BC and SPANISH 2B and SPANISH 2C and SPANISH 2AB and SPANISH 2 may not be taken for full credit.

(VIII)

SPANISH 3A. Grammar and Composition. 4 Units.
Focuses on intermediate to advanced grammar and composition in an orderly fashion. Emphasis is placed on key elements of grammar, to constitute about 70 percent of the course, and composition writing, to constitute about 30 percent of the workload.

Corequisite: May take SPANISH 3A and SPANISH 3B at the same time.
Prerequisite: SPANISH 2 or SPANISH 2C or SPANISH S2BC.

(VIII)

SPANISH 3B. Composition and Grammar. 4 Units.
Focuses on intermediate to advanced grammar and composition in an orderly fashion. Emphasis is placed on key elements of grammar, to constitute about 30 percent of the course, and composition writing, to constitute about 70 percent of the workload.

Corequisite: May take SPANISH 3A and SPANISH 3B at the same time.
Prerequisite: SPANISH 2 or SPANISH 2C or SPANISH S2BC.

(VIII)

SPANISH 15. Advanced Spanish Conversation. 4 Units.
Designed to improve the fluency of non-native speakers of Spanish. Concentrates on the expansion of vocabulary, as well as listening and speaking skills. Not open to native or semi-native speakers of Spanish.

Prerequisite: SPANISH 2 or Spanish 2C or Spanish 2BC. SPANISH 2 with a grade of C or better. SPANISH 2C with grade of C or better. SPANISH 2BC with a grade of C or better.

SPANISH 44. Hispanic Literatures for Nonmajors. 4 Units.
Focuses on major Spanish and Latin American literary texts within a historical and theoretical perspective. Taught in English with literary texts read in the original language.

Prerequisite: SPANISH 2 or SPANISH 2C or SPANISH S2BC.

Restriction: Non-Spanish majors only.

(VIII)

SPANISH 50. Latin America, U.S. Latino, and Iberian Cultures. 4 Units.
Introduction (for non-majors) to the culture of the Spanish- and Portuguese-speaking worlds (Europe, Latin America, U.S., Africa). May focus on any time period. Taught in english.

Repeatability: May be taken for credit 3 times as topics vary.

(IV, VIII)

SPANISH 97. Fundamentals of Spanish (with Emphasis on Reading). 4 Units.
Designed for students interested in acquiring a solid reading knowledge of Spanish, and to facilitate the understanding and translating of Spanish texts covering a variety of disciplines. Does not fulfill any undergraduate foreign language requirement. Taught in English.

Prerequisite: Does not serve as prerequisite for any higher-level Spanish courses.

Restriction: Non-Spanish majors only.

SPANISH 101A. Introduction to Iberian Literature and Culture. 4 Units.
Introduction to the major authors and movements of Iberian literature and culture from the Middle Ages to the present.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 101B. Introductory Studies to Latin America Literature and Culture. 4 Units.
A historical overview of Latin American literature and culture mainly focused on canonical texts. Among topics: colonialism and postcolonialism, the nation, indigenismo, gender, literary movements. Also introduces literary analysis, research methods and cultural critique.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 104. Writing in Spanish. 4 Units.
Focuses on the use of writing as a medium to encourage critical thinking and the practical analysis of literary texts as well as the study of historical and social issues in the Spanish-speaking world.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 105. Spanish Communication. 4 Units.
Designed to help students develop Spanish oral skills by exposing them to different verbal Spanish language registers. Special emphasis placed on abilities essential to professional or academic careers. Intended for Spanish majors as an important component of their overall education.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 107. Advanced Spanish Grammar. 4 Units.
Designed for students who have demonstrated a substantial level of proficiency in their studies of the Spanish language. Takes thorough approach to advanced grammatical problems, in order to assist students in their mastery of the elements of the Spanish language.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 110A. Peninsular Literature and Cultures. 4 Units.
Topics in Peninsular literature and culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 110B. Latin American Literature and Cultures. 4 Units.
Topics in Latin American literature and culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 110C. U.S. Latino Literature and Cultures. 4 Units.
Focuses on aspects of literature, art, cultural production, and history of the multifaceted Latino cultures that have developed within the United States. Focuses on one group, such as Caribbean Americans, Chicanos, Central Americans, or a comparative perspective of several groups.

Same as CHC/LAT 134.

SPANISH 113A. Spanish Phonetics. 4 Units.
Introduction to fundamental notions of Spanish phonetics. Particular attention paid to problems of pronunciation that arise in native and non-native speakers of Spanish due to interference between Spanish and English. Phonology (the system that underlies phonetics) and Spanish dialectology included.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 113B. Introduction to Spanish Linguistics. 4 Units.
Application of basic notions of linguistics to Spanish, Spanish phonology, morphology, syntax, and semantics. Special attention to the application of linguistics to the teaching of Spanish.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 116. Medieval Spanish Literature and Culture. 4 Units.
Medieval literature in Spain from ninth century to 1500. Works of lyric and epic poetry, prose fiction, and nonfiction. Substantial historical and cultural background explored.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 119. Textual Analysis and Interpretation. 4 Units.
Focus on analysis and interpretation of literary texts. Emphasis on narrative, poetry, theater/performance, and visual media. Introduces students to major currents in theoretical thought, such as cultural studies, postmodernism, and others. Oral presentations and short essays required. Taught in Spanish.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 121. Golden Age Literature and Culture. 4 Units.
Golden Age Literature in Spain including the Renaissance and Baroque periods. Works of poetry, narrative, and theater. Historical and cultural background.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: May be taken for credit 3 times as topics vary.

SPANISH 122. Eighteenth- and Ninetheenth-Century Spanish Literature and Culture. 4 Units.
The main literary and ideological trends in eighteenth and nineteenth-century Spain, including the enlightenment, romanticism, realism, and naturalism.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: May be taken for credit 3 times as topics vary.

SPANISH 123. Twentieth- and Twenty-First-Century Spanish Literature and Culture. 4 Units.
Twentieth-century Spanish authors. Works of poetry, narrative, or theater. Historical context of the period and principles of literary theory.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: May be taken for credit 3 times as topics vary.

SPANISH 130A. Latin American Colonial Literature and Culture. 4 Units.
Latin American Colonial Literature and Culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 130B. Latin American Literature and Culture of the Nineteenth Century. 4 Units.
Latin American literature and culture of the nineteenth century.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 130C. Latin American Literature and Culture of the Twentieth Century. 4 Units.
Latin American literature and culture of the twentieth century.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 140. Chicano Literature and Culture. 4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter. Taught in English.

Repeatability: May be taken for credit 4 times as topics vary.

Same as CHC/LAT 110.

SPANISH 150. Literature in Translation. 4 Units.
Study of texts by modern and contemporary Peninsular, Latin American, and/or U.S. Latino writers in translation. Taught in English. Not applicable toward Spanish major or minor requirements.

Repeatability: Unlimited as topics vary.

SPANISH 151. Introduction to Translation. 4 Units.
Introduction to basic techniques of Spanish-English written translation. The skills needed for translation are developed through the analysis of pertinent aspects of language structure, such as syntax, vocabulary, and style.

Prerequisite: SPANISH 3A and SPANISH 3B.

SPANISH 160. Topics in Luso-Hispanic Film Studies. 4 Units.
Study of Peninsular, Latin-American, and/or U.S. Latino film. Taught in English or Spanish.

Prerequisite: SPANISH 3A and SPANISH 3B when course is taught in Spanish.

Repeatability: Unlimited as topics vary.

SPANISH 185. Selected Topics in Peninsular Literature and Culture. 4 Units.
Selection of representative topics in Spanish and/or Portuguese literature and culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 186. Selected Topics in Latin American Literature and Culture. 4 Units.
Selection of representative topics in the history of Latin American Literature and Culture.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 187. Selected Topics in Spanish Linguistics. 4 Units.
Major topics in Spanish linguistics.

Prerequisite: SPANISH 3A and SPANISH 3B.

Repeatability: Unlimited as topics vary.

SPANISH 190. Colloquium. 4 Units.
Specialized, discussion-based course dealing primarily with a research topic that reflects the instructor's current intellectual interests. Required oral presentation(s) and final research paper. Limited to 15 students.

Prerequisite: SPANISH 107 or SPANISH 113A.

Restriction: Upper-division Spanish majors only.

SPANISH 199. Independent Study. 1-4 Units.
Research paper required.

Repeatability: May be repeated for credit unlimited times.

SPANISH 201. History of the Spanish Language. 4 Units.
Diachronic survey of phonological changes from Latin to Old Spanish to Modern Spanish. Focuses in Castilian including Romance languages and other peninsula dialects for comparative purposes. Morphological changes.

SPANISH 204. Spanish in Contact. 4 Units.
Sociohistorical and linguistic overview of Spanish in contact with Basque, Catalan, English, German, American Indian, and African languages in Spain, Latin America, and the United States. Examines theories about language contact, and linguistic changes in Spanish phonology and grammar.

SPANISH 205. Spanish Dialectology. 4 Units.
Phonological, morphological, and syntactic variations in Spanish as spoken in the Hispanic world, from synchronic and diachronic points of view. The study of Spanish as spoken in the United States.

SPANISH 212. Topics in Medieval Iberia. 4 Units.
Topics in medieval Spanish literature.

Repeatability: Unlimited as topics vary.

SPANISH 214. Topics in Golden Age Literature and Culture. 4 Units.
Topics in Golden Age literature and culture.

Repeatability: Unlimited as topics vary.

SPANISH 218. Topics in Enlightenment and Romanticism. 4 Units.
Topics in Enlightenment and Romanticism.

Repeatability: Unlimited as topics vary.

SPANISH 219. Topics in Nineteenth Century. 4 Units.
Topics in nineteenth-century Spanish literature and culture.

Repeatability: Unlimited as topics vary.

SPANISH 220. Topics in Twentieth Century. 4 Units.
Topics in twentieth-century Spanish literature and culture.

Repeatability: Unlimited as topics vary.

SPANISH 221. Topics in Iberian Studies. 4 Units.
Cross-cultural connections and interactions between different ethnicities in the Iberian Peninsula.

Repeatability: Unlimited as topics vary.

SPANISH 231. Topics in Colonial Latin America. 4 Units.
Topics in Colonial Latin America.

Repeatability: Unlimited as topics vary.

SPANISH 232. Topics in Nineteenth-Century Latin America. 4 Units.
Topics in nineteenth-century Latin America.

Repeatability: Unlimited as topics vary.

SPANISH 233. Topics in Twentieth-Century Latin America. 4 Units.
Topics in twentieth-century Latin America.

Repeatability: Unlimited as topics vary.

SPANISH 234. Topics in Latin America. 4 Units.
Topics in Latin America.

Repeatability: Unlimited as topics vary.

SPANISH 235. Topics in Trans-Oceanic Studies. 4 Units.
Focuses on meaningful connections between different geographical and cultural areas.

Repeatability: Unlimited as topics vary.

SPANISH 239A. Topics in Literary Theory I. 4 Units.
Traces the development of Western literary critical principles from Aristotle to the twentieth century through selected readings of key figures in intellectual history (Aristotle, St. Augustine, Descartes, Kant, Hegel, Marx, Nietzsche, William James, Freud).

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SPANISH 239B. Topics in Literary Theory II. 4 Units.
Study of major critical movements of the twentieth century, from Modernism's varied trends to those of the Postmodern/Postcolonial period. Emphasis on the development of prior critical discourses as well as revisionary theories.

Prerequisite: SPANISH 239A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SPANISH 239C. Special Topics in Theory. 4 Units.
Focus on issues related to critical theory, theory of literature, cultural criticism and visual arts as they pertain specifically to Latin America, Spain, Portugal, and Brazil. Topics vary. Examples: Latin American cultural studies; theory, film, and media in post-war Spain.

Repeatability: Unlimited as topics vary.

SPANISH 245. Topics in Luso-Hispanic Film. 4 Units.
Topics in Luso-Hispanic Film.

Repeatability: Unlimited as topics vary.

SPANISH 251. Topics in Chicano Literature and Culture. 4 Units.
Topics in Chicano Literature and Culture.

Repeatability: Unlimited as topics vary.

SPANISH 252. Topics in U.S. Latino Literature and Culture. 4 Units.
Topics in U.S. Latino Literature and Culture.

Repeatability: Unlimited as topics vary.

SPANISH 260. Seminar in Spanish . 4 Units.
Topics in Spanish.

Repeatability: Unlimited as topics vary.

SPANISH 270. Creative Writing Workshop in Spanish/English. 4 Units.
Discussion of theory and practice of creative writing. Focus on critical analysis of participant's work in progress. Texts may be written in Spanish and/or English and may be written in poetry or prose format.

Repeatability: Unlimited as topics vary.

SPANISH 290. Individual Study. 4 Units.
Individual Study.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SPANISH 291. Directed Reading. 4 Units.
Directed Reading in Spanish.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SPANISH 292. Teaching Practicum. 4 Units.
Teaching Practicum.

Grading Option: Satisfactory/unsatisfactory only.

SPANISH 299. Dissertation Research. 4-12 Units.
Dissertation Research.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Humanities majors only.

SPANISH 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Graduate Program in Visual Studies

2000 Humanities Gateway; 949-824-1124
http://www.humanities.uci.edu/visualstudies/
Lucas Hilderbrand, **Director**

The graduate program in Visual Studies, administered jointly by the faculties of the Department of Art History and the Department of Film and Media Studies, offers students the opportunity to pursue a doctorate in the cultural analysis of visual artifacts and experiences. Visual Studies synthesizes methodological insights from both component disciplines in order to examine the social practices of visual representation and visuality itself. The program leads to a Ph.D. degree in Visual Studies. While the program (in certain instances) grants an M.A. to students en route to their Ph.D., it admits only those students intending to complete their doctorate at UCI.

In addition, an emphasis in Visual Studies, described later in this section, is available to Ph.D. and M.F.A. students in all departments at UCI.

Admission

The program is open to students applying with either a bachelor’s or a master’s degree, and applicants must meet the general requirements for admission to graduate study at UCI. A recent sample of academic writing—such as a representative undergraduate paper, or the master’s thesis or a major research paper written at the master’s level—should be submitted with the application packet.

The program accepts applicants for admission for the fall quarter only. Additional information is available on the Visual Studies (http://www.humanities.uci.edu/visualstudies) website.

Language Requirements

All students are required to demonstrate a reading knowledge of at least one foreign language and are strongly encouraged to develop competence in a second. Students consult with the Director and/or their principal advisor(s) to determine the appropriate language on which the student will be tested, based on their interests and program of study. Advisors, moreover, may require the demonstration of reading knowledge in additional languages according to the scholarly demands of the student's specific field. All language requirements must be satisfied before students are awarded a master's degree or, if they enter with an M.A., before they are advanced to candidacy for the Ph.D. degree.

Course Requirements

Beyond the core series (VIS STD 290A-VIS STD 290B-VIS STD 290C), students are required to complete an additional 11 courses for a total of 14 courses. Out of this total, at least 10 courses (including the core series and VIS STD 297) must be within the program in Visual Studies, and at least two courses are to be from outside the Visual Studies discipline. In order to establish a level of expertise in one conventionally defined discipline, students must take (among their 10 courses noted above), at least three courses that have a strong component of art history *or* at least three courses that have a strong component of film studies.

Students admitted with an M.A. in a related field may petition the Visual Studies Graduate Committee to have some of their course requirements waived and advance early; such petitions will be considered in close consultation with the primary advisor and on a case-by-case basis (though all students must take the core sequence). While students may accrue units for University Teaching (ART HIS 399 or FLM&MDA 399), Reading for the Preliminary Examination (VIS STD 298A), and Prospectus Research (VIS STD 298B) these do not count toward the required number of courses.

Master's Paper and M.A. Degree

During their second year, students admitted without an M.A. in a related field will enroll in VIS STD 296 for the purpose of expanding and developing a seminar paper into a Master's paper under the supervision of a faculty advisor. The Master's paper is an essay of near-publication quality, approximately 30 pages in length. In addition to the advisor, two additional readers from the Visual Studies faculty will assess the Master's paper and the student's overall academic performance. The committee will assess whether or not the student has satisfied all requirements for the M.A. Those students who have satisfied the M.A. requirements, but whose committees assess their work as not meeting the standards for Ph.D. study, will receive a terminal M.A. degree.

Preliminary Examination

By the end of the first year, a student must reach an agreement with one of the program's core faculty members to serve as principal advisor. The student will work with the principal advisor to plan completion of his or her program requirements and to select the faculty who will supervise examination fields. The examination committee will be constituted in accordance with UCI Senate and Visual Studies program policies.

The student and principal advisor define two fields, one major and one minor to be examined by the faculty. The fields should combine historical breadth and some variety in media. Over the course of two quarters, students prepare reading lists in close consultation with their principal advisor and field supervisor, and complete the reading of those lists. The examination normally takes place at the end of each of the two quarters of study.

The first part of the examination consists of a written component, in which the student is called upon to respond to questions posed in the two examination fields. The student's written responses are assessed by the director of each exam reading as pass or fail; however, the responses are circulated to all committee members. There is also an oral component to the preliminary exam process. The oral exam should be completed within the first 3 weeks of the quarter following their last written exam.

During their third year, students draft a prospectus that defines the scope, approach, and rationale for a proposed dissertation and begin research on the dissertation. At the end of the third year the student should defend the prospectus with the entire five-person committee. Based on the student's written exam results, prospectus defense, and overall progress, the committee will determine whether the student has successfully passed the examination. Except in extraordinary circumstances, no student will be given more than two chances to pass any given section of the examination.

Advancement to candidacy for the Ph.D. degree is contingent upon successful completion of both the preliminary exams, subsequent approval of the prospectus by the dissertation committee, and satisfaction of all language requirements. The normative time for advancement to candidacy is three years.

Dissertation

The student and the principal advisor consult to determine the composition of a doctoral committee of three members including the principal advisor, which then must unanimously approve the prospectus before the student proceeds with the dissertation. The doctoral committee, on the basis of the candidate's past academic performance and proposed dissertation topic, may require additional course work or other forms of preparation for the dissertation. The doctoral committee, under the direction of the principal advisor, supervises the student's research program and ultimately approves the dissertation. The normative time for completion of the Ph.D. program is six years, and the maximum permitted is seven years.

Graduate Emphasis in Visual Studies

In addition to the doctoral program in Visual Studies described above, the Program in Visual Studies also offers an emphasis in Visual Studies available to Ph.D. and M.F.A. students in all departments at UCI. Satisfactory completion of the emphasis is certified by the Director of Visual Studies and is noted in the student's dossier.

Admission to the Program

Students must first be admitted to, or currently enrolled in, a Ph.D. or M.F.A. program at UCI. Applicants must submit to the Director of Visual Studies a summary of prior undergraduate and graduate course work related to Visual Studies, institutions attended, and major(s), together with a brief statement of purpose, including career objectives, areas of interest and research, record of research, teaching, professional accomplishments, and/or creative work. Lack of prior course work does not preclude admission, so long as a compelling statement of research interests, congruent with the emphasis, makes the case. Admission to the emphasis is on a rolling basis. The Director tracks students' progress toward fulfillment of the emphasis requirements and meets with students to advise them on a program of study, as required.

Emphasis Requirements

Minimum course work for the graduate emphasis in Visual Studies consists of four courses: VIS STD 290C and three additional elective Visual Studies seminars.

For doctoral students, the qualifying examination and dissertation topic should incorporate Visual Studies as a central concern. One area of the Ph.D. qualifying examination should be on a Visual Studies topic, and one member of the candidate's qualifying examination committee and dissertation committee is normally a member of the Visual Studies faculty. There are no requirements concerning qualifying examinations or theses for M.F.A. students.

Courses

VIS STD 290A. Art History:Theories and Methods. 4 Units.
Examines canonical texts and explores current directions in Art History.

VIS STD 290B. Film & Media Studies: Theories and Methods. 4 Units.
Examines canonical texts and explores current directions in Film and Media Studies.

VIS STD 290C. Visual Studies: Theories and Methods. 4 Units.
Examines canonical texts and explores current directions in Visual Studies.

VIS STD 294. Getty Consortium Seminar. 4 Units.
Special graduate seminar offered at the Getty Research Institute in Los Angeles, involving faculty and graduate students from the five graduate programs in Art History or Visual Studies located in southern California (UCI, UCLA, UCR, UCSB, and USC).

Repeatability: Unlimited as topics vary.

VIS STD 295. Graduate Seminar in Visual Studies. 4 Units.
Studies in selected areas of Visual Studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

VIS STD 296. Directed Reading. 4 Units.
Directed reading on a specific topic agreed upon by student and instructor.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

VIS STD 297. Writing Practicum. 4 Units.
Offered winter quarter each year and taught in a workshop format. Assists students with the preparation and revision of the dissertation prospectus so that they may advance to candidacy.

Prerequisite: VIS STD 290A and VIS STD 290B and VIS STD 290C.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

VIS STD 298A. Reading for the Preliminary Examination. 4-12 Units.
Directed reading in preparation for the preliminary examination. Formerly Visual Studies 298.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

VIS STD 298B. Prospectus Research. 4-12 Units.
Research and writing of the dissertation prospectus.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

VIS STD 299. Dissertation Research. 4-12 Units.
Research and writing of the dissertation.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Donald Bren School of Information and Computer Sciences

Hal S. Stern, **Dean**
6210 Donald Bren Hall
Academic Counseling: 949-824-5156
http://www.ics.uci.edu/

Overview

The Donald Bren School of Information and Computer Sciences (ICS) embodies excellence, creativity, and collaborative innovation in computer science and information technology. As the only independent computing school in the University of California system, it is well-positioned to continue its tradition of exploring and advancing the boundaries of a broad, multidisciplinary field on a global scale.

ICS faculty have extensive training in traditional computer science, as well as engineering, mathematics and statistics, and the social sciences. The School's stand-alone structure, as opposed to being part of an engineering school, enables the faculty to take the broadest possible view of computer science and information technology. This breadth is reflected in the diverse set of academic degree options for undergraduate and graduate students, some of which are interdisciplinary and jointly administered with other academic units.

The School's three departments — Computer Science, Informatics, and Statistics — fuel a wide range of instructional and research efforts, including: design of algorithms and data structures; computer architecture and embedded computer systems; networked and distributed systems; systems software; social and mobile computing; artificial intelligence, machine learning and data mining; computer games and virtual worlds; databases and information retrieval; computer graphics and visualization; bioinformatics, computational biology and genomics; computer-supported cooperative work, human-centered computing and human-computer interaction; security and privacy; software engineering; managerial and social aspects of computing technology; and statistics. The vibrant Bren School community continues to explore innovative topics ranging from building complete computer systems on chips smaller than a human fingernail to developing user-interface systems that allow workers on opposite sides of the world to collaborate effectively. Bren School research continues to focus on how computing and information technology can be used to solve a broad set of real-world problems, such as improving how first responders communicate during a crisis, optimizing transportation systems, analyzing data to expedite biological research, and improving network security.

Faculty are active participants in and leaders of numerous research institutes spanning computer science, including the Institute for Genomics and Bioinformatics; Institute for Software Research; Institute for Virtual Environments and Computer Games; Center for Embedded Computer Systems; California Institute for Telecommunications and Information Technology (Calit2); Center for Machine Learning and Intelligent Systems; Center for Organizational Research; Center for Digital Transformation; Genetic Epidemiology Research Institute; Center for Pervasive Communications and Computing; Laboratory for Ubiquitous Computing and Interaction; Secure Computing and Networking Center; Institute for Mathematical Behavioral Sciences; Center for Ethnography; Institute for Transportation Studies; and Ada Byron Research Center.

Faculty and student-driven research in the Bren School is supported through a variety of grants, gifts, and contracts from public and private institutions such as the State of California, the U.S. Department of Education, various U.S. defense agencies, the National Science Foundation, the National Institutes of Health, NASA, and various companies, including The Aerospace Corporation, Boeing, Disney, Experian, Google, IBM, Intel, Microsoft, Samsung, and Yahoo!

Faculty and alumni of the Bren School of ICS have contributed some of computing's most significant advancements, including revolutionizing computer-aided drafting techniques; the creation of the current Hypertext Transfer Protocol (HTTP/1.1); development of the Internet standards for HTTP and Uniform Resource Identifiers (URI); the founding of the Apache HTTP Server Project that produces the software for over 60 percent of public Internet Web sites; and the creation of the Domain Name System (DNS) that translates Web and e-mail addresses into the numeric system used to route information along the Internet.

The Bren School is committed to increasing diversity in the computing and information technology fields. The Ada Byron Research Center was created in 2003 to address research and outreach topics aimed at increasing the participation of women and other underrepresented populations in computer science, engineering, digital media, and related information technology areas. The School is an active partner of the National Center for Women & Information Technology, whose overarching goal is parity in the professional information technology workforce.

Degrees

Business Information Management[1]	B.S.
Computer Game Science	B.S.
Computer Science	B.S., M.S., Ph.D.
Computer Science and Engineering[2]	B.S.
Informatics	B.S., Ph.D.

Information and Computer Science	B.S., M.S., Ph.D.[3]
Networked Systems[2]	M.S., Ph.D.
Software Engineering	B.S., M.S., Ph.D.
Statistics	M.S., Ph.D.

1 Offered jointly with The Paul Merage School of Business. See the Interdisciplinary Studies (p. 1081) section of the *Catalogue* for information.

2 Offered jointly with The Henry Samueli School of Engineering. See the Interdisciplinary Studies (p. 1081) section of the *Catalogue* for information.

3 Admission to the Ph.D. program is no longer available.

Undergraduate Program

A Bren School of ICS undergraduate education is a blend of scholarship, science, technology, and practical application that forms an excellent foundation for professional life.

The basis of the undergraduate program is a set of fundamental courses in mathematics and computer science, supplemented by general education courses from other academic disciplines. A premium is placed on both communication and quantitative skills. Students quickly gain hands-on experience with advanced computing systems, and intense use of computer and network technologies continues throughout the undergraduate program. Students study data organization, algorithm design and analysis, design and organization of hardware and network systems, software engineering, artificial intelligence, social aspects of system design and use, and management of technology. In the process, students work with state-of-the-art hardware and software technologies, and learn several contemporary programming languages.

The Bren School offers seven majors: Business Information Management (BIM), offered jointly with The Paul Merage School of Business; Computer Game Science (CGS); Computer Science (CompSci); Computer Science and Engineering (CSE), offered jointly with The Henry Samueli School of Engineering; Informatics (IN4MATX); Information and Computer Science (ICS); and Software Engineering (SE). There are also programs of study leading to minors in Bioinformatics, Digital Information Systems, Health Informatics, Informatics, Information and Computer Science, and Statistics.

B.S. in Business Information Management (p. 1099)**.** The undergraduate Business Information Management (BIM) major seeks to educate students to understand and apply the theories and concepts of a broad, integrated curriculum covering computing (computer science, informatics, and software); business fundamentals (accounting, finance, marketing, strategy, and operations); and analytical methods (mathematics, statistics, economics, management science, and decision analysis). The fundamentals of information and computer science provide the foundation for understanding and evaluating the technology through which most of the business information is gathered and presented, while the business fundamentals provide a background and context in which information and its analysis will be applied. The major is administered by the Donald Bren School of Information and Computer Sciences and is a collaborative, interdisciplinary degree program between the Bren School and The Paul Merage School of Business.

B.S. in Computer Game Science (p. 976)**.** The Computer Game Science (CGS) major combines a solid foundation in computer science with a focus on designing, building, and understanding computer games and other forms of interactive media. The fundamentals of information and computer science, along with course work in mathematics, statistics, physics, and film and media studies, provide students with the concepts and tools to study a wide scope of computer game technologies. The major emphasizes design, collaboration, and the understanding of computer games and related technologies and media in a social and cultural context.

B.S. in Computer Science (p. 1030)**.** The Computer Science major emphasizes the principles of computing that underlie our modern world, and provides a strong foundational education to prepare students for the broad spectrum of careers in computing. This major can serve as preparation for either graduate study or a career in industry. Students receive a solid background in low-level architecture and systems; middle-level infrastructure, algorithms, and mathematical foundations. This is a highly flexible degree that allows students to explore a broad range of topics in modern computing. In order to achieve some focus in their upper-division studies, students are required to satisfy the requirements for one of the eight specializations: Algorithms, Architecture and Embedded Systems, Bioinformatics, Information, Intelligent Systems, Networked Systems, Systems and Software, and Visual Computing. Additional electives can be used to satisfy a second specialization or obtain a broader understanding of the field.

B.S. in Computer Science and Engineering (p. 1102)**.** This program is designed to provide students with the fundamentals of computer science, both hardware and software, and the application of engineering concepts, techniques, and methods to both computer systems engineering and software systems design. The Computer Science and Engineering (CSE) major gives students access to multidisciplinary problems in engineering with a focus on total systems engineering. Students learn the computer science principles that are critical to development of software, hardware, and networking of computer systems. From that background, engineering concepts and methods are added to give students exposure to circuit design, network design, and digital signal processing. Elements of engineering practice include a systems view, manufacturing and economic issues, and multidisciplinary engineering applications. The program is administered jointly by the Department of Computer Science in the Bren School of ICS and the Department of Electrical Engineering and Computer Science in The Henry Samueli School of Engineering.

B.S. in Informatics (p. 1055)**.** Within the overall discipline of information and computer science, the Informatics (IN4MATX) major is concerned with the relationship between what is inside the computer and what is outside. The Informatics major addresses the broad set of issues surrounding design, ranging from initial requirements-gathering to estimating and measuring the impact of alternative solutions—all from a multidisciplinary perspective that

includes computer science, information science, organizational science, social science, and cognitive science. Students pursuing the B.S. in Informatics complete a specialization in one of two areas: Human-Computer Interaction, or Organizations and Information Technology.

B.S. in Information and Computer Science (p. 981)**.** The degree in Information and Computer Science is an individually designed degree. Students must submit a proposal for a four-year plan of study along with a rationale for why the proposed plan is a well-motivated set of courses that does not fit into any of the existing ICS majors. Students submitting proposals are strongly encouraged to follow the lower-division requirements for one of the Bren School majors (or provide a rationale for why this is not appropriate) and should include at least 48 units of upper-division ICS, Computer Science, Informatics, or Statistics courses. Proposals must be approved by the ICS Associate Dean for Student Affairs.

B.S. in Software Engineering (p. 982)**.** The Software Engineering major prepares students to be productive members of software engineering teams in a variety of application domains, with focus on the domains of major importance within each decade. It combines a solid foundation in computer science with knowledge of how to engineer modern software systems, and how to function within teams. Course work in mathematics and statistics provides students the basis for rigorous thinking; course work in the foundations of computer science provides students the basis for computational thinking; course work in topics of software engineering prepares students for the production of software; project courses prepare students for the practice of software development. The major emphasizes the design and implementation of large software systems.

Visit the ICS Student Affairs Office website for Majors and Minors restrictions (http://www.ics.uci.edu/ugrad/degrees/MajorMinor_Restrictions_Chart.pdf) and Double Major Restrictions (http://www.ics.uci.edu/ugrad/degrees/Dbl_Major_Restrictions_Chart.pdf).

Honors

Honors at graduation, e.g., *cum laude, magna cum laude, summa cum laude*, are awarded to approximately the top 12 percent of the graduating seniors. A general criterion is that a student must have completed at least 72 units in residence at the University of California. The student's cumulative record at the end of the final quarter is the basis for consideration of awarding Latin Honors. Other important factors are considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext).

Careers

Graduates of the Donald Bren School of Information and Computer Sciences pursue a variety of careers. Many graduates specify, design, and develop a variety of computer-based systems comprising software and hardware in virtually every application domain, such as aerospace, automotive, biomedical, consumer products, engineering, entertainment, environmental, finance, investment, law, management, manufacturing, and pharmacology. Graduates also find jobs as members of research and development teams, developing advanced technologies, designing software and hardware systems, and specifying, designing, and maintaining computing infrastructures for a variety of institutions. Some work for established or start-up companies, while others work as independent consultants. After a few years in industry, many move into management or advanced technical positions. Many students also use the undergraduate major as preparation for graduate study in computer science or another field (e.g., medicine, law, engineering, management).

Admissions

To ensure admission consideration for the fall quarter, students should be sure to file their application by November 30 of the prior year. The selection criteria include grades, test scores, and other considerations.

Transfer Student Policy

Transfer requirements vary by major.

Business Information Management (p. 1099)
Computer Game Science (p. 976)
Computer Science (p. 1030)
Computer Science and Engineering (p. 1102)
Informatics (p. 1055)
Software Engineering (p. 982)

NOTE TO TRANSFER APPLICANTS: These majors require a series of lower-division courses, and prerequisites constrain the order in which they can be taken. Junior-level transfer students who must complete a significant part of this sequence may find that it will take longer than two years at UCI to complete their degree. Python, Java, and C++ are used in the curriculum; therefore, transfer students should plan to learn these languages by studying on their own or by completing related programming courses prior to their first quarter at UCI.

Change of Major

Students interested in changing their major to one offered by the School should contact the ICS Student Affairs Office for more information and assistance. Information is also available at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Major and minor restrictions: Click on the "Major/Minor Restrictions" tab at the top of this page.

Special Programs and Courses

The Bren School of ICS Honors Program

The Bren School of ICS Honors Program provides selected upper-division students an opportunity to carry out a research project under the direction of a faculty member in the School. Eligible students participate in the ICS Honors Seminar (I&C SCI H197), which provides an introduction to the range of current faculty research. Each student then affiliates with an ICS faculty advisor who agrees to supervise a minimum of two quarters of research. The participating student prepares a final written research report and submits a copy for review to both the faculty advisor and the Honors Program advisor. Successful completion of the Honors Program earns the student a certificate and medal from the School. Further, a notation of successful completion is added to the student's transcript. For more information about course requirements, application procedures, and deadlines visit http://honors.ics.uci.edu/, or contact the Student Affairs Office at (949) 824-5156.

Other Opportunities

Bren School of ICS undergraduates may complement their educational experience by participating in other programs. Information about the following programs is available elsewhere in the *Catalogue* and via the program Web sites: Campuswide Honors Program, Undergraduate Research Opportunities Program, Education Road Program, and Student Achievement Guided by Experience (SAGE Scholars).

Concentration: Engineering and Computer Science in the Global Context

The globalization of the marketplace for information technology services and products makes it likely that ICS graduates will work in multicultural settings or be employed by companies with extensive international operations or customer bases. The goal of the concentration is to help students develop and integrate knowledge of the history, language, and culture of a country or geographic region outside the United States, through course work both at UCI and an international host campus, followed by a technology-related internship in the host country.

All Bren School majors in good standing may propose an academic plan that demonstrates the ability to complete the concentration (a minimum of eight courses) and other requirements for graduation in a reasonable time frame. It is expected that a student's proposal will reflect a high degree of planning that includes the guidance of academic counselors and those at the UCI Study Abroad Center regarding course selection, as well as considerations related to internship opportunities, housing, and financial aid. Each student's proposed program of study must be approved by the Bren School of ICS Associate Dean for Student Affairs. The Associate Dean will be available to assist qualified students with the development of a satisfactory academic plan, as needed.

The concentration consists of the following components:

1. A minimum of eight courses at UCI or at the international campus with an emphasis on the culture, language (if applicable and necessary), history, literature of the country that corresponds to the international portion of the program, international law, international labor policy, global issues, global institutions, global conflict and negotiation, and global economics;
2. A one- or two-semester sequence of technical courses related to the major and, possibly, culture, history, and literature courses taken at an international university;
3. A two-month or longer technical internship experience in the same country as the international educational experience.

More information about the requirements for the concentration is available in the ICS Student Affairs Office.

Undergraduate Major in Business Information Management (BIM)

This program is administered jointly by the Bren School of ICS and The Paul Merage School of Business. For information, see the Interdisciplinary Studies (p. 1099) section of the *Catalogue*.

Requirements for the B.S. Degree in Business Information Management

All students must meet the University Requirements (p. 71)**.**
Major Requirements: See the Interdisciplinary Studies (p. 1099) **section of the *Catalogue.***

Undergraduate Major in Computer Game Science

The Computer Game Science major gives students a strong foundation in introductory information and computer science, an extensive education in technologies and design practices associated with computer games, and an opportunity to focus in two areas of particular interest to the student. Students who complete the major will be able to create interactive and human-centered game designs; implement games using skills in modeling, graphics, software engineering, hardware architectures, human interfaces, and aesthetics; and evaluate games and game technology for their use in education, art, and social change.

Career Paths. A wide variety of careers and graduate programs are open to Computer Game Science (CGS) graduates. The video game industry is comparable in size to the film and music industries, and job growth projections are strong for people with strong technical backgrounds. Many other fields, including mobile software development, interactive entertainment, and training and education software have demand for similar skill sets and knowledge. CGS graduates are well-trained in computer science, and can thus pursue graduate programs or any career that involves designing, implementing, evaluating, or interacting with computer-based systems.

Admissions

Freshman Applicants: See the Undergraduate Admissions (p. 52) section.

Transfer Applicants:

Junior-level applicants who satisfactorily complete course requirements will be given preference for admission. Applicants must satisfy the following requirements:

1. Complete one year of approved college-level math, preferably courses in calculus equivalent to UCI's MATH 2A - MATH 2B; if not available, two semester courses equivalent to other major-related math courses are acceptable.
2. Complete one year of transferable computer science courses with at least one course involving concepts such as those found in Java, Python, C++, or other object-oriented or high-level programming language.

Transfer applicants to the Computer Game Science major should be aware that several lower-division courses must be taken at UCI; therefore, the minimum time to degree completion will exceed two years.

NOTE: The introductory sequence in ICS has moved to Python. The Bren School of ICS strongly encourages all participants to become familiar with this programming language prior to matriculation. Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major(s) of interest. Java is used extensively in the curriculum; therefore, transfer students should plan to learn it by studying on their own or by completing a Java-related programming course prior to their first quarter at UCI.

Requirements for the B.S. Degree in Computer Game Science

All students must meet the University Requirements (p. 71)**.**

Major Requirements

Lower-division	
A. Select one of the two groups of courses:	
I&C SCI 21	Introduction to Computer Science I
I&C SCI 22	Introduction to Computer Science II
I&C SCI 45C	Programming in C/C++ as a Second Language
I&C SCI 46	Data Structure Implementation and Analysis
or	
I&C SCI 31	Introduction to Programming
I&C SCI 32	Programming with Software Libraries
I&C SCI 33	Intermediate Programming
I&C SCI 45C	Programming in C/C++ as a Second Language
I&C SCI 46	Data Structure Implementation and Analysis
B. Complete:	
I&C SCI 51	Introductory Computer Organization
C. Complete:	
IN4MATX 43	Introduction to Software Engineering
or I&C SCI 52	Introduction to Software Engineering
D. Complete:	
MATH 2A	Single-Variable Calculus
MATH 2B	Single-Variable Calculus
I&C SCI 6N	Computational Linear Algebra
or MATH 3A	Introduction to Linear Algebra
I&C SCI 6B	Boolean Algebra and Logic
I&C SCI 6D	Discrete Mathematics for Computer Science
STATS 67	Introduction to Probability and Statistics for Computer Science
E. Complete:	
I&C SCI 60	Computer Games and Society
I&C SCI 61	Game Systems and Design
I&C SCI 62	Game Technologies and Interactive Media
F. Complete:	
PHYSICS 3A	Basic Physics
G. Complete:	

FLM&MDA 85A	Introduction to Film and Visual Analysis
Upper-division	
A. Computer Game Science Core Requirements	
I&C SCI 160	Graphics Processors and Game Platforms
I&C SCI 161	Game Engine Lab
I&C SCI 167	Multiplayer Game Systems
I&C SCI 168	Multiplayer Game Project
I&C SCI 169A- 169B	Capstone Game Project I and Capstone Game Project II
and select two of the following:	
I&C SCI 162	Modeling and World Building
I&C SCI 163	Mobile and Ubiquitous Games
I&C SCI 166	Game Design
B. Computer Science Core	
COMPSCI 112	Computer Graphics
COMPSCI 171	Introduction to Artificial Intelligence
C. Select one of the following:	
COMPSCI 122A	Introduction to Data Management
IN4MATX 113	Requirements Analysis and Engineering
IN4MATX 121	Software Design: Applications
IN4MATX 131	Human Computer Interaction
D. CGS Elective Courses:	
Five additional courses chosen from those listed in E	
E. At least three of the 16 upper-division courses satisfying A–D must be in the same Bren ICS track.	

Bren ICS Tracks:

Algorithms	
COMPSCI 161	Design and Analysis of Algorithms
COMPSCI 162	Formal Languages and Automata
COMPSCI 163	Graph Algorithms
COMPSCI 164	Computational Geometry and Geometric Modeling
COMPSCI 165	Project In Algorithms And Data Structures
Artificial Intelligence	
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 174	Bioinformatics
COMPSCI 175	Project in Artificial Intelligence
COMPSCI 177	Applications of Probability in Computer Science
COMPSCI 178	Machine Learning and Data-Mining
COMPSCI 179	Algorithms for Probabilistic and Deterministic Graphical Models
Computational Biology	
COMPSCI 183	Introduction to Computational Biology
COMPSCI 184A	Representations and Algorithms for Molecular Biology
COMPSCI 184B	Probabilistic Modeling of Biological Data
COMPSCI 184C	Computational Systems Biology
Computer Graphics and Vision	
COMPSCI 111	Digital Image Processing
COMPSCI 112	Computer Graphics
COMPSCI 114	Projects in Advanced 3D Computer Graphics
COMPSCI 116	Computational Photography and Vision
COMPSCI 117	Project in Computer Vision
Computer Networks	
COMPSCI 131	Parallel and Distributed Computing

COMPSCI 132	Computer Networks
COMPSCI 133	Advanced Computer Networks
COMPSCI 134	Computer and Network Security
COMPSCI 137/IN4MATX 124	Internet Applications Engineering
Databases	
COMPSCI 121/IN4MATX 141	Information Retrieval
COMPSCI 122A	Introduction to Data Management
COMPSCI 122B	Project in Databases and Web Applications
COMPSCI 125	Next Generation Search Systems
Hardware	
COMPSCI 145A	Embedded Computing Systems
COMPSCI 151	Digital Logic Design
COMPSCI 153	Logic Design Laboratory
COMPSCI 154	Computer Design Laboratory
Human-Computer Interaction	
IN4MATX 131	Human Computer Interaction
IN4MATX 132	Project in Human-Computer Interaction Requirements and Evaluation
IN4MATX 133	User Interaction Software
IN4MATX 134	Project in User Interaction Software
Operating Systems	
COMPSCI 143A	Principles of Operating Systems
COMPSCI 143B	Project in Operating System Organization
COMPSCI 144	High-performance Computers and Program Optimization
COMPSCI 146	Programming in Multitasking Operating Systems
Programming Languages and Compilers	
IN4MATX 101	Concepts in Programming Languages I (same as COMPSCI 141)
IN4MATX 102	Concepts of Programming Language II
COMPSCI 142A	Compilers and Interpreters
COMPSCI 142B	Language Processor Construction
Project Management	
IN4MATX 151	Project Management
IN4MATX 161	Social Analysis of Computerization
IN4MATX 162W	Organizational Information Systems
Simulation and Optimization	
COMPSCI 115	Computer Simulation
COMPSCI 168	Network Optimization
COMPSCI 169	Introduction to Optimization
Social Impacts of Computing	
IN4MATX 161	Social Analysis of Computerization
IN4MATX 162W	Organizational Information Systems
IN4MATX 163	Project in the Social and Organizational Impacts of Computing
Software Design	
IN4MATX 121	Software Design: Applications
IN4MATX 122	Software Design: Structure and Implementation
IN4MATX 123	Software Architecture
Software Engineering	
IN4MATX 113	Requirements Analysis and Engineering
IN4MATX 115	Software Testing, Analysis, and Quality Assurance
IN4MATX 124	Internet Applications Engineering (same as COMPSCI 137)
Non-Track Courses (some of these courses have prerequisites that are not part of the CGS major):	
Computer Game Science	
I&C SCI 162	Modeling and World Building

I&C SCI 163	Mobile and Ubiquitous Games
I&C SCI 166	Game Design
Business Management	
MGMT 101	Management Science
MGMT 102	Managing Organizational Behavior
MGMT 105	Introduction to Marketing
MGMT 154	International Marketing
MGMT 155	Brand Management
Cognitive Science	
PSYCH 130A	Perception and Sensory Processes
PSYCH 131A	Vision
PSYCH 131B	Hearing
PSYCH 135M	The Mind/Body Problem
PSYCH 140C	Cognitive Science
Mathematics	
MATH 112A- 112B- 112C	Introduction to Partial Differential Equations and Applications and Introduction to Partial Differential Equations and Applications and Introduction to Partial Differential Equations and Applications
MATH 115	Mathematical Modeling
MATH 121A- 121B	Linear Algebra and Linear Algebra
Film and Media Studies	
FLM&MDA 113	Narrative/Image
FLM&MDA 114	Film, Media, and the Arts
FLM&MDA 117A	Introduction to Screenwriting
FLM&MDA 144	Studies in New Media

With prior approval of the ICS Associate Dean for Student Affairs, a student may design a new track, or an Independent Study, Honors Research, or Special Topics course may be substituted for a course in a track. Computer Game Science (CGS) elective courses may not be counted as part of the Management minor.

Major and minor restrictions: Click on the "Majors/Minors Restrictions" tab at the top of this page.

Sample Program of Study — Computer Game Science

Freshman		
Fall	**Winter**	**Spring**
I&C SCI 31	I&C SCI 32	I&C SCI 33
I&C SCI 60[1]	I&C SCI 61	I&C SCI 62
MATH 2A	MATH 2B	I&C SCI 6B
WRITING 39A	WRITING 39B	WRITING 39C
Sophomore		
Fall	**Winter**	**Spring**
I&C SCI 45C	I&C SCI 46	IN4MATX 43
I&C SCI 51	I&C SCI 160	I&C SCI 161
I&C SCI 6N	COMPSCI 112	STATS 67
PHYSICS 3A	I&C SCI 6D	GE III/VII
Junior		
Fall	**Winter**	**Spring**
I&C SCI 162, 163, or 166[3]	I&C SCI 167	I&C SCI 162, 163, or 166[3]
COMPSCI 171	COMPSCI 122A, IN4MATX 113, IN4MATX 121, or IN4MATX 131[3]	I&C SCI 168
FLM&MDA 85A[2]	UD Writing	CGS Elective
GE IV/VIII		
Senior		
Fall	**Winter**	**Spring**
CGS Elective	I&C SCI 169A	I&C SCI 169B

CGS Elective GE III	CGS Elective GE IV	CGS Elective GE VI

1 Fulfills GE III.

2 Fulfills GE IV.

3 Select one of these.

Undergraduate Major in Information and Computer Science

The Information and Computer Science major is intended for highly motivated students who are currently enrolled at UCI, who find that their academic and career interests are not well served by any of the existing ICS majors, and would be better served by a uniquely designed course of study.

Application Process

New students are not admitted directly to the Information and Computer Science major. Continuing students can apply to change their major to Information and Computer Science no earlier than the fall quarter of their sophomore year. Students must submit a proposal for a four-year plan of study, along with rationale explaining why the proposed plan is a well-motivated and coherent set of courses that does not fit into any of the existing ICS majors. Students submitting proposals are strongly encouraged to follow the lower-division requirements for one of the ICS majors (or provide a rationale for why this is not appropriate) and should include at least 48 units of upper-division ICS, Computer Science, Informatics, or Statistics courses. Proposals must be approved by the ICS Associate Dean for Student Affairs. See the ICS Student Affairs Office for more details. Complete information about changing majors to ICS is available at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Admissions

New students are not admitted directly to the Information and Computer Science major.

Transfer Applicants:

Students are strongly encouraged to follow the transfer preparation guidelines for any of the other Bren ICS majors.

Requirements for the B.S. Degree in Information and Computer Science

All students must meet the University Requirements (p. 71)**.**
Major Requirements: See the ICS Student Affairs Office.

Minor in Information and Computer Science

Students outside the School may also pursue a minor in Information and Computer Science. The minor provides a focused study of Information and Computer Science to supplement a student's major program of study and prepares students for a profession, career, or academic pursuit in which computer science is an integral part but is not the primary focus. The ICS minor contributes to students' competence in computing technology and proficiency in programming as well as exposing them to the fundamentals of computer science. The minor allows students sufficient flexibility to pursue courses that complement their major field or address specific interests.

Requirements for the Minor

Select one of the following groups:	
I&C SCI 21- 22- 46	Introduction to Computer Science I and Introduction to Computer Science II and Data Structure Implementation and Analysis
or	
I&C SCI 31- 32- 33- 45C- 46	Introduction to Programming and Programming with Software Libraries and Intermediate Programming and Programming in C/C++ as a Second Language and Data Structure Implementation and Analysis
Complete:	
I&C SCI 6D	Discrete Mathematics for Computer Science
Complete one of:	
I&C SCI 51	Introductory Computer Organization
or I&C SCI 52	Introduction to Software Engineering
or IN4MATX 43	Introduction to Software Engineering
Select two upper-division from the following: [1]	
CS 111-144	

CS 151–177	
IN4MATX 101–102	
IN4MATX 111–119	
IN4MATX 123	Software Architecture
IN4MATX 125	Computer Game Development
IN4MATX 131	Human Computer Interaction
IN4MATX 132–134	
IN4MATX 141	Information Retrieval
IN4MATX 148	Project in Ubiquitous Computing
IN4MATX 153	Computer Supported Cooperative Work
IN4MATX 161–163	
IN4MATX 171	Introduction to Medical Informatics

[1] COMPSCI 190–199 and IN4MATX 190–199 may not be applied to the minor.

Major and minor restrictions: Click on the "Major/Minor Restrictions" tab at the top of this page.

Undergraduate Major in Software Engineering

The Software Engineering major gives students a strong foundation in software engineering as well as a solid basis in computer science. Students who complete the major will be able to be productive members of software engineering teams in a variety of application domains including, but not restricted to, Web and mobile applications. The acquired technical knowledge and appreciation for life-long learning, combined with the ability to place software in the social context in which it is developed, empowers students to create novel applications that have the potential to bring social change.

Admissions

Freshman Applicants: See the Undergraduate Admissions (p. 52) section.

Transfer Applicants:

Junior-level applicants who satisfactorily complete course requirements will be given preference for admission. Applicants must satisfy the following requirements:

1. Completion of one year of college-level mathematics (calculus or discrete math).
2. Completion of one year of transferable Computer Science courses; at least one of these should involve concepts such as those found in Java, Python, C++, or other object-oriented or high-level programming language.

NOTE: The introductory sequence in ICS has moved to Python. The Bren School of ICS strongly encourages all participants to become familiar with this programming language prior to matriculation. Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major(s) of interest. Java is used extensively in the curriculum; therefore, transfer students should plan to learn it by studying on their own or by completing a Java-related programming course prior to their first quarter at UCI.

Additional courses beyond those required for admission must be taken to fulfill the lower-division degree requirements, as many are prerequisites for upper-division courses. For some transfer students, this may mean that it will take longer than two years to complete their degree.

Requirements for the B.S. Degree in Software Engineering

All students must meet the University Requirements (p. 71)**.**

Major Requirements

Lower-division

A. Select one of the following:	
I&C SCI 21- 22	Introduction to Computer Science I and Introduction to Computer Science II
or	
IN4MATX 41- 42	Informatics Core Course I and Informatics Core Course II
or	
I&C SCI 31- 32- 33	Introduction to Programming and Programming with Software Libraries and Intermediate Programming
B. Complete:	

I&C SCI 45C	Programming in C/C++ as a Second Language
C. Complete:	
I&C SCI 45J	Programming in Java as a Second Language
D. Complete:	
I&C SCI 46	Data Structure Implementation and Analysis
E. Complete:	
IN4MATX 43	Introduction to Software Engineering
or I&C SCI 52	Introduction to Software Engineering
F. Complete:	
I&C SCI 51	Introductory Computer Organization
G. Complete:	
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
I&C SCI 6B	Boolean Algebra and Logic
I&C SCI 6D	Discrete Mathematics for Computer Science
I&C SCI 6N	Computational Linear Algebra
STATS 67	Introduction to Probability and Statistics for Computer Science
Upper-division	
A. Core Requirements	
COMPSCI 122A	Introduction to Data Management
COMPSCI 143A	Principles of Operating Systems
COMPSCI 132	Computer Networks
COMPSCI 161	Design and Analysis of Algorithms
IN4MATX 101/COMPSCI 141	Concepts in Programming Languages I
IN4MATX 113	Requirements Analysis and Engineering
IN4MATX 115	Software Testing, Analysis, and Quality Assurance
IN4MATX 131	Human Computer Interaction
IN4MATX 121	Software Design: Applications
IN4MATX 122	Software Design: Structure and Implementation
IN4MATX 123	Software Architecture
IN4MATX 151	Project Management
IN4MATX 191A	Senior Design Project
IN4MATX 191B	Senior Design Project
IN4MATX 191C	Senior Design Project
I&C SCI 139W	Critical Writing on Information Technology
B. Select four of the following:	
IN4MATX 102	Concepts of Programming Language II
IN4MATX 124	Internet Applications Engineering
IN4MATX 125/COMPSCI 113	Computer Game Development
IN4MATX 133	User Interaction Software
IN4MATX 134	Project in User Interaction Software
IN4MATX 141/COMPSCI 121	Information Retrieval
IN4MATX 143	Information Visualization
IN4MATX 148	Project in Ubiquitous Computing
IN4MATX 161	Social Analysis of Computerization
COMPSCI 133	Advanced Computer Networks
COMPSCI 134	Computer and Network Security
COMPSCI 142A	Compilers and Interpreters
COMPSCI 142B	Language Processor Construction
COMPSCI 145A	Embedded Computing Systems
COMPSCI 145B	Embedded Computing System Lab
COMPSCI 146	Programming in Multitasking Operating Systems

COMPSCI 165	Project In Algorithms And Data Structures
I&C SCI 160	Graphics Processors and Game Platforms
I&C SCI 167	Multiplayer Game Systems
I&C SCI 168	Multiplayer Game Project

Software Engineering elective courses may not be counted as part of the Management minor.

Career Paths. A wide variety of careers and graduate programs are open to Software Engineering graduates. The Web and mobile applications industry is a multi-billion dollar industry, and job growth projections are the strongest for people with strong technical backgrounds. Many other application domains, including interactive entertainment, medical information systems, and training and education software have demand for similar skill sets and knowledge. Graduate school in either computer science or software engineering or a related IT field is also a possible career path.

Sample Program of Study — Software Engineering

Freshman		
Fall	**Winter**	**Spring**
I&C SCI 31	I&C SCI 32	I&C SCI 33
MATH 2A	MATH 2B	IN4MATX 43
WRITING 39A	WRITING 39B	I&C SCI 6B
	GE III	WRITING 39C
Sophomore		
Fall	**Winter**	**Spring**
I&C SCI 45C	I&C SCI 46	COMPSCI 122A
I&C SCI 51	IN4MATX 113	COMPSCI 143A
I&C SCI 6D	I&C SCI 6N	STATS 67
GE III/VII	IN4MATX 131	GE IV
Junior		
Fall	**Winter**	**Spring**
I&C SCI 45J	IN4MATX 101	IN4MATX 123
IN4MATX 115	IN4MATX 122	IN4MATX 191A
IN4MATX 121	IN4MATX 151	COMPSCI 132
GE III	GE IV/VIII	GE IV
Senior		
Fall	**Winter**	**Spring**
COMPSCI 161	I&C SCI 139W	SE Elective
IN4MATX 191B	IN4MATX 191C	SE Elective
SE Elective	SE Elective	GE VI

Important Notes:

Students who have completed both I&C SCI 21 and I&C SCI 22 with grades of C or better and who wish to change majors to Informatics may use I&C SCI 21 and I&C SCI 22 in satisfaction of the requirements of IN4MATX 41 and IN4MATX 42.

Students who have completed both IN4MATX 41 and IN4MATX 42 with grades of C or better and who wish to change majors to Computer Game Science, Computer Science, or Information and Computer Science may use IN4MATX 41 and IN4MATX 42 in satisfaction of the requirement of I&C SCI 21 and I&C SCI 22.

Students enrolled in other degree programs who are interested in the field of computer science may pursue the Bren School introductory course sequences (I&C SCI 31/CSE 41, I&C SCI 32/CSE 42, and I&C SCI 33/CSE 43) followed by other courses for which they have met the prerequisites as far as their interests require and their programs permit. The introductory courses, along with other lower-division ICS courses, may be used to fulfill General Education requirements. Nonmajors may also take other Bren ICS courses for which they have met the prerequisites.

The ICS Student Affairs Office is staffed by professional academic counselors and peer advisors. These individuals are available to assist students with program planning, questions on University and School policies and procedures, progress toward graduation, and other issues that arise in the course of a student's education. **Faculty also are available for advising, generally for suggestions of additional course work in the student's academic, research, and career interest areas and on preparation for graduate school.**

Minors

- Bioinformatics (p. 985)
- Digital Information Systems (p. 985)
- Health Informatics (p. 986)
- Informatics (p. 987)
- Information and Computer Science (p. 981)

- Statistics (p. 988)
- NOTES:
  a. Visit the ICS Student Affairs Office website for Majors and Minors restrictions (http://www.ics.uci.edu/ugrad/degrees/MajorMinor_Restrictions_Chart.pdf).
  b. A maximum of two courses may be taken for the Pass/Not Pass grade option toward any minor
  c. There are no applications for a Bren ICS minor. Students must have a peer advisor or academic counselor of their major add the minor to their Degree Audit once they begin pursuing the minor.
  d. To ensure you are certified for the minor at graduation, the minor must be on your Degree Audit and Application for Graduation. Your Student Affairs Office will certify your minor at time of graduation, so it is important to keep them updated on your academic progress.

Minor in Bioinformatics

The minor provides a focused study of bioinformatics to supplement a student's major program of study and prepares students for a profession, career, or academic pursuit in which biomedical computing is an integral part but is not the primary focus. The Bioinformatics minor contributes to students' competence in computing applied to biomedical problems and data, as well as exposing them to the fundamentals of the life sciences from a computer science perspective. The minor allows students sufficient flexibility to pursue courses that complement their major field or address specific interests.

Students who complete the minor requirements will be able to do the following: synthesize computer science, quantitative methods, and biological science; understand the synergistic set of reciprocal influences between life and computational sciences and technologies; discuss biomedical computing problems and corresponding computer science perspectives; and employ principles, methods, and technologies fundamental to biomedical computing.

Requirements

Select one of the following:	
I&C SCI 21- 22	Introduction to Computer Science I and Introduction to Computer Science II
or	
I&C SCI 31/CSE 41	Introduction to Programming
Complete:	
I&C SCI 32/CSE 42	Programming with Software Libraries
I&C SCI 33/CSE 43	Intermediate Programming
BIO SCI 93	From DNA to Organisms
COMPSCI 183/BIO SCI M123	Introduction to Computational Biology
COMPSCI 184A	Representations and Algorithms for Molecular Biology
COMPSCI 184B	Probabilistic Modeling of Biological Data
or COMPSCI 184C	Computational Systems Biology
COMPSCI 189	Project in Bioinformatics

NOTE: A maximum of two courses may be taken Pass/Not Pass toward a minor. Bren School majors should refer to the Majors/Minors Restrictions catalog section before attempting to minor in Bionformatics. Students who are considering a major in Computer Science or Computer Science and Engineering must complete the major requirements for a letter grade.

Minor in Digital Information Systems

Students outside the Bren School of ICS may pursue a minor in Digital Information Systems (DIS). The minor is designed for students who want to learn about information systems, computation, and digital communication without preparing to be computer programmers. Students completing the DIS minor will be able to understand the role of digital information systems in society, and will learn about the technological underpinnings of these systems and constraints on their design and use.

Requirements for the Minor

Select two of the following:	
I&C SCI 3	Internet Technologies and their Social Impact
I&C SCI 4	Human Factors for the Web
I&C SCI 5	Global Disruption and Information Technology
I&C SCI 7	Introducing Modern Computational Tools
I&C SCI 8	Practical Computer Security
I&C SCI 11	The Internet and Public Policy
I&C SCI 22	Introduction to Computer Science II

or CSE 22	Introduction to Computer Science II
I&C SCI H22	Honors Introduction to Computer Science II
IN4MATX 42	Informatics Core Course II
or I&C SCI 32	Programming with Software Libraries
IN4MATX 43	Introduction to Software Engineering [1]
I&C SCI 61	Game Systems and Design
Select one of the following:	
I&C SCI 10	How Computers Work
I&C SCI 21	Introduction to Computer Science I
or CSE 21	Introduction to Computer Science I
I&C SCI H21	Honors Introduction to Computer Science I
IN4MATX 41	Informatics Core Course I
or I&C SCI 31	Introduction to Programming
Select four of the following:	
I&C SCI 105	Digital Information Systems [1]
IN4MATX 131	Human Computer Interaction
IN4MATX 132	Project in Human-Computer Interaction Requirements and Evaluation
IN4MATX 143	Information Visualization
IN4MATX 148	Project in Ubiquitous Computing
IN4MATX 151	Project Management
IN4MATX 161	Social Analysis of Computerization
IN4MATX 162W	Organizational Information Systems
IN4MATX 163	Project in the Social and Organizational Impacts of Computing
IN4MATX 171	Introduction to Medical Informatics
IN4MATX 172	Project in Health Informatics

[1] Students cannot take both IN4MATX 43 and I&C SCI 105.

NOTE: Bren School of ICS majors may not minor in Digital Information Systems. Courses used to complete the minor in Digital Information Systems may not also count toward the requirements for the Information and Computer Science minor or the Informatics minor.

Minor in Health Informatics

The minor in Health Informatics prepares students to understand the expanding role of information technology (IT) in health care and to participate in creating IT solutions to health care issues. It includes course work and fieldwork addressing a variety of health care IT settings. Students completing this minor will gain practical experience applying IT to serve the health care needs of communities and individuals.

Requirements for the Minor

Complete:	
IN4MATX 171	Introduction to Medical Informatics
IN4MATX 172	Project in Health Informatics
Select two of the following:	
I&C SCI 4	Human Factors for the Web [1]
I&C SCI 7	Introducing Modern Computational Tools [1]
I&C SCI 10	How Computers Work [1]
I&C SCI 31	Introduction to Programming [1]
I&C SCI 32	Programming with Software Libraries [1]
IN4MATX 121	Software Design: Applications
IN4MATX 123	Software Architecture
IN4MATX 131	Human Computer Interaction
IN4MATX 133	User Interaction Software
IN4MATX 143	Information Visualization
COMPSCI 111	Digital Image Processing

COMPSCI 121/IN4MATX 141	Information Retrieval
COMPSCI 122A	Introduction to Data Management
COMPSCI 131	Parallel and Distributed Computing
COMPSCI 134	Computer and Network Security
COMPSCI/CSE 145A	Embedded Computing Systems
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 178	Machine Learning and Data-Mining
Select two of the following:	
NUR SCI 110W	Frameworks for Professional Nursing Practice
PUBHLTH 101	Introduction to Epidemiology
PUBHLTH 104	Analytic and Applied Epidemiology
PUBHLTH 122	Health Policy
PUBHLTH 124	Environmental and Public Health Policy
Select one of the following:	
IN4MATX 151	Project Management
IN4MATX 161	Social Analysis of Computerization
IN4MATX 162W	Organizational Information Systems
STATS 7	Basic Statistics
STATS 8	Introduction to Biological Statistics
STATS 67	Introduction to Probability and Statistics for Computer Science

[1] This course may only be counted by majors outside of the Bren School of ICS.

NOTE: No more than one of these courses may be used to satisfy both the requirements of this minor and the requirements of the student's major. A student must earn a grade of C or better in all courses used to satisfy the requirements of this minor.

Minor in Informatics

The minor provides a focused study of Informatics to supplement a student's major program of study and prepares students for a profession, career, or academic pursuit in which information and software design is an integral part but is not the primary focus. The minor allows students sufficient flexibility to pursue courses that complement their major field or address specific interests. The minor particularly centers on understanding the relationships among computers and people, and how these relationships must be addressed in information and software design.

Requirements for the Minor

Select one of the following:	
IN4MATX 41- 42- 45	Informatics Core Course I and Informatics Core Course II and Patterns of Software Construction
or	
I&C SCI 31- 32- 33	Introduction to Programming and Programming with Software Libraries and Intermediate Programming
Complete:	
I&C SCI 90	New Students Seminar
or IN4MATX 44	Seminar in Informatics Research Topics
Complete:	
I&C SCI 52	Introduction to Software Engineering
or IN4MATX 43	Introduction to Software Engineering
Complete:	
IN4MATX 131	Human Computer Interaction
and	
IN4MATX 161	Social Analysis of Computerization
and at least two additional upper-division courses in Informatics	

NOTE: A maximum of two courses can be taken Pass/Not Pass toward a minor. Bren School majors should refer to the Majors/Minors Restrictions catalog section before attempting to minor in Digital Information Systems, Health Informatics, or Informatics. Students who are considering a major in Informatics must complete the major requirements for a letter grade.

Minor in Information and Computer Science

Students outside the School may also pursue a minor in Information and Computer Science. The minor provides a focused study of Information and Computer Science to supplement a student's major program of study and prepares students for a profession, career, or academic pursuit in which computer science is an integral part but is not the primary focus. The ICS minor contributes to students' competence in computing technology and proficiency in programming as well as exposing them to the fundamentals of computer science. The minor allows students sufficient flexibility to pursue courses that complement their major field or address specific interests.

Requirements for the Minor

Select one of the following groups:	
I&C SCI 21- 22- 46	Introduction to Computer Science I and Introduction to Computer Science II and Data Structure Implementation and Analysis
or	
I&C SCI 31- 32- 33- 45C- 46	Introduction to Programming and Programming with Software Libraries and Intermediate Programming and Programming in C/C++ as a Second Language and Data Structure Implementation and Analysis
Complete:	
I&C SCI 6D	Discrete Mathematics for Computer Science
Complete one of:	
I&C SCI 51	Introductory Computer Organization
or I&C SCI 52	Introduction to Software Engineering
or IN4MATX 43	Introduction to Software Engineering
Select two upper-division from the following: [1]	
CS 111-144	
CS 151–177	
IN4MATX 101–102	
IN4MATX 111–119	
IN4MATX 123	Software Architecture
IN4MATX 125	Computer Game Development
IN4MATX 131	Human Computer Interaction
IN4MATX 132–134	
IN4MATX 141	Information Retrieval
IN4MATX 148	Project in Ubiquitous Computing
IN4MATX 153	Computer Supported Cooperative Work
IN4MATX 161–163	
IN4MATX 171	Introduction to Medical Informatics

[1] COMPSCI 190–199 and IN4MATX 190–199 may not be applied to the minor.

Minor in Statistics

The minor in Statistics is designed to provide students with exposure to both statistical theory and practice. The minor requires a total of seven courses. These include a mathematics course, five core statistics courses, and an elective that may be taken from among several departments. Some of the courses used to complete the minor may include prerequisites that may or may not be part of a student's course requirements for their major. Because of this, the minor is somewhat intensive, but it is a useful complement to a variety of undergraduate fields for mathematically inclined students. The minor, supplemented with a few additional courses (mathematics and computing), would provide sufficient background for graduate study in statistics. Students considering a minor in Statistics should meet with the Director of Undergraduate Studies in Statistics as early as possible to plan their course work.

NOTE: Students may not receive both a minor in Statistics and a specialization in Statistics within the Mathematics major.

Requirements for the Minor

Required Courses	
MATH 3A	Introduction to Linear Algebra
or MATH 6G	Linear Algebra
STATS 120A- 120B- 120C	Introduction to Probability and Statistics and Introduction to Probability and Statistics and Introduction to Probability and Statistics
STATS 110- 111	Statistical Methods for Data Analysis I and Statistical Methods for Data Analysis II
Select one elective from the following: [1]	
STATS 7	Basic Statistics (or equivalent course) [2]
STATS 112	Statistical Methods for Data Analysis III
STATS 121	Probability Models
MATH 105A	Numerical Analysis
or MATH 105B	Numerical Analysis
MATH 130B	Probability and Stochastic Processes
or MATH 130C	Probability and Stochastic Processes
I&C SCI 21	Introduction to Computer Science I

1 Or can substitute another course with approval of the Director of Undergraduate Studies.

2 Only if taken prior to STATS 110

Graduate Programs in Information and Computer Sciences

The Bren School of ICS offers M.S. and Ph.D. degrees in Computer Science, Informatics, Information and Computer Science, Networked Systems, Software Engineering, and Statistics.

ICS M.S. students must complete one of the following concentrations: Embedded Systems (p. 990) or Informatics (p. 991) (INF).

For additional information about the following graduate programs and requirements, click on these links: Computer Science (p. 1036); Informatics (p. 1061); Statistics (p. 1073); Software Engineering (p. 1061); Networked Systems (p. 1081), which is supervised by an interdepartmental faculty group from the Department of Computer Science in the Bren School and the Department of Electrical Engineering and Computer Science in The Henry Samueli School of Engineering. Information is available on the Interdisciplinary Studies section of the *Catalogue*.

Admission

Applicants will be evaluated on the basis of their prior academic record. Applicants for the M.S. degree are expected to have a bachelor's degree in computer science or a related field. Those who do not have an undergraduate degree in computer science may take the Computer Science Subject GRE test to demonstrate sufficient background in the field. Scores are reviewed on a case-by-case basis. Ph.D. applicants will additionally be evaluated in their potential for creative research and teaching in Information and Computer Sciences.

Applicants are expected to have (1) skills in computer programming at least equivalent to those obtained in college-level courses in programming and language development; (2) skills in mathematics equivalent to those obtained in complete college-level courses in logic and set theory, analysis, linear algebra and modern algebra, or probability and statistics; (3) data structures, analysis of algorithms, automata theory, or formal languages; and (4) computer architectures.

All applicants are evaluated on the materials submitted: letters of recommendation, official GRE test scores, official college transcripts, and personal statement. For more information, contact the ICS graduate counselor at (949) 824-5156 or send e-mail to gcounsel@ics.uci.edu.

Financial Assistance

Financial assistance is available to Ph.D. students in the form of fellowships, teaching assistantships, and research assistantships. Although assistance varies, it is the School's goal to support all entering Ph.D. students, subject to availability of funds. International students who are not citizens of countries where English is either the primary or dominant language, as approved by Graduate Council, and who apply for teaching assistantships must take one of the approved English proficiency examinations. More information is available in the Graduate Division (p. 163) section of the *Catalogue.*

Students with a Previously Earned Master's Degree

Credit for one or all required courses may be given at the time of admission to those students who have completed a master's degree in computer science or a closely related field. Course equivalency will be determined by the Bren School Associate Dean for Student Affairs following a written recommendation from a sponsoring research advisor. Research advisors can require that a student take additional courses when this is appropriate.

An additional M.S. degree will not be awarded if the student currently holds an M.S. degree in computer science or a related field from another university.

Course Substitutions

A student who has taken relevant graduate courses at UCI or another university may petition to have a specific course certified as equivalent to one which satisfies Bren School of ICS requirements. The petition should describe the course and should be approved by either the student's advisor or the instructor teaching the class, and by the Associate Dean for Student Affairs. Only two courses can be substituted.

Master of Science Program

The Bren School offers M.S. degrees in Computer Science, Information and Computer Science, Networked Systems, Software Engineering, and Statistics.

Students pursuing the M.S. in Information and Computer Science must complete a concentration in Embedded Systems or Informatics (INF).

For additional information about the following graduate programs and requirements, click on these links: Computer Science (p. 1036); Software Engineering (p. 1061); Statistics (p. 1073); Networked Systems (p. 1081).

M.S. students may select one of two options, the thesis plan or the comprehensive examination plan, as described below. The normative time for completion of the M.S. degree is two years. All study must be completed within four calendar years from the date of admission.

Plan I: Thesis Plan. The thesis option is available for graduate students who may wish to continue on to a Ph.D. program or those who wish to concentrate on a specific problem. To qualify for this option, students must be in good academic standing with their Department. The student must enroll in at least two quarters of Thesis Supervision (CS 298 or IN4MATX 298) that will substitute for two required courses as specified under the concentration area or specialization of choice. All required courses must be completed with a grade of B or better, and the student must write a research or thesis project. A committee of three faculty members (voting members of the Academic Senate) will guide the student and give final approval of the thesis. The committee will consist of an advisor (faculty member from the student's department) who is willing to supervise the thesis project, and two other faculty members (one of which must be from the student's department) who are willing to serve on the committee as readers of the thesis. An oral presentation of the thesis to the committee will be required. Seminar courses that have an "S" suffix (e.g., 209S) do not count toward degree requirements.

Plan II: Comprehensive Examination Plan. The student completes the required units as specified under the concentration area. Each course must be completed with a grade of B or better. Seminar courses that have an "S" suffix (e.g., 209S) do not count toward degree requirements. The student must take a comprehensive examination given by ICS faculty. The examination covers the core requirements.

ICS Concentration in Embedded Systems—M.S.

The goal of this program is to prepare students for challenges in developing future embedded systems. These future systems will further integrate communications, multimedia, and advanced processors with complex embedded and real-time software for automotive, medical, telecommunications, and many other application domains. Furthermore, embedded systems are becoming parallel, deploying multiprocessor systems-on-a-chip and parallel application software. An in-depth knowledge of the underlying scientific and engineering principles is required to understand these advances and to contribute productively to development of such systems. This program helps students master embedded system fundamentals, advanced computer architecture and compilers, networking, security, embedded, parallel and distributed software, and computer graphics in a sequence of courses and labs. Students also complete a large embedded systems project and may choose to write a Master's thesis.

Required Courses

The following courses must be completed with a grade of B or better.

Select six of the following:

List A	
COMPSCI 244	Introduction to Embedded and Ubiquitous Systems
COMPSCI 247	Design Automation and Prototyping of Embedded Systems
COMPSCI 250A	Computer Systems Architecture
COMPSCI 232	Computer and Communication Networks
COMPSCI 203	Network and Distributed Systems Security
COMPSCI 242	Parallel Computing
COMPSCI 250B	Modern Microprocessors
COMPSCI 230	Distributed Computer Systems
COMPSCI 243	High-Performance Architectures and Their Compilers

Select six additional courses in one of the following two ways:

1. For students pursuing the M.S. thesis option, two four-unit courses in Thesis Supervision (CS 298) plus four graduate courses taken from List A or the following List B

2. For all other students, six graduate courses taken from List A or the following List B	
List B	
COMPSCI 241	Advanced Compiler Construction
COMPSCI 245	Software for Embedded Systems
COMPSCI 246	Valifation and Testing of Embedded Systems
COMPSCI 252	Introduction to Computer Design
EECS 211	Advanced System Software
COMPSCI 211A	Visual Computing
COMPSCI 248A/IN4MATX 241	Introduction to Ubiquitous Computing
IN4MATX 211	Software Engineering
IN4MATX 235	Advanced User Interface Architecture
COMPSCI 236	Wireless and Mobile Networking
COMPSCI 267	Data Compression
COMPSCI 265	Graph Algorithms
EECS 223	Real-Time Computer Systems

M.S. Students who do not have an undergraduate degree in Computer Science or equivalent must also take COMPSCI 260.

Comprehensive Examination or Thesis

Each student must either (1) pass a comprehensive examination administered by the Embedded Systems faculty; or (2) submit a thesis for approval by a three-person committee consisting of an advisor (who is an ICS Embedded Systems full-time faculty member) and two other full-time faculty members (one of which must be from ICS).

ICS Concentration in Informatics (INF)—M.S.

Informatics is the interdisciplinary study of the design, application, use, and impact of information technology. It goes beyond technical design to focus on the relationship between information system design and use in real-world settings. These investigations lead to new forms of system architecture, new approaches to system design and development, new means of information system implementation and deployment, and new models of interaction between technology and social, cultural, and organizational settings.

In the Donald Bren School of Information and Computer Sciences, Informatics is concerned with software architecture, software development, design and analysis, programming languages, ubiquitous computing, information retrieval and management, human-computer interaction, computer-supported cooperative work, and other topics that lie at the relationship between information technology design and use in social and organizational settings. Effective design requires an ability to analyze things from many different perspectives, including computer science, information science, organizational science, social science, and cognitive science. Relevant courses in those disciplines are therefore an integral part of the program and give this concentration a unique interdisciplinary flavor—which is imperative as the computing and information technology fields play such a pervasive role in our daily lives.

Students must complete the Survey courses, Informatics Core courses, Informatics Breadth courses, and a focus track in General Informatics, Interactive and Collaborative Technology, or Ubiquitous Computing. All courses must be passed with a grade of B or better.

Survey of Research and Research Methods: IN4MATX 201 Research Methodology for Informatics and two quarters of IN4MATX 209S Seminar in Informatics. Students in the M.S. program may substitute for IN4MATX 201 one additional four-unit Informatics course numbered 200–299.

Informatics Core Courses: three courses chosen from IN4MATX 211 Software Engineering, Human-Computer Interaction (IN4MATX 231 User Interface Design and Evaluationor IN4MATX 232 Research in Human-Centered Computing), IN4MATX 241 Introduction to Ubiquitous Computing, IN4MATX 261 Social Analysis of Computing.

Informatics Breadth: two four-unit graduate courses in ICS, CS, or Statistics, outside of Informatics.

Students must choose a track and complete the required courses:

General Informatics Track (GEN)
Electives: six four-unit graduate courses approved by the student’s advisor and the Department Chair, excluding 290s, 298s, and 299s.

Interactive and Collaborative Technology Track (ICT)
ICT electives (group 1): two courses chosen from IN4MATX 263 Computerization, Work, and Organizations, IN4MATX 265 Theories of Computerization and Information Systems , IN4MATX 203 Qualitative Research Methods in Information Systems, IN4MATX 205 Quantitative Research Methods in Information Systems.

ICT electives (group 2): two courses chosen from IN4MATX 233 Knowledge-Based User Interfaces, IN4MATX 235 Advanced User Interface Architecture, IN4MATX 251 Computer-Supported Cooperative Work.

ICT Breadth: two four-unit graduate courses approved by the student's advisor, excluding 290s, 298s, and 299s. Students are encouraged, but not required, to take them outside of Informatics.

Ubiquitous Computing Track (UBICOMP)
Additional required courses: IN4MATX 242 Ubiquitous Computing and Interaction and IN4MATX 244 Introduction to Embedded and Ubiquitous Systems.

UBICOMP Breadth: four four-unit graduate courses approved by the student's advisor excluding 290s, 298s, and 299s. Students are encouraged, but not required, to take them outside of Informatics.

Doctor of Philosophy Program - Information & Computer Science

The Ph.D. program is research oriented and encourages students to work together with faculty to solve advanced problems in information and computer science. The program is designed for full-time study, and the normative time for completion of the Ph.D. is five years (four years for students who entered with a master's degree). The maximum time permitted is seven years. Students enrolled in the Ph.D. program must maintain satisfactory academic progress.

Teaching Requirements for the Ph.D. Program

All ICS doctoral students are required to participate in a minimum of two quarters of teaching activities before graduating. College-level teaching activities in UCI Summer Sessions or UCI Extension, or service at other U.S. universities may be accepted in fulfillment of this requirement.

Timeline for the Ph.D. Program

All course requirements must be satisfied prior to the student's application for advancement to candidacy. The normative time for advancement to candidacy is four years (three years for students who entered with a master's degree). Information on the selection of committees, advancement to candidacy, development of a doctoral dissertation, and final examination on the dissertation is available from the ICS Student Affairs Office.

Research Project for the Ph.D.

Each student must find an Informatics faculty advisor and successfully complete a research project with that faculty member by the end of the second year. The research project should be done over at least two quarters of independent study or thesis supervision with that faculty.

Written Assessment for the Ph.D.

Each student must pass a written assessment. Students in the ICT track must pass a written examination (also known as phase II exam) regularly administered by the Department. This examination is based on predetermined reading lists maintained by the ICT faculty. Students in the UBICOMP and GEN tracks must describe the research project in a publication-quality report, which must be approved by three UBICOMP and Informatics faculty, respectively.

Candidacy Examination for the Ph.D.

Each student must pass the oral advancement to candidacy examination, which assesses the student's ability to conduct, present, and orally defend research work at the doctoral level. The candidacy committee will consist of five faculty members, the majority of whom must be members of the student's program, and the examination is conducted in accordance with UCI Senate regulations. The student must complete the course requirements, complete the research project, and pass the written assessment prior to advancing to candidacy. The oral candidacy examination consists of a research presentation by the student, followed by questions from the candidacy committee.

Students in the UBICOMP and GEN tracks, additionally to questions about the presented research, will also be asked questions about a predetermined list of readings. In the case of UBICOMP, that list is maintained by the UBICOMP faculty; in the case of GEN, that list is to be determined by the student's committee.

Doctoral Dissertation Topic Defense

The student must present a substantial written document representing the student's dissertation plan. This document must include the proposed dissertation abstract, a dissertation outline, a comprehensive survey of related work, and a detailed plan for completing the work. The dissertation plan is presented by the student to the dissertation committee, which must unanimously approve the student's proposal. The dissertation defense committee is formed in accordance with UCI Senate regulations.

Doctoral Dissertation and Final Examination

The student is required to complete a doctoral dissertation in accordance with Academic Senate regulations. In addition, the student must pass an oral thesis defense which consists of a public presentation of the student's research followed by an oral examination by the student's doctoral committee. The thesis must be approved unanimously by the committee.

Faculty

Shannon L. Alfaro, M.S. University of California, Irvine, *Lecturer of Computer Science*

Animashree Anandkumar, Ph.D. Cornell University, *Assistant Professor of Electrical Engineering and Computer Science; Computer Science* (statistical inference and learning of graphical models, scalable network algorithms)

Nader Bagherzadeh, Ph.D. University of Texas at Austin, *Professor of Electrical Engineering and Computer Science; Computer Science* (parallel processing, computer architecture, computer graphics, VLSI design)

Brigitte Baldi, Ph.D. Massachusetts Institute of Technology, *Lecturer of Statistics*

Pierre F. Baldi, Ph.D. California Institute of Technology, *UCI Chancellor's Professor of Computer Science; Biological Chemistry; Biomedical Engineering; Developmental and Cell Biology* (bioinformatics, computational biology)

Scott Bartell, Ph.D. University of California, Davis, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology; Social Ecology; Statistics*

Lubomir Bic, Ph.D. University of California, Irvine, *Professor of Computer Science; Biomedical Engineering; Electrical Engineering and Computer Science* (parallel and distributed computing, mobile agents)

Geoffrey C. Bowker, Ph.D. University of Melbourne, *Professor of Informatics; Anthropology* (values in design, social studies of databases, science and technology studies)

Elaheh Bozorgzadeh, Ph.D. University of California, Los Angeles, *Associate Professor of Computer Science; Electrical Engineering and Computer Science* (design automation and synthesis for embedded systems, VLSI CAD, reconfigurable computing)

Carter Butts, Ph.D. Carnegie Mellon University, *Professor of Sociology; Electrical Engineering and Computer Science; Statistics* (mathematical sociology, social networks, quantitative methodology, human judgment and decision making, economic sociology)

Michael Carey, Ph.D. University of California, Berkeley, *Donald Bren Professor of Information & Computer Sciences* and *Professor of Computer Science*

Yunan Chen, Ph.D. Drexel University, *Associate Professor of Informatics; Program in Public Health* (medical informatics, human-computer interaction)

Pai H. Chou, Ph.D. University of Washington, *Professor of Electrical Engineering and Computer Science; Computer Science* (embedded systems, wireless sensor systems, medical devices, real-time systems, hardware/software co-synthesis)

Rina Dechter, Ph.D. University of California, Los Angeles, *Professor of Computer Science*

Michael B. Dillencourt, Ph.D. University of Maryland, College Park, *Professor of Computer Science*

John Christopher Dobrian, Ph.D. University of California, San Diego, *Professor of Music; Informatics* (electronic music, composition)

James P. Dourish, Ph.D. University College London, *Professor of Informatics; Computer Science* (human-computer interaction, computer-supported cooperative work)

Nikil D. Dutt, Ph.D. University of Illinois at Urbana–Champaign, *UCI Chancellor's Professor of Computer Science; Electrical Engineering and Computer Science* (embedded systems, computer architecture, electronic design automation, software systems, brain-inspired architectures and computing)

Magda S. El Zarki, Ph.D. Columbia University, *Professor of Computer Science; Electrical Engineering and Computer Science; Informatics* (telecommunications, networks, wireless communication, video transmission)

David A. Eppstein, Ph.D. Columbia University, *Professor of Computer Science*

Julian Feldman, Ph.D. Carnegie Institute of Technology, *Professor Emeritus of Computer Science*

Charless C. Fowlkes, Ph.D. University of California, Berkeley, *Associate Professor of Computer Science; Cognitive Sciences; Electrical Engineering and Computer Science* (computer vision, machine learning, computational biology)

Michael S. Franz, Ph.D. Swiss Federal Institute of Technology in Zurich, *Professor of Computer Science; Electrical Engineering and Computer Science* (systems software, particularly compilers and virtual machines, trustworthy computing, software engineering)

Daniel H. Frost, M.S. University of California, Irvine, *Senior Lecturer of Computer Science; Informatics* (artificial intelligence, software engineering, computer graphics, teaching of programming)

Daniel L. Gillen, Ph.D. University of Washington, *Associate Professor of Statistics; Epidemiology; Program in Public Health*

Tony D. Givargis, Ph.D. University of California, Riverside, *Professor of Computer Science; Informatics* (embedded systems, platform-based system-on-a-chip design, low-power electronics)

Michael T. Goodrich, Ph.D. Purdue University, *UCI Chancellor's Professor of Computer Science; Electrical Engineering and Computer Science* (computer security, algorithm design, data structures, Internet algorithmics, geometric computing, graphic drawing)

Richard H. Granger, Ph.D. Yale University, *Professor Emeritus of Computer Science*

Judith Gregory, Ph.D. University of California, San Diego, *Associate Adjunct Professor of Informatics* (values in design, translational biomedical informatics, participatory design, design and emotion)

Vijay Gurbaxani, Ph.D. University of Rochester, *Taco Bell Chair in Information Technology Management* and *Professor of Paul Merage School of Business; Informatics* (economics of information systems management, impact of information technology on organization and market structure)

Stacey A. Hancock, Ph.D. Colorado State University, *Lecturer with Potential Security of Employment of Statistics*

Ian G. Harris, Ph.D. University of California, San Diego, *Associate Professor of Computer Science; Electrical Engineering and Computer Science* (hardware/software covalidation, manufacturing test)

Gillian Hayes, Ph.D. Georgia Institute of Technology, *Associate Professor of Informatics; Education* (interactive and collaborative technology, human-computer interaction, computer-supported cooperative work, educational technology, ubiquitous computing)

Wayne B. Hayes, Ph.D. University of Toronto, *Associate Professor of Computer Science*

Dan S. Hirschberg, Ph.D. Princeton University, *Professor of Computer Science; Electrical Engineering and Computer Science* (analyses of algorithms, concrete complexity, data structures, models of computation)

Alexander T. Ihler, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Computer Science*

Sandra S. Irani, Ph.D. University of California, Berkeley, *Professor of Computer Science*

Mizuko Ito, Ph.D. Stanford University, *John D. and Catherine T. MacArthur Foundation Chair in Digital Media and Learning* and *Professor in Residence of Anthropology; Education; Informatics* (ethnography, game studies, youth culture, learning sciences, online communities)

Ramesh Chandra Jain, Ph.D. Indian Institute of Technology Kharagpur, *Donald Bren Professor of Information & Computer Sciences* and *Professor of Computer Science*

Stanislaw M. Jarecki, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Computer Science*

Ivan G. Jeliazkov, Ph.D. Washington University, *Associate Professor of Economics; Statistics*

Wesley O. Johnson, Ph.D. University of Minnesota, *Professor of Statistics*

James Jones, Ph.D. Georgia Institute of Technology, *Assistant Professor of Informatics* (software engineering, software testing and analysis, debugging and fault localization, static and dynamic analysis, software visualization)

Scott A. Jordan, Ph.D. University of California, Berkeley, *Professor of Computer Science; Electrical Engineering and Computer Science* (pricing and differentiated services in the Internet, resource allocation in wireless networks, telecommunications policy)

Dmitri V. Kalashnikov, Ph.D. Purdue University, *Associate Adjunct Professor of Computer Science*

David G. Kay, J.D. Loyola Marymount University, *Senior Lecturer of Informatics; Computer Science* (computer law, computer science education)

Dennis F. Kibler, Ph.D. University of California, Irvine, *Professor Emeritus of Computer Science*

Cory P. Knobel, Ph.D. University of Michigan, *Assistant Adjunct Professor of Informatics* (interactive and collaborative technology, values in design, modes of knowledge representation, philosophy of science and technology)

Alfred Kobsa, Ph.D. University of Vienna, *Professor of Informatics; Computer Science* (user modeling, human-computer interaction, artificial intelligence, cognitive science, interdisciplinary computer science)

Peter O. Krapp, Ph.D. University of California, Santa Barbara, *Department Chair and Professor of Film and Media Studies; English; Informatics* (media history, secret communication, digital culture, cultural memory, computer games, history and theory of artificial worlds)

Jeffrey Krichmar, Ph.D. George Mason University, *Professor of Cognitive Sciences; Computer Science*

Fadi J. Kurdahi, Ph.D. University of Southern California, *Director, Center for Embedded Computer Systems and Professor of Electrical Engineering and Computer Science; Computer Science* (VLSI system design, design automation of digital systems)

Richard H. Lathrop, Ph.D. Massachusetts Institute of Technology, *Professor of Computer Science; Biomedical Engineering* (modeling structure and function, machine learning, intelligent systems and molecular biology, protein structure/function prediction)

Marco Levorato, Ph.D. University of Padua, *Assistant Professor of Computer Science*

Chen Li, Ph.D. Stanford University, *Professor of Computer Science*

Kwei-Jay Lin, Ph.D. University of Maryland, College Park, *Professor of Electrical Engineering and Computer Science; Computer Science* (real-time systems, distributed systems, service-oriented computing)

Cristina V. Lopes, Ph.D. Northeastern University, *Professor of Informatics; Computer Science* (programming languages, acoustic communications, operating systems, software engineering)

George S. Lueker, Ph.D. Princeton University, *Professor Emeritus of Computer Science*

Aditi Majumder, Ph.D. University of North Carolina at Chapel Hill, *Associate Professor of Computer Science; Electrical Engineering and Computer Science* (novel displays and cameras for computer graphics and visualization, human-computer interaction, applied computer vision)

Gloria J. Mark, Ph.D. Columbia University, *Professor of Informatics* (computer-supported cooperative work, human-computer interaction)

Athina Markopoulou, Ph.D. Stanford University, *Associate Professor of Electrical Engineering and Computer Science; Information and Computer Sciences* (networking—reliability and security, multimedia networking, measurement and control, design and analysis of network protocols and algorithims, internet reliability and security, multimedia streaming, network measurements and control)

Melissa Mazmanian, Ph.D. Massachusetts Institute of Technology, *Assistant Professor of Informatics* (computer-mediated communication, organization studies, information and communication technologies in practice, social response to emerging technologies, work/non-work negotiations in the information age)

Gopi Meenakshisumdaram, Ph.D. University of North Carolina at Chapel Hill, *Professor of Computer Science; Electrical Engineering and Computer Science* (geometry and topology for computer graphics, image-based rendering, object representation, surface reconstruction, collision detection, virtual reality, telepresence)

Sharad Mehrotra, Ph.D. University of Texas at Austin, *Professor of Computer Science*

Eric D. Mjolsness, Ph.D. California Institute of Technology, *Professor of Computer Science; Mathematics* (applied mathematics, mathematical biology, modeling languages)

Bonnie A. Nardi, Ph.D. University of California, Irvine, *Professor of Informatics* (computer-supported collaborative work, human-computer interaction, computer-mediated communication, user studies methods, activity theory, cultural responses to technology development)

Emily Navarro, Ph.D. University of California, Irvine, *Lecturer of Informatics*

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Gary Olson, Ph.D. Stanford University, *Donald Bren Professor of Information & Computer Sciences* and *Professor of Informatics* (interactive and collaborative technology, human-computer interaction, computer-supported cooperative work)

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Hernando C. Ombao, Ph.D. University of Michigan, *Professor of Statistics*

Donald J. Patterson, Ph.D. University of Washington, *Associate Professor of Informatics; Computer Science* (ubiquitous computing, pervasive computing, human-computer interaction, artificial intelligence, intelligent context for situated computing)

Richard Pattis, M.S. Stanford University, *Senior Lecturer of Computer Science; Informatics* (MicroWorlds for teaching programming, debugging, computational tools for non-computer scientists)

Simon G. Penny, M.F.A. Hong Kong University of Science and Technology, *Professor of Art; Informatics* (robotic sculpture, interactive environments, electronic media, art practice history, critical theory)

Kavita S. Philip, Ph.D. Cornell University, *Associate Professor of History; Comparative Literature; Informatics* (science and technology studies, South Asian studies, political ecology, critical studies of race, gender, colonialism, new media, globalization)

Dale J. Poirier, Ph.D. University of Wisconsin-Madison, *Professor of Economics; Statistics*

Deva Kannan Ramanan, Ph.D. University of California, Berkeley, *Associate Professor of Computer Science*

David F. Redmiles, Ph.D. University of Colorado Boulder, *Professor of Informatics* (computer-supported cooperative work, human computer interaction, software engineering, globally distributed development teams, user interfaces, software tools)

Amelia C. Regan, Ph.D. University of Texas at Austin, *Professor of Computer Science*

Debra J. Richardson, Ph.D. University of Massachusetts, *Professor of Informatics* (software engineering, program testing, life-cycle validation, software environments)

Isaac D. Scherson, Ph.D. Weizmann Institute of Science, *Professor of Computer Science; Electrical Engineering and Computer Science* (parallel computing architectures, massively parallel systems, parallel algorithms, interconnection networks, performance evaluation)

Babak Shahbaba, Ph.D. University of Toronto, *Assistant Professor of Statistics; Computer Science*

Phillip C-Y Sheu, Ph.D. University of California, Berkeley, *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Computer Science* (database systems, interactive multimedia systems)

Alice Silverberg, Ph.D. Princeton University, *Professor of Mathematics; Computer Science* (algebra and number theory)

Patrick J. Smyth, Ph.D. California Institute of Technology, *Professor of Computer Science; Statistics*

Thomas A. Standish, Ph.D. Carnegie Institute of Technology, *Professor Emeritus of Information and Computer Sciences* (software testing and analysis, software semantics and epistemology, programming and cognition, software comprehension)

Hal S. Stern, Ph.D. Stanford University, *Dean of the Donald Bren School of Information and Computer Sciences, Ted and Janice Smith Family Foundation Endowed Chair in Information and Computer Science,* and *Professor of Statistics; Cognitive Sciences*

Joshua Tanenbaum, M.A. Simon Fraser University, *Acting Assistant Professor of Informatics* (digital games and narrative, tangible and wearable interaction, maker and DIY culture, nonverbal communication and virtual worlds)

Richard N. Taylor, Ph.D. University of Colorado Boulder, *Professor Emeritus of Informatics* (software engineering, user interfaces, environments, team support)

Alexander W. Thornton, B.S. University of California, Irvine, *Lecturer of Computer Science*

William M. Tomlinson, Ph.D. Massachusetts Institute of Technology, *Professor of Informatics; Education* (environmental informatics, educational technology, computer graphics/visualization/digital arts)

Gene Y. Tsudik, Ph.D. University of Southern California, *UCI Chancellor's Professor of Computer Science*

Kojiro Umezaki, M.A. Dartmouth College, *Associate Professor of Music; Computer Science*

Jessica Utts, Ph.D. Pennsylvania State University, *Professor of Statistics*

André W. van der Hoek, Ph.D. University of Colorado Boulder, *Professor of Informatics* (software engineering)

Alexander Veidenbaum, Ph.D. University of Illinois at Urbana-Champaign, *Professor of Computer Science*

Nalini Venkatasubramanian, Ph.D. University of Illinois at Urbana-Champaign, *Professor of Computer Science*

Alladi Venkatesh, Ph.D. Syracuse University, *Professor of Paul Merage School of Business; Informatics* (social impacts of information technology, Internet and the New Economy, Smart Home technologies, children and multimedia)

Mark J. Warschauer, Ph.D. University of Hawaii at Manoa, *Professor of Education; Informatics* (language, literacy, technology)

Max Welling, Ph.D. Utrecht University, *Professor of Computer Science; Statistics*

Xaiohui Xie, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Computer Science; Developmental and Cell Biology* (computational biology, bioinformatics, genomics, neural computation, machine learning)

Guoqing Xu, Ph.D. Ohio State University, *Assistant Professor of Computer Science*

Yaming Yu, Ph.D. Harvard University, *Associate Professor of Statistics*

Zhaoxia Yu, Ph.D. William Marsh Rice University, *Associate Professor of Statistics*

Charles S. Zender, Ph.D. University of Colorado Boulder, *Professor of Earth System Science; Computer Science*

Hong-Kai Zhao, Ph.D. University of California, Los Angeles, *Professor of Mathematics; Computer Science* (applied and computational mathematics, inverse problems and imaging)

Hadar Ziv, Ph.D. University of California, Irvine, *Lecturer of Informatics* (software testing, requirements engineering, Bayesian modeling)

Computer Science Courses

COMPSCI 111. Digital Image Processing. 4 Units.
Introduction to the fundamental concepts of digital signal and image processing as applicable in areas such as multimedia, graphics, AI, data mining, databases, vision, or video games. Topics include image representation, space- and frequency-domain transformations, filters, segmentation, and compression.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and I&C SCI 6D and (MATH 6G or MATH 3A or I&C SCI 6N). I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 6D with a grade of C or better. MATH 6G with a grade of C or better. MATH 3A with a grade of C or better. I&C SCI 6N with a grade of C or better.

COMPSCI 112. Computer Graphics. 4 Units.
Introduction to the fundamental principles of 3D computer graphics including polygonal modeling, geometric transformations, visibility algorithms, illumination models, texturing, and rasterization. Use of an independently-learned 3D graphics API to implement these techniques.

Prerequisite: (I&C SCI 22 or CSE 22 or I&C SCI H22 or I&C SCI 33 or CSE 43) and (I&C SCI 45C or CSE 45C) and (MATH 6G or MATH 3A or I&C SCI 6N). I&C SCI 22 with a grade of C or better. CSE 22 with a grade of C or better. I&C SCI H22 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 45C with a grade of C or better. CSE 45C with a grade of C or better. MATH 6G with a grade of C or better. MATH 3A with a grade of C or better. I&C SCI 6N with a grade of C or better.

COMPSCI 113. Computer Game Development. 4 Units.
Introduction to the principles of interactive 2D and 3D computer game development. Concepts in computer graphics, algorithms, software engineering, art and graphics, music and sound, story analysis, and artificial intelligence are presented and are the basis for student work.

Prerequisite: COMPSCI 112 or COMPSCI 171 or IN4MATX 121 or ART 106B or I&C SCI 163 or I&C SCI 166.

Same as IN4MATX 125.

COMPSCI 114. Projects in Advanced 3D Computer Graphics. 4 Units.
Projects in advanced 3D graphics such as illumination, geometric modeling, visualization, and animation. Topics may include physically based and global illumination, solid modeling, curved surfaces, multiresolution modeling, image-based rendering, basic concepts of animation, and scientific visualization.

Prerequisite: COMPSCI 112 and (I&C SCI 45C or CSE 45C). I&C SCI 45C with a grade of C or better. CSE 45C with a grade of C or better. Recommended: COMPSCI 161 or CSE 161 or COMPSCI 164 or COMPSCI 165.

COMPSCI 115. Computer Simulation. 4 Units.
Discrete event-driven simulation; continuous system simulation; basic probability as pertaining to input distributions and output analysis; stochastic and deterministic simulation; static and dynamic system simulation.

Prerequisite: I&C SCI 6B and (MATH 6G or I&C SCI 6N) and STATS 67 and I&C SCI 51 and (I&C SCI 52 or IN4MATX 43). I&C SCI 6B with a grade of C or better. MATH 6G with a grade of C or better. I&C SCI 6N with a grade of C or better. STATS 67 with a grade of C or better. I&C SCI 51 with a grade of C or better. I&C SCI 52 with a grade of C or better. IN4MATX 43 with a grade of C or better.

Restriction: Upper-division students only.

COMPSCI 116. Computational Photography and Vision. 4 Units.
Introduces the problems of computer vision through the application of computational photography. Specific topics include photo-editing (image warping, compositing, hole filling), panoramic image stitching, and face detection for digital photographs.

Prerequisite: I&C SCI 6D and (MATH 6G or MATH 3A or I&C SCI 6N) and MATH 2B and (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46). I&C SCI 6D with a grade of C or better. MATH 6G with a grade of C or better. MATH 3A with a grade of C or better. I&C SCI 6N with a grade of C or better. MATH 2B with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

COMPSCI 117. Project in Computer Vision. 4 Units.
Students undertake construction of a computer vision system. Topics may include automatically building 3D models from photographs, searching photo collections, robot navigation, and human motion tracking.

Prerequisite: I&C SCI 6D and (MATH 6G or MATH 3A or I&C SCI 6N) and MATH 2B and (I&C SCI 23 or CSE 23 or I&C SCI H23 or I&C SCI 46 or CSE 46) and (COMPSCI 112 or COMPSCI 116 or COMPSCI 171 or COMPSCI 178). I&C SCI 6D with a grade of C or better. MATH 6G with a grade of C or better. MATH 3A with a grade of C or better. I&C SCI 6N with a grade of C or better. MATH 2B with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI H23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

COMPSCI 121. Information Retrieval. 4 Units.
An introduction to information retrieval including indexing, retrieval, classifying, and clustering text and multimedia documents.

Prerequisite: (IN4MATX 45 or I&C SCI 46 or CSE 46 or ((I&C SCI 33 or CSE 43) and I&C SCI 45J)) and (STATS 7 or STATS 67). IN4MATX 45 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 45J with a grade of C or better.

Same as IN4MATX 141.

COMPSCI 122A. Introduction to Data Management. 4 Units.
Introduction to the design of databases and the use of database management systems (DBMS) for applications. Topics include entity-relationship modeling for design, relational data model, relational algebra, relational design theory, and Structured Query Language (SQL) programming.

(Design units: 1)

Prerequisite: I&C SCI 23 or CSE 23 or I&C SCI H23 or I&C SCI 46 or CSE 46 or IN4MATX 45 or I&C SCI 33 or CSE 43 or EECS 114. I&C SCI 23 with a grade of C or better CSE 23 with a grade of C or better I&C SCI H23 with a grade of C or better I&C SCI 46 with a grade of C or better CSE 46 with a grade of C or better IN4MATX 45 with a grade of C or better I&C SCI 33 with a grade of C or better CSE 43 with a grade of C or better

Same as EECS 116.

Restriction: School of Information and Computer Sciences majors and Computer Engineering majors have first consideration for enrollment.

COMPSCI 122B. Project in Databases and Web Applications. 4 Units.
Introduces students to advanced database technologies and Web applications. Topics include but are not limited to database connectivity (ODBC/JDBC), extending databases using stored procedures, database administration, Web servers, Web programming languages (Java servlets, XML, Ajax, and mobile platforms).

Prerequisite: (COMPSCI 122A or EECS 116) and I&C SCI 45J.

COMPSCI 122C. Principles of Data Management. 4 Units.
Covers fundamental principles underlying data management systems. Content includes key techniques including storage management, buffer management, record-oriented file system, access methods, query optimization, and query processing.

Prerequisite: COMPSCI 122A and COMPSCI 143A and COMPSCI 152.

Concurrent with COMPSCI 222.

COMPSCI 125. Next Generation Search Systems. 4 Units.
Discusses concepts and techniques related to all aspects of search systems. After considering basic search technology and the state-of-art systems, rapidly developing techniques for multimedia search, local search, event-search, and video-on-demand are explored.

Prerequisite: I&C SCI 21 or CSE 21 or IN4MATX 41 or I&C SCI 31 or IN4MATX 41.

Restriction: Upper-division students only.

Concurrent with COMPSCI 225.

COMPSCI 131. Parallel and Distributed Computing. 4 Units.
Parallel and distributed computer systems. Parallel programming models. Common parallel and distributed programming issues. Specific topics covered include parallel programming, performance models, coordination and synchronization, consistency and replication, transactions, fault tolerance.

Prerequisite: I&C SCI 53 and I&C SCI 53L and I&C SCI 45C.

COMPSCI 132. Computer Networks. 4 Units.
Computer network architectures, protocols, and applications. Internet congestion control, addressing, and routing. Local area networks. Multimedia networking.

(Design units: 2)

Prerequisite: EECS 55 or STATS 67.

Same as EECS 148.

Restriction: Computer Engineering and Computer Science and Engineering majors have first consideration for enrollment.

COMPSCI 133. Advanced Computer Networks. 4 Units.
Fundamental principles in computer networks are applied to obtain practical experience and skills necessary for designing and implementing computer networks, protocols, and network applications. Various network design techniques, simulation techniques, and UNIX network programming are covered.

Prerequisite: COMPSCI 132.

COMPSCI 134. Computer and Network Security. 4 Units.
Overview of modern computer and networks security, attacks, and countermeasures. Authentication, identification, data secrecy, data integrity, authorization, access control, computer viruses, network security. Also covers secure e-commerce and applications of public key methods, digital certificates, and credentials.

Prerequisite: I&C SCI 6D and (I&C SCI 33 or CSE 43 or I&C SCI 22 or CSE 22 or IN4MATX 42) and (COMPSCI 122A or EECS 116 or COMPSCI 132 or COMPSCI 143A or CSE 104).

COMPSCI 137. Internet Applications Engineering. 4 Units.
Concepts in Internet applications engineering with emphasis on the Web. Peer-to-Peer and Interoperability. Topics include HTTP and REST, Remote Procedure/Method Calls, Web Services, data representations, content distribution networks, identity management, relevant W3C/IETF standards, and relevant new large-scale computing styles.

Prerequisite: COMPSCI 132.

Same as IN4MATX 124.

Restriction: Upper-division students only.

COMPSCI 141. Concepts in Programming Languages I. 4 Units.
In-depth study of several contemporary programming languages stressing variety in data structures, operations, notation, and control. Examination of different programming paradigms, such as logic programming, functional programming and object-oriented programming; implementation strategies, programming environments, and programming style. Course may be offered online.

Prerequisite: (IN4MATX 42 or I&C SCI 51 or CSE 31 or EECS 31) and (IN4MATX 45 or I&C SCI 46 or CSE 46 or I&C SCI 33 or CSE 43). IN4MATX 42 with a grade of C or better. I&C SCI 51 with a grade of C or better. CSE 31 with a grade of C or better. EECS 31 with a grade of C or better. IN4MATX 45 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Same as IN4MATX 101, CSE 141.

COMPSCI 142A. Compilers and Interpreters. 4 Units.
Introduction to the theory of programming language processors covering lexical analysis, syntax analysis, semantic analysis, intermediate representations, code generation, optimization, interpretation, and run-time support.

Prerequisite: CSE 141 or COMPSCI 141 or IN4MATX 101.

Same as CSE 142.

COMPSCI 142B. Language Processor Construction. 4 Units.
Project course which provides working laboratory experience with construction and behavior of compilers and interpreters. Students build actual language processors and perform experiments which reveal their behaviors.

Prerequisite: COMPSCI 142A or CSE 142.

COMPSCI 143A. Principles of Operating Systems. 4 Units.
Principles and concepts of process and resource management, especially as seen in operating systems. Processes, memory management, protection, scheduling, file systems, and I/O systems are covered. Concepts illustrated in the context of several well-known systems. Course may be offered online. Course may be offered online.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and (I&C SCI 51 or EECS 31 or CSE 31).

Overlaps with EECS 111.

COMPSCI 143B. Project in Operating System Organization. 4 Units.
Detailed specification and design of critical components of an actual operating system including a memory manager, a process server, and a file/IO subsystem. Hardware/software tradeoffs. Emphasis on logical organization of system and communication.

Prerequisite: COMPSCI 143A or CSE 104.

COMPSCI 144. High-performance Computers and Program Optimization. 4 Units.
Analyzes the relationship between computer architecture and program optimization. High-performance and parallelizing compilers for RISC, Superscalar, and VLIW architectures are discussed.

Prerequisite: I&C SCI 51. Recommended: COMPSCI 142A. I&C SCI 51 with a grade of C or better.

COMPSCI 145A. Embedded Computing Systems. 4 Units.
Principles of embedded computing systems: embedded systems architecture, hardware/software components, system software and interfacing, real-time operating systems, hardware/software co-development, and communication issues. Examples of embedded computing in real-world application domains. Simple programming using an embedded systems development environment.

Corequisite: COMPSCI 145B.
Prerequisite: (CSE 46 or I&C SCI 46 or CSE 23 or I&C SCI 23 or I&C SCI 51 or CSE 31 or EECS 31).

Same as CSE 145A.

COMPSCI 145B. Embedded Computing System Lab. 2 Units.
Laboratory section to accompany CSE 145A or COMPSCI 145A.

(Design units: 0)

Corequisite: CSE145A or COMPSCI 145A.

Same as CSE 145B.

COMPSCI 146. Programming in Multitasking Operating Systems. 4 Units.
User- and systems-level programming of modern Internet-connected, multi-user, multitasking operating systems. Shells, scripting, filters, pipelines, programmability, extensibility, concurrency, inter-process communication. Concrete examples of a modern operating system (such as, but not necessarily, Unix programmed in C) are used.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and I&C SCI 51. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 51 with a grade of C or better. Recommended: COMPSCI 143A.

COMPSCI 151. Digital Logic Design. 4 Units.
Boolean algebra. Design/analysis of combinational and sequential systems using SSI/MSI/LSI modules. Number systems. Error detecting and correction codes. Arithmetic algorithms. Hardware/ firmware implementation of algorithms.

Prerequisite: (I&C SCI 33 or CSE 43 or I&C SCI 23 or CSE 43) and I&C SCI 51 and I&C SCI 6B and I&C SCI 6D. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 51 with a grade of C or better.

COMPSCI 152. Computer Systems Architecture. 4 Units.
Design of computer elements; ALU, control unit, and arithmetic circuits. Memory hierarchy and organization. Caches. Function unit sharing and pipelining. I/O and interrupt processing. RTL and behavioral modeling using hardware description languages. Microprocessor organization and implementation techniques.

Prerequisite: COMPSCI 151.

Overlaps with I&C SCI 160, EECS 112.

COMPSCI 153. Logic Design Laboratory. 4 Units.
Introduction to standard integrated circuits. Construction and debugging techniques. Design of digital systems using LSI and MSI components. Practical use of circuits in a laboratory environment, including implementation of small digital systems such as arithmetic modules, displays, and timers.

Prerequisite: COMPSCI 151.

COMPSCI 154. Computer Design Laboratory. 4 Units.
Underlying primitives of computer instruction sets. Principles of microprogramming. Microprogramming. Microprograms written for one or more systems. Typical microprogramming applications discussed and implemented or simulated.

Prerequisite: Prerequisite or corequisite: COMPSCI 151.

COMPSCI 161. Design and Analysis of Algorithms. 4 Units.
Techniques for efficient algorithm design, including divide-and-conquer and dynamic programming, and time/space analysis. Fast algorithms for problems applicable to networks, computer games, and scientific computing, such as sorting, shortest paths, minimum spanning trees, network flow, and pattern matching.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and I&C SCI 6B and I&C SCI 6D and MATH 2B. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

Same as CSE 161.

COMPSCI 162. Formal Languages and Automata. 4 Units.
Formal aspects of describing and recognizing languages by grammars and automata. Parsing regular and context-free languages. Ambiguity, nondeterminism. Elements of computability; Turning machines, random access machines, undecidable problems, NP-completeness.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and MATH 2A and MATH 2B and I&C SCI 6B and I&C SCI 6D. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

Same as LINGUIS 102.

COMPSCI 163. Graph Algorithms. 4 Units.
Algorithms for solving fundamental problems in graph theory. Graph representations, graph traversal, network flow, connectivity, graph layout, matching problems.

Prerequisite: COMPSCI 161 or CSE 161.

COMPSCI 164. Computational Geometry and Geometric Modeling. 4 Units.
Algorithms and data structures for computational geometry and geometric modeling, with applications to game and graphics programming. Topics: convex hulls, Voronoi diagrams, algorithms for triangulation, motion planning, and data structures for geometric searching and modeling of 2D and 3D objects.

Prerequisite: I&C SCI 23 or CSE 23 or I&C SCI H23 or I&C SCI 46 or CSE 46. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI H23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

COMPSCI 165. Project In Algorithms And Data Structures. 4 Units.
Design, implementation, execution, and analysis of algorithms for problems such as sorting, searching, data compression, and data encryption. Time-space-structure trade-offs.

Prerequisite: COMPSCI 161 or CSE 161. Recommended: I&C SCI 45C OR CSE 45C.

COMPSCI 167. Introduction to Applied Cryptography. 4 Units.
An introduction to the essential aspects of applied cryptography, as it is used in practice. Topics include classical cryptography, block ciphers, stream ciphers, public-key cryptography, digital signatures, one-way hash functions, basic cryptographic protocols, and digital certificates and credentials.

Prerequisite: COMPSCI 161 or CSE 161.

Restriction: Upper-division students only.

COMPSCI 168. Network Optimization. 4 Units.
Network modeling techniques and related algorithms for solving large-scale integer programming problems. Exact methods and heuristic techniques. Applications include computer and communications networks and transportation and logistics networks.

Restriction: Upper-division students only.

COMPSCI 169. Introduction to Optimization. 4 Units.
A broad introduction to optimization. Unconstrained and constrained optimization. Equality and inequality constraints. Linear and integer programming. Stochastic dynamic programming.

Prerequisite: (I&C SCI 6N or MATH 3A or MATH 6G) and STATS 67.

Concurrent with COMPSCI 268.

COMPSCI 171. Introduction to Artificial Intelligence. 4 Units.
Different means of representing knowledge and uses of representations in heuristic problem solving. Representations considered include predicate logic, semantic nets, procedural representations, natural language grammars, and search trees.

Corequisite: STATS 67.
Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and MATH 2B.

COMPSCI 172B. Neural Networks and Deep Learning . 4 Units.
Neural network and deep learning from multiple perspectives. Theory of parallel distributed processing systems, algorithmic approaches for learning from data in various manners, applications to difficult problems in AI from computer vision, to natural language understanding, to bioinformatics and chemoinformatics.

Prerequisite: STATS 120A and STATS 120B, or MATH 121A, or COMPSCI 178, or COMPSCI 273A, or equivalents.

Concurrent with COMPSCI 274C.

COMPSCI 174. Bioinformatics. 4 Units.
Introduces fundamental problems in biology that lend themselves to computational approaches. The lectures present the necessary biological background to understand the importance of the problem and the data available for algorithmic analysis.

Prerequisite: COMPSCI 171. COMPSCI 171 with a grade of C or better.

COMPSCI 175. Project in Artificial Intelligence. 4 Units.
Construction of a working artificial intelligence system. Evaluation of capabilities of the system including impact of knowledge representation.

Prerequisite: COMPSCI 171.

COMPSCI 177. Applications of Probability in Computer Science. 4 Units.
Application of probability to real-world problems in computer science. Typical topics include analysis of algorithms and graphs, probabilistic language models, network traffic modeling, data compression, and reliability modeling.

Prerequisite: MATH 2B and STATS 67 and I&C SCI 6B and I&C SCI 6D and (MATH 6G or MATH 3A or I&C SCI 6N).

COMPSCI 178. Machine Learning and Data-Mining. 4 Units.
Introduction to principles of machine learning and data mining applied to real-world datasets. Typical applications include spam filtering, object recognition, and credit scoring.

Prerequisite: I&C SCI 6B and I&C SCI 6D and (I&C SCI 6N or MATH 6G or MATH 3A) and MATH 2B and STATS 67.

COMPSCI 179. Algorithms for Probabilistic and Deterministic Graphical Models. 4 Units.
Graphical model techniques dealing with probabilistic and deterministic knowledge representations. Focuses on graphical models. such as constraint networks, Bayesian networks and Markov networks that have become a central paradigm for knowledge representation and reasoning in Artificial Intelligence and general computer science.

Prerequisite: I&C SCI 23 or CSE 23 or I&C SCI 46 or (CSE 46 and MATH 2A and MATH 2B and STATS 67)

Restriction: Prerequisite required

COMPSCI 183. Introduction to Computational Biology. 4 Units.
The use of theories and methods based on computer science, mathematics, and physics in molecular biology and biochemistry. Basics in biomolecular modeling. Analysis of sequence and structural data of biomolecules. Analysis of biomolecular functions.

Prerequisite: MATH 2D or MATH 2J or STATS 7 or STATS 8.

Same as BIO SCI M123.

Concurrent with MOL BIO 223.

COMPSCI 184A. Representations and Algorithms for Molecular Biology. 4 Units.
Introduction to computational methods in molecular biology, aimed at those interested in learning about this interdisciplinary area. Covers computational approaches to understanding and predicting the structure, function, interactions, and evolution of DNA, RNA, proteins, and related molecules and processes.

Prerequisite: BIO SCI M123 or COMPSCI 183.

Concurrent with COMPSCI 284A.

COMPSCI 184B. Probabilistic Modeling of Biological Data. 4 Units.
A unified Bayesian probabilistic framework for modeling and mining biological data. Applications range from sequence (DNA, RNA, proteins) to gene expression data. Graphical models, Markov models, stochastic grammars, structure prediction, gene finding, evolution, DNA arrays, single- and multiple-gene analysis.

Prerequisite: COMPSCI 184A.

Concurrent with COMPSCI 284B.

COMPSCI 184C. Computational Systems Biology. 4 Units.
Computational inference and modeling of gene regulation networks, signal transduction pathways, and the effects of regulatory networks in cellular processes, development, and disease. Introduction of required mathematical, computational, and data handling tools.

Prerequisite: COMPSCI 184A.

Concurrent with COMPSCI 284C.

COMPSCI 189. Project in Bioinformatics. 4 Units.
Teaches problem definition and analysis, data representation, algorithm design, component integration, solution validation, and testability with teams specifying, designing, building, and testing a solution to a bioinformatics problem. Lectures include engineering values, discussions, and ethical ramifications of biomedical computing issues.

Prerequisite: COMPSCI 184A. COMPSCI 184A with a grade of C or better.

COMPSCI 190. Special Topics in Information and Computer Science. 4 Units.
Studies in selected areas of Information and Computer Science. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

COMPSCI H198. Honors Research. 4 Units.
Directed independent research in computer science for honors students.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only. Bren School of ICS Honors Program or Campuswide Honors Program students only.

COMPSCI 199. Individual Study. 2-5 Units.
Individual research or investigation with Computer Science faculty.

Repeatability: May be repeated for credit unlimited times.

COMPSCI 200S. Seminar in Computer Science Research. 1 Unit.
Graduate colloquium series. Includes weekly talks by notable computer scientists.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

COMPSCI 201. Foundations of Cryptographic Protocols. 4 Units.
Explores fundamental cryptographic tools, including encryption, signatures, and identification schemes. Students are introduced to the provable security paradigm of modern cryptography, focusing on understanding of security properties provided by cryptographic tools, and on proving security (or insecurity) of cryptographic constructions.

Prerequisite: COMPSCI 260 or COMPSCI 263.

COMPSCI 202. Applied Cryptography. 4 Units.
Design and analysis of algorithms for applied cryptography. Topics include symmetric and asymmetric key encryption, digital signatures, one-way hash functions, digital certificates and credentials, and techniques for authorization, non-repudiation, authentication, identification, data integrity, proofs of knowledge, and access control.

Prerequisite: COMPSCI 260 and COMPSCI 263.

COMPSCI 203. Network and Distributed Systems Security. 4 Units.
Modern computer and networks security: attacks and countermeasures, authentication, identification, data secrecy, data integrity, authorization, access control, computer viruses, network security. Group communication and multicast security techniques. Covers secure e-commerce and applications of public key methods, digital certificates, and credentials.

Prerequisite: EECS 148 or COMPSCI 132.

Same as NET SYS 240.

COMPSCI 206. Principles of Scientific Computing. 4 Units.
Overview of widely used principles and methods of numerical and scientific computing, including basic concepts and computational methods in linear algebra, optimization, and probability.

Prerequisite: Basic courses in multivariate calculus, linear algebra, and probability.

Overlaps with STATS 230.

COMPSCI 211A. Visual Computing. 4 Units.
Fundamentals of image processing (convolution, linear filters, spectral analysis), vision geometry (projective geometry, camera models and calibration, stereo reconstruction), radiometry (color, shading, illumination, BRDF), and visual content synthesis (graphics pipeline, texture- bump-, mip-mapping, hidden surface removal, anti-aliasing).

COMPSCI 211B. Computer Graphics and Visualization. 4 Units.
Advanced topics in 3D graphics on rendering, geometric modeling, and visualization. Subjects range from illumination and shading, and multiresolution representations, to other advanced algorithms and data structures in graphics. Also looks at trends that go beyond traditional computer graphics.

Prerequisite: COMPSCI 211A.

COMPSCI 212. Multimedia Systems and Applications. 4 Units.
Organization and structure of modern multimedia systems; audio and video encoding/compression; quality of service concepts; scheduling algorithms for multimedia; resource management in distributed and multimedia systems; multimedia protocols over high-speed networks; synchronization schemes; multimedia applications and teleservices.

Prerequisite: (COMPSCI 143A and COMPSCI 161) or B.S. degree in Computer Science. Recommended: COMPSCI 131 and COMPSCI 132 and COMPSCI 133.

COMPSCI 213. Introduction to Visual Perception. 4 Units.
Introduction to the process of human visual perception. Offers the physiological and psychophysical approach to understand vision, introducing concepts of perception of color, depth, movement. Examples of quantification and application of these models in computer vision, computer graphics, multimedia, HCI.

Prerequisite: MATH 121A.

COMPSCI 216. Image Understanding. 4 Units.
The goal of image understanding is to extract useful semantic information from image data. Course covers low-level image and video processing techniques, feature descriptors, segmentation, objection recognition, and tracking.

Prerequisite: I&C SCI 6D and (I&C SCI 6N or MATH 6G or MATH 3A) and MATH 2B and I&C SCI 46.

COMPSCI 217. Light and Geometry in Computer Vision. 4 Units.
Examines the issues of light transport and multiview geometry in computer vision. Applications include camera calibration, 3D understanding, stereo reconstruction, and illumination estimation.

Prerequisite: I&C SCI 6D and (I&C SCI 6N or MATH 6G or MATH 3A) and MATH 2B and I&C SCI 46 and COMPSCI 211A.

COMPSCI 221. Information Retrieval, Filtering, and Classification. 4 Units.
Algorithms for the storage, retrieval, filtering, and classification of textual and multimedia data. The vector space model, Boolean and probabilistic queries, and relevance feedback. Latent semantic indexing; collaborative filtering; and relationship to machine learning methods.

Prerequisite: COMPSCI 161 and COMPSCI 171 and (I&C SCI 6N or MATH 3A or MATH 6G).

Same as IN4MATX 225.

Restriction: Graduate students only.

COMPSCI 222. Principles of Data Management. 4 Units.
Covers fundamental principles underlying data management systems. Content includes key techniques including storage management, buffer management, record-oriented file system, access methods, query optimization, and query processing.

Prerequisite: COMPSCI 122A and COMPSCI 143A and COMPSCI 152.

Concurrent with COMPSCI 122C.

COMPSCI 223. Transaction Processing and Distributed Data Management. 4 Units.
Covers fundamental principles underlying transaction processing including database consistency, concurrency control, database recovery, and fault-tolerance. Includes transaction processing in centralized, distributed, parallel, and client-server environments.

Prerequisite: COMPSCI 222 and COMPSCI 131.

COMPSCI 224. Advanced Topics in Data Management. 4 Units.
Selected advanced topics in data management. Content differs in each offering and with instructor's interests. Intended for students interested in data management with focus on reading and critiquing recent research papers, presentations, and substantial research projects.

Prerequisite: COMPSCI 143A and COMPSCI 152 and COMPSCI 161 and COMPSCI 222 and COMPSCI 223.

COMPSCI 225. Next Generation Search Systems. 4 Units.
Discusses concepts and techniques related to all aspects of search systems. After considering basic search technology and the state-of-art systems, rapidly developing techniques for multimedia search, local search, event-search, and video-on-demand are explored.

Prerequisite: I&C SCI 21 or CSE 21 or IN4MATX 41 or I&C SCI 31 or CSE 41.

Restriction: Upper-division or Graduate students only.

Concurrent with COMPSCI 125.

COMPSCI 230. Distributed Computer Systems. 4 Units.
Principles of distributed computing systems. Topics covered include message-passing, remote procedure calls, distributed shared memory synchronization, resource and process/thread management, distributed file systems, naming and security.

COMPSCI 232. Computer and Communication Networks. 4 Units.
Network architecture of the Internet, telephone networks, cable networks, and cell phone networks. Network performance models. Network performance models. Advanced concepts and implementations of flow and congestion control, addressing, internetworking, forwarding, routing, multiple access, streaming, and quality-of-service.

Prerequisite: EECS 148 or COMPSCI 132.

Same as EECS 248A, NET SYS 201.

Restriction: Graduate students only.

COMPSCI 233. Networking Laboratory. 4 Units.
A laboratory-based introduction to basic networking concepts such as addressing, sub-netting, bridging, ARP, and routing. Network simulation and design. Structured around weekly readings and laboratory assignments.

Prerequisite: EECS 148 or COMPSCI 132.

Same as NET SYS 202.

COMPSCI 234. Advanced Networks. 4 Units.
Design principles of networked systems, advanced routing and congestion control algorithms, network algorithms, network measurement, management, security, Internet economics, and emerging networks.

Prerequisite: NET SYS 201 or COMPSCI 232 OR EECS 248A.

Same as NET SYS 210.

COMPSCI 236. Wireless and Mobile Networking. 4 Units.
Introduction to wireless networking. The focus is on layers 2 and 3 of the OSI reference model, design, performance analysis, and protocols. Topics covered include: an introduction to wireless networking, digital cellular, next generation cellular, wireless LANs, and mobile IP.

Prerequisite: EECS 148 or COMPSCI 132.

Same as NET SYS 230.

COMPSCI 237. Middleware for Networked and Distributed Systems. 4 Units.
Discusses concepts, techniques, and issues in developing distributed systems middleware that provides high performance and Quality of Service for emerging applications. Also covers existing standards (e.g., CORBA, DCOM, Jini, Espeak) and their relative advantages and shortcomings.

Prerequisite: An undergraduate-level course in operating systems and networks.

Same as NET SYS 260.

COMPSCI 240. Language-Based Security. 4 Units.
Teaches state-of-the art language-based techniques for increasing the security and reliability of software systems. Covers static (e.g., bytecode verification, proof-carrying code) and dynamic (e.g., reference monitors, stack inspection) techniques. Also discusses information flow and securing legacy code.

Prerequisite: COMPSCI 230 or COMPSCI 242 or COMPSCI 262.

COMPSCI 241. Advanced Compiler Construction. 4 Units.
Advanced study of programming language implementation techniques: optimizations such as common sub-expression elimination, register allocation, and instruction scheduling. Implementation of language features such as type-directed dispatch, garbage collection, dynamic linking, and just-in-time code generation.

Prerequisite: COMPSCI 142A.

COMPSCI 242. Parallel Computing. 4 Units.
Definition of parallel processing systems. Theory and application of arrays, trees, and hypercubes. Computational models, applications: sorting, integer arithmetic, matrix operations, Fast Fourier Transform, and others. Interconnection networks: a framework for the description, analysis, and construction of hypercube-derived networks.

COMPSCI 243. High-Performance Architectures and Their Compilers. 4 Units.
Emphasis on the development of automatic tools (i.e., compilers/environments) for the efficient exploitation of parallel machines, and the trade-offs between hardware and software in the design of supercomputing and high-performance machines.

COMPSCI 244. Introduction to Embedded and Ubiquitous Systems. 4 Units.
Embedded and ubiquitous system technologies including processors, DSP, memory, and software. System interfacing basics; communication strategies; sensors and actuators, mobile and wireless technology. Using pre-designed hardware and software components. Design case studies in wireless, multimedia, and/or networking domains.

Prerequisite: I&C SCI 51 and COMPSCI 152 and COMPSCI 161 and (I&C SCI 6N or MATH 3A or MATH 6G or I&C SCI 6D) or B.S. degree in Computer Science.

Same as IN4MATX 244.

COMPSCI 245. Software for Embedded Systems. 4 Units.
Embedded computing elements, device interfaces, time-critical IO handling. Embedded software design under size, performance, and reliability constraints. Software timing and functional validation. Programming methods and compilation for embeddable software. Embedded runtime systems. Case studies of real-time software systems.

Prerequisite: I&C SCI 51 and COMPSCI 152 and COMPSCI 161 and (I&C SCI 6N or MATH 3A or MATH 6G or I&C SCI 6D) or B.S. degree in Computer Science.

COMPSCI 246. Valifation and Testing of Embedded Systems. 4 Units.
Embedded system building blocks including IP cores. Co-simulation. Formal verification using model checking. Verification environments. Test challenges in core integration: compliance, feature, random, and collision testing. Core access and test integration. Interface-based verification and standards.

Prerequisite: B.S. degree in Computer Science or basic courses in algorithms & data structures, calculus, discrete math, linear algebra, symbolic logic.

COMPSCI 247. Design Automation and Prototyping of Embedded Systems. 4 Units.
System representation and modeling. Abstract and language models. Simulation as a modeling activity. Computation and hw/sw systems prototypes. System analysis using models. Constraint and interface modeling. Behavioral compilation and synthesis.

Prerequisite: I&C SCI 6D and I&C SCI 51 and COMPSCI 152 and COMPSCI 161 and COMPSCI 244 and (I&C SCI 6N or MATH 3A or MATH 6G) or B.S. degree in Computer Science.

COMPSCI 248A. Introduction to Ubiquitous Computing. 4 Units.
The "disappearing computer" paradigm. Differences to the desktop computing model: applications, interaction in augmented environments, security, alternate media, small operating systems, sensors, and embedded systems design. Evaluation by project work and class participation.

Same as IN4MATX 241.

COMPSCI 248B. Ubiquitous Computing and Interaction. 4 Units.
Principles and design techniques for ubiquitous computing applications. Conceptual basis for tangible and embodied interaction. Interaction in virtual and augmented environments. Design methods and techniques. Design case studies. Examination by project work.

Prerequisite: IN4MATX 231 and IN4MATX 241.

Same as IN4MATX 242.

COMPSCI 249S. Seminar in Compilers and Operating Systems. 2 Units.
Current research and research trends in system-level software such as compilers and operating systems. Forum for presentation and criticism by students of new published research and work in progress.

Prerequisite: (COMPSCI 142A and COMPSCI 143A) or B.S. degree in Computer Science.

Repeatability: May be taken for credit 4 times.

COMPSCI 250A. Computer Systems Architecture. 4 Units.
Study of architectural issues and their relation to technology and software: design of processor, interconnections, and memory hierarchies.

Prerequisite: COMPSCI 152.

COMPSCI 250B. Modern Microprocessors. 4 Units.
Fundamental concepts and recent advances in computer architecture necessary to understand and use modern microprocessors. Topics span out-of-order execution, multiple instruction issue, control/data speculation, predication, advanced cache and DRAM organizations, embedded systems, DSP and multi-media instructions.

Prerequisite: COMPSCI 250A.

Overlaps with COMPSCI 243.

COMPSCI 252. Introduction to Computer Design. 4 Units.
The methodology and use of CAD tools for computer design, accomplished by a lab in which students practice design using commercially available silicon compilers and other tools.

Prerequisite: COMPSCI 151 and COMPSCI 152.

COMPSCI 253. Analysis of Programming Languages. 4 Units.
Concepts in modern programming languages, their interaction, and the relationship between programming languages and methods for large-scale, extensible software development. Empirical analysis of programming language usage.

Same as IN4MATX 212.

COMPSCI 259S. Seminar in Design Science. 2 Units.
Current research and research trends in design science. Forum for presentation and criticism by students of research work in progress.

Repeatability: May be taken for credit 18 times.

COMPSCI 260. Fundamentals of the Design and Analysis of Algorithms. 4 Units.
Covers fundamental concepts in the design and analysis of algorithms and is geared toward non-specialists in theoretical computer science. Topics include: deterministic and randomized graph algorithms, fundamental algorithmic techniques like divide-and-conquer strategies and dynamic programming, and NP-completeness.

Prerequisite: COMPSCI 161.

COMPSCI 261. Data Structures. 4 Units.
An in-depth treatment of data structures and their associated management algorithms including resource complexity analysis.

Prerequisite: I&C SCI 46 and COMPSCI 161.

COMPSCI 262. Computational Complexity. 4 Units.
Advanced course in computational models and complexity classes. Covers the fundamentals of Turing Machines, Decidability, and NP-completeness. Includes discussion of more advanced topics including polynomial hierarchy, randomized complexity classes, #P-completeness and hardness of approximation.

Prerequisite: COMPSCI 162.

COMPSCI 263. Analysis of Algorithms. 4 Units.
Analysis of correctness and complexity of various efficient algorithms; discussion of problems for which no efficient solutions are known.

Prerequisite: COMPSCI 161 and COMPSCI 261.

COMPSCI 264. Quantum Computation and Information. 4 Units.
Basic models for quantum computation and their foundations in quantum mechanics. Quantum complexity classes and quantum algorithms including algorithms for factoring and quantum simulation. Introduction to quantum information theory and quantum entanglement.

Prerequisite: Basic courses in linear algebra and algorithms.

COMPSCI 265. Graph Algorithms. 4 Units.
Graph definitions, representation methods, graph problems, algorithms, approximation methods, and applications.

Prerequisite: COMPSCI 161 and COMPSCI 261.

COMPSCI 266. Computational Geometry. 4 Units.
An overview of some of the basic problems in computational geometry and of some algorithmic and data-structuring techniques appropriate to their solution.

Prerequisite: COMPSCI 161 and COMPSCI 261.

COMPSCI 267. Data Compression. 4 Units.
An introduction to the theory and practice of modern data compression techniques. Topics include codes, coding, modeling, text compression, lossless and lossy image compression standards and systems, audio compression.

Prerequisite: (COMPSCI 261 and COMPSCI 260) or COMPSCI 261.

COMPSCI 268. Introduction to Optimization. 4 Units.
A broad introduction to optimization. Unconstrained and constrained optimization. Equality and inequality constraints. Linear and integer programming. Stochastic dynamic programming.

Prerequisite: STATS 67 and (I&C SCI 6N or MATH 3A or MATH 6G).

Concurrent with COMPSCI 169.

COMPSCI 269S. Seminar in the Theory of Algorithms and Data Structures. 2 Units.
Current research and research trends in the Theory of algorithms and data structures.

Repeatability: May be taken for credit 18 times.

COMPSCI 271. Introduction to Artificial Intelligence. 4 Units.
The study of theories and computational models for systems which behave and act in an intelligent manner. Fundamental subdisciplines of artificial intelligence including knowledge representation, search, deduction, planning, probabilistic reasoning, natural language parsing and comprehension, knowledge-based systems, and learning.

COMPSCI 273A. Machine Learning. 4 Units.
Computational approaches to learning algorithms for classifications, regression, and clustering. Emphasis is on discriminative classification methods such as decision trees, rules, nearest neighbor, linear models, and naive Bayes.

Prerequisite: COMPSCI 271 and COMPSCI 206.

COMPSCI 274A. Probablistic Learning: Theory and Algorithms. 4 Units.
An introduction to probabilistic and statistical techniques for learning from data, including parameter estimation, density estimation, regression, classification, and mixture modeling.

Prerequisite: COMPSCI 206.

COMPSCI 274B. Learning in Graphical Models. 4 Units.
Models for data analysis are presented in the unifying framework of graphical models. The emphasis is on learning from data but inference is also covered. Real world examples are used to illustrate the material.

Prerequisite: COMPSCI 274A.

COMPSCI 274C. Neural Networks and Deep Learning. 4 Units.
Neural network and deep learning from multiple perspectives. Theory of parallel distributed processing systems, algorithmic approaches for learning from data in various manners, applications to difficult problems in AI from computer vision, to natural language understanding, to bioinformatics and chemoinformatics.

Prerequisite: STATS 120A and STATS 120B, or MATH 121A or COMPSCI 178 or COMPSCI 273A, or equivalents.

Overlaps with COMPSCI 274A, COMPSCI 279S, COMPSCI 277, COMPSCI 276, COMPSCI 278, COMPSCI 274B.

Concurrent with COMPSCI 172B.

COMPSCI 275. Network-based Reasoning/Constraint Networks. 4 Units.
Study of the theory and techniques of constraint network model. Covers techniques for solving constraint satisfaction problems: backtracking techniques, consistency algorithms, and structure-based techniques. Tractable subclasses. Extensions into applications such as temporal reasoning, diagnosis, and scheduling.

Prerequisite: Basic course in algorithm design and analysis.

COMPSCI 276. Network-based reasoning/Belief Networks. 4 Units.
Focuses on reasoning with uncertainty using "Bayes Networks" that encode knowledge as probabilistic relations between variables, and the main task is, given some observations, to update the degree of belief in each proposition.

Prerequisite: A basic course in probability.

COMPSCI 277. Data Mining. 4 Units.
Introduction to the general principles of inferring useful knowledge from large data sets (commonly known as data mining or knowledge discovery). Relevant concepts from statistics, databases and data structures, optimization, artificial intelligence, and visualization are discussed in an integrated manner.

Prerequisite: COMPSCI 273A or COMPSCI 274A.

COMPSCI 278. Probability Models. 4 Units.
Advanced probability, discrete time Markov chains, Poisson processes, continuous time Markov chains. Queuing or simulation as time permits.

Prerequisite: STATS 120A.

Concurrent with STATS 121.

COMPSCI 279S. Seminar in Artificial Intelligence. 2 Units.
Current research and research trends in artificial intelligence.

Repeatability: May be taken for credit 18 times.

COMPSCI 284A. Representations and Algorithms for Molecular Biology. 4 Units.
Introduction to computational methods in molecular biology, aimed at those interested in learning about this interdisciplinary area. Covers computational approaches to understanding and predicting the structure, function, interactions, and evolution of DNA, RNA, proteins, and related molecules and processes.

Prerequisite: A Basic course in algorithms, or a basic course in molecular biology.

Concurrent with COMPSCI 184A.

COMPSCI 284B. Probabilistic Modeling of Biological Data. 4 Units.
A unified Bayesian probabilistic framework for modeling and mining biological data. Applications range from sequence (DNA, RNA, proteins) to gene expression data. Graphical models, Markov models, stochastic grammars, structure prediction, gene finding, evolution, DNA arrays, single- and multiple-gene analysis.

Prerequisite: COMPSCI 284A.

Concurrent with COMPSCI 184B.

COMPSCI 284C. Computational Systems Biology. 4 Units.
Computational inference and modeling of gene regulation networks, signal transduction pathways, and the effects of regulatory networks in cellular processes, development, and disease. Introduction of required mathematical, computational, and data handling tools.

Prerequisite: COMPSCI 284A or COMPSCI 284B or (BIO SCI 99 and MATH 2D and MATH 2J).

Concurrent with COMPSCI 184C.

COMPSCI 285. Mathematical and Computational Biology . 4 Units.
Analytical and numerical methods for dynamical systems, temporal-spatial dynamics, steady state, stability, stochasticity. Application to life sciences: genetics, tissue growth and patterning, cancers, ion channels gating, signaling networks, morphogen gradients. Probabilistic methods.

Prerequisite: MATH 227A.

Same as MATH 227C.

COMPSCI 288A. Biological Networks. 4 Units.
Introduces the basics of primarily graph theoretic analysis and modeling of biological networks. Presents the necessary biological background for understanding different types of biological networks as well as mathematical, algorithmic, and computational complexity issues associated with them.

Prerequisite: I&C SCI 6D and (COMPSCI 161 or CSE 161)and BIO SCI M123.

COMPSCI 289S. Seminar for Informatics in Biology and Medicine. 2 Units.
Current research and research trends in bioinformatics and medical informatics. Forum for presentation and criticism by students of recently published research and work in progress.

Prerequisite: COMPSCI 284A or COMPSCI 284B.

Repeatability: May be repeated for credit unlimited times.

COMPSCI 290. Research Seminar. 2 Units.
Forum for presentation and criticism by students of research work in progress. Presentation of problem areas and related work. Specific goals and progress of research.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

COMPSCI 295. Special Topics in Information and Computer Science . 4 Units.
Studies in selected areas of Information and Computer Science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

COMPSCI 296. Elements of Scientific Writing. 4 Units.
Introduces the concepts and principles of good scientific writing, demonstrates them by examples drawn from the literature, and uses a hands-on approach to apply them to documents being written by the participants.

Grading Option: Satisfactory/unsatisfactory only.

COMPSCI 298. Thesis Supervision. 2-12 Units.
Individual research or investigation conducted in preparation for the M.S. thesis option or the dissertation requirements for the Ph.D. program.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Information and Computer Science majors only.

COMPSCI 299. Individual Study. 1-12 Units.
Individual research or investigation with Computer Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Information and Computer Science majors only.

Informatics Courses

IN4MATX 12. Barter to Bitcoin: Society, Technology and the Future of Money. 4 Units.
Digital money has captured the broad imagination of speculators, coders, regulators, criminals and the mass media. Course puts this change in context: how do we understand money as a social, political and technological phenomenon? Course may be offered online.

Same as SOC SCI 11A.

(II, III)

IN4MATX 41. Informatics Core Course I. 6 Units.
Fundamental concepts of computer software design and construction. Data, algorithms, functions, and abstractions. Overview of computer systems: data representation, architectural components, operating systems, networks. Introduction to information systems: parties involved, architectural alternatives, usability, organizational and social concerns.

Restriction: IN4MATX 41 may not be taken for credit if taken after I&C SCI 22 or CSE 22.

(II, Vb)

IN4MATX 42. Informatics Core Course II. 6 Units.
Alternative data structure implementations; analysis of time and space efficiency. Object-oriented programming concepts and techniques: classes, objects, inheritance, interfaces. Formal languages and automata. Problem modeling and design tradeoffs.

Prerequisite: IN4MATX 41. IN4MATX 41 with a grade of C or better.

Overlaps with I&C SCI 32, CSE 42, I&C SCI 33, CSE 43, I&C SCI 22, CSE 22.

(II, Vb)

IN4MATX 43. Introduction to Software Engineering. 4 Units.
Concepts, methods, and current practice of software engineering. Large-scale software production, software life cycle models, principles and techniques for each stage of development.

Overlaps with I&C SCI 52, I&C SCI 105.

IN4MATX 44. Seminar in Informatics Research Topics. 2 Units.
Introduction to current research topics in Informatics. Various faculty members present current research and relate it to the course content of the Informatics degree program.

Grading Option: Pass/no pass only.

IN4MATX 45. Patterns of Software Construction. 4 Units.
Building software applications; reusing and integrating components; designing for reuse. Effective use of libraries and APIs, file and network I/O, creation of user interfaces.

Prerequisite: IN4MATX 42 or I&C SCI 22 or CSE 22 or I&C SCI H22. I&C SCI H22 with a grade of C or better.

(Vb)

IN4MATX 101. Concepts in Programming Languages I. 4 Units.
In-depth study of several contemporary programming languages stressing variety in data structures, operations, notation, and control. Examination of different programming paradigms, such as logic programming, functional programming and object-oriented programming; implementation strategies, programming environments, and programming style. Course may be offered online.

Prerequisite: (IN4MATX 42 or I&C SCI 51 or CSE 31 or EECS 31) and (IN4MATX 45 or I&C SCI 46 or CSE 46 or I&C SCI 33 or CSE 43). IN4MATX 42 with a grade of C or better. I&C SCI 51 with a grade of C or better. CSE 31 with a grade of C or better. EECS 31 with a grade of C or better. IN4MATX 45 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Same as CSE 141, COMPSCI 141.

IN4MATX 102. Concepts of Programming Language II. 4 Units.
In-depth study of major programming paradigms: imperative, functional, declarative, object-oriented, and aspect-oriented. Understanding the role of programming languages in software development and the suitability of languages in context. Domain-specific languages. Designing new languages for better software development support.

Prerequisite: IN4MATX 101 or COMPSCI 141 or CSE 141. CSE 141 with a grade of C or better.

IN4MATX 113. Requirements Analysis and Engineering. 4 Units.
Aims to equip students to develop techniques of software-intensive systems through successful requirements analysis techniques and requirements engineering. Students learn systematic process of developing requirements through cooperative problem analysis, representation, and validation.

Prerequisite: IN4MATX 42 or I&C SCI 22 or CSE 22 or I&C SCI 33 or CSE 43 and (IN4MATX 43 or I&C SCI 52). IN4MATX 42 with a grade of C or better. I&C SCI 22 with a grade of C or better. CSE 22 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. IN4MATX 43 with a grade of C or better. I&C SCI 52 with a grade of C or better.

IN4MATX 115. Software Testing, Analysis, and Quality Assurance. 4 Units.
Preparation for developing high-quality software through successful veri#cation and validation techniques. Fundamental principles of software testing, implementing software testing practices, ensuring the thoroughness of testing to gain con#dence in the correctness of the software.

Prerequisite: (I&C SCI 45J or I&C SCI 45C or I&C SCI 65 or I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46 or IN4MATX 45) and (IN4MATX 43 or I&C SCI 52). I&C SCI 45J with a grade of C or better. I&C SCI 45C with a grade of C or better. I&C SCI 65 with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. IN4MATX 45 with a grade of C or better. IN4MATX 43 with a grade of C or better. I&C SCI 52 with a grade of C or better.

IN4MATX 117. Project in Software System Design. 4 Units.
Specification, design, construction, testing, and documentation of a complete software system. Special emphasis on the need for and use of teamwork, careful planning, and other techniques for working with large systems.

Prerequisite: (IN4MATX 43 or I&C SCI 52) and (I&C SCI 33 or CSE 43 or I&C SCI 22 or CSE 22 or IN4MATX 42) I&C SCI 52 with a grade of a C or better. IN4MATX 42 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 121. Software Design: Applications. 4 Units.
Introduction to application design: designing the overall functionality of a software application. Topics include general design theory, software design theory, and software architecture. Includes practice in designing and case studies of existing designs.

Prerequisite: IN4MATX 45 or I&C SCI 23 or CSE 23 or I&C SCI 33 or CSE 43. IN4MATX 45 with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 122. Software Design: Structure and Implementation. 4 Units.
Introduction to implementation design: designing the internals of a software application. Topics include design aesthetics, design implementation, design recovery, design patterns, and component reuse. Includes practice in designing and case studies of existing designs.

Prerequisite: (I&C SCI 45J or I&C SCI 46 or IN4MATX 45) and (IN4MATX 101 or COMPSCI 141 or CSE 141).

IN4MATX 123. Software Architecture. 4 Units.
Prepares students to engineer well-structured software systems. Students learn a wide range of software architectural styles, architectural platforms that provide standard services to applications, and formal architecture description languages.

Prerequisite: IN4MATX 122 or ((IN4MATX 101 or COMPSCI 141 or CSE 141) and IN4MATX 113).

IN4MATX 124. Internet Applications Engineering. 4 Units.
Concepts in Internet applications engineering with emphasis on the Web. Peer-to-Peer and Interoperability. Topics include HTTP and REST, Remote Procedure/Method Calls, Web Services, data representations, content distribution networks, identity management, relevant W3C/IETF standards, and relevant new large-scale computing styles.

Prerequisite: COMPSCI 132.

Same as COMPSCI 137.

Restriction: Upper-division students only.

IN4MATX 125. Computer Game Development. 4 Units.
Introduction to the principles of interactive 2D and 3D computer game development. Concepts in computer graphics, algorithms, software engineering, art and graphics, music and sound, story analysis, and artificial intelligence are presented and are the basis for student work.

Prerequisite: COMPSCI 112 or COMPSCI 171 or IN4MATX 121 or ART 106B or I&C SCI 163 or I&C SCI 166.

Same as COMPSCI 113.

IN4MATX 131. Human Computer Interaction. 4 Units.
Basic principles of human-computer interaction (HCI). Introduces students to user interface design techniques, design guidelines, and usability testing. Students gain the ability to design and evaluate user interfaces and become familiar with some of the outstanding research problems in HCI.

Prerequisite: IN4MATX 41 or I&C SCI 10 or I&C SCI 21 or CSE 21 or I&C SCI H21 or I&C SCI 31 or CSE 41 or ENGR 10 or ENGRMAE 10 or EECS 10. IN4MATX 41 with a grade of C or better. I&C SCI 10 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. I&C SCI H21 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. ENGR 10 with a grade of C or better. ENGRMAE 10 with a grade of C or better. EECS 10 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 132. Project in Human-Computer Interaction Requirements and Evaluation. 4 Units.
Students undertake significant projects in the elicitation and specification of HCI requirements and the thorough evaluation of user interfaces.

Prerequisite: IN4MATX 131.

IN4MATX 133. User Interaction Software. 4 Units.
Introduction to human-computer interaction programming. Emphasis on current tools, standards, methodologies for implementing effective interaction designs. Widget toolkits, Web interface programming, geo-spatial and map interfaces, mobile phone interfaces. Strategies for evaluation of user interfaces.

Prerequisite: IN4MATX 45 or I&C SCI 23 or CSE 23 or ((I&C SCI 33 or CSE 43) and I&C SCI 45J). IN4MATX 45 with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 45J with a grade of C or better.

IN4MATX 134. Project in User Interaction Software. 4 Units.
Students complete an end-to-end user interface programming project based on an iterative design paradigm. Topics may include requirements brainstorming, paper prototyping, iterative development, cognitive walk-through, quantitative evaluation, and acceptance testing. Materials fee.

Prerequisite: IN4MATX 131 and IN4MATX 133.

IN4MATX 141. Information Retrieval. 4 Units.
An introduction to information retrieval including indexing, retrieval, classifying, and clustering text and multimedia documents.

Prerequisite: (IN4MATX 45 or I&C SCI 46 or CSE 46 or ((I&C SCI 33 or CSE 43) and I&C SCI 45J)) and (STATS 7 or STATS 67). IN4MATX 45 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 45J with a grade of C or better.

Same as COMPSCI 121.

IN4MATX 143. Information Visualization. 4 Units.
Introduction to interactive visual interfaces for large datasets, and to principles of human visual perception and human computer interaction that inform their design. Various applications for data analysis and monitoring are discussed.

Prerequisite: IN4MATX 131 or I&C SCI 52 or (IN4MATX 43 and (I&C SCI 31 or CSE 41 or I&C SCI 21 or CSE 21 or IN4MATX 41)). IN4MATX 131 with a grade of C or better. I&C SCI 52 with a grade of C or better. IN4MATX 43 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. IN4MATX 41 with a grade of C or better.

IN4MATX 148. Project in Ubiquitous Computing. 4 Units.
Introduction to ubiquitous computing research methods, tools, and techniques. Prototyping, design, and evaluation of physical computing applications, smart environments, embedded systems, and future computing scenarios. Includes hands-on in-class laboratory exercises. Materials fee.

Prerequisite: I&C SCI 10 or I&C SCI 21 or CSE 21 or I&C SCI 31 or CSE 41 or IN4MATX 41. I&C SCI 10 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. IN4MATX 41 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 151. Project Management. 4 Units.
Introduces theoretical and practical aspects of project management. Topics include organizational theory, group behavior, project management skills, case studies, personal and group productivity tools, management of distributed work, stakeholders, consultants, and knowledge management. Students do a project exercise.

Prerequisite: IN4MATX 43 or I&C SCI 52. I&C SCI 52 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 153. Computer Supported Cooperative Work. 4 Units.
Introduces concepts and principles of collaborative systems. Topics may include shared workspaces, group interaction, workflow, architectures, interaction between social and technical features of group work, and examples of collaborative systems used in real-world settings. Students develop a simple collaborative application.

Prerequisite: (IN4MATX 161 or I&C SCI 52 or IN4MATX 43) and (I&C SCI 31 or CSE 41 or I&C SCI 21 or CSE 21 or IN4MATX 41). I&C SCI 52 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. IN4MATX 41 with a grade of C or better.

IN4MATX 161. Social Analysis of Computerization. 4 Units.
Introduction of computerization as a social process. Examines the social opportunities and problems raised by new information technologies, and the consequences of different ways of organizing. Topics include computerization and work life, privacy, virtual communities, productivity paradox, systems risks.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement. IN4MATX 41 or I&C SCI 10 or I&C SCI 21 or CSE 21 or I&C SCI 31 or CSE 41 or ENGR 10 or EECS 10 or ENGRMAE 10. IN4MATX 41 with a grade of C or better. I&C SCI 10 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. ENGR 10 with a grade of C or better. EECS 10 with a grade of C or better. ENGRMAE 10 with a grade of C or better.

IN4MATX 162W. Organizational Information Systems. 4 Units.
Introduction to role of information systems in organizations, components and structure of organizational information systems, and techniques used in information systems analysis, design, and implementation.

Prerequisite: IN4MATX 161. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

IN4MATX 163. Project in the Social and Organizational Impacts of Computing . 4 Units.
Students undertake projects intended to gather and analyze data from situations in which computers are used, organize and conduct experiments intended to test hypotheses about impacts, and explore the application of concepts learned in previous courses.

Prerequisite: IN4MATX 162.

IN4MATX 171. Introduction to Medical Informatics. 4 Units.
Broad overview of medical informatics for students with varied backgrounds. Electronic medical records, online resources, mobile technologies, patient safety, and computational design. Legal, ethical, and public policy issues. Health systems management. Evaluation and fieldwork for health systems.

Same as PUBHLTH 105.

Restriction: Upper-division students only.

IN4MATX 172. Project in Health Informatics. 4 Units.
Students undertake significant quarter-long projects related to health informatics. Topics may include field evaluations of health care technologies, prototypes, iterative design, and system implementations.

Prerequisite: PUBHLTH 105 or IN4MATX 171.

Same as PUBHLTH 106.

IN4MATX 190. Special Topics in Informatics. 4 Units.
Studies in selected areas of informatics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

IN4MATX 191A. Senior Design Project. 4 Units.
Group supervised project in which students analyze, specify, design, construct, evaluate, and adapt a significant information processing system. Topics include team management, professional ethics, and systems analysis.

Prerequisite: Prerequisite or corequisite: IN4MATX 123 or IN4MATX 124. Prerequisite: IN4MATX 121 and IN4MATX 131 and IN4MATX 151 and IN4MATX 161.

Restriction: Upper-division students only.

IN4MATX 191B. Senior Design Project. 4 Units.
Group supervised project in which students analyze, specify, design, construct, evaluate, and adapt a significant information processing system. Topics include team management, professional ethics, and systems analysis.

Prerequisite: IN4MATX 191A.

Grading Option: In progress only.

IN4MATX 191C. Senior Design Project. 4 Units.
Group supervised project in which students analyze, specify, design, construct, evaluate, and adapt a significant information processing system. Topics include team management, professional ethics, and systems analysis.

Prerequisite: IN4MATX 191B.

IN4MATX H198. Honors Research. 4 Units.
Directed independent research in Informatics for honors students.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be repeated for credit unlimited times.

Restriction: Bren School of ICS Honors Program or the Campuswide Honors Program students only.

IN4MATX 199. Individual Study. 2-5 Units.
Individual research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

IN4MATX 201. Research Methodology for Informatics. 4 Units.
Introduction to strategies and idioms of research in Informatics. Includes examination of issues in scientific inquiry, qualitative and quantitative methods, and research design. Both classic texts and contemporary research literature are read and analyzed.

IN4MATX 203. Qualitative Research Methods in Information Systems. 4 Units.
Introduction to qualitative research methods used to study computerization and information systems, such as open-ended interviewing, participant observation, and ethnography. Studies of the methods in practice through examination of research literature.

Prerequisite: IN4MATX 261 or IN4MATX 251.

IN4MATX 205. Quantitative Research Methods in Information Systems. 4 Units.
Quantitative research methods used to study computerization and information systems. Design of instruments, sampling, sample sizes, and data analysis. Validity and reliability. Longitudinal versus cross-sectional designs. Analysis of secondary data. Studies of the methods through examination of research literature.

Prerequisite: (IN4MATX 251 or IN4MATX 261) and basic knowledge of elementary statistics.

IN4MATX 207S. Doctoral Seminar on Research and Writing. 2 Units.
Doctoral seminar centered on original research and writing. Provides a chance for doctoral students at all levels to present original work, brainstorm ongoing issues, and learn to provide and receive critical feedback from peers.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

IN4MATX 209S. Seminar in Informatics. 2 Units.
Current research and research trends in informatics. Forum for presentation and criticism by students of research work in progress.

Repeatability: Unlimited as topics vary.

IN4MATX 211. Software Engineering. 4 Units.
Study of the concepts, methods, and tools for the analysis, design, construction, and measurement of complex software-intensive systems. Underlying principles emphasized. State-of-the-art software engineering and promising research areas covered, including project management.

IN4MATX 212. Analysis of Programming Languages. 4 Units.
Concepts in modern programming languages, their interaction, and the relationship between programming languages and methods for large-scale, extensible software development. Empirical analysis of programming language usage.

Same as COMPSCI 253.

IN4MATX 214. Requirements Engineering and Specification. 4 Units.
Study of rigorous techniques in requirements engineering – requirements definition phase of software development – with focus on modeling and specification. Topics include notations and models for requirements specification; and methods, tools and processes for software requirements elicitation, representation, analysis.

Restriction: Graduate students only.

IN4MATX 215. Software Analysis and Testing. 4 Units.
Studies techniques for developing confidence in software from traditional testing schemes to integrated, multitechnique analytic approaches. Considers strengths and weaknesses and explores opportunities for synergistic technique application. Emphasis is on approaches integrated into the software process.

IN4MATX 217. Software Processes. 4 Units.
Explores vehicles for modeling, coding, and analyzing software processes. Considers integration of software process programming approaches with traditional management issues. Explores the use of software process execution as a vehicle for effective integration of tools into environments.

IN4MATX 219. Software Environments. 4 Units.
Study of the requirements, concepts, and architectures of comprehensive, integrated, software development and maintenance environments. Major topics include process support, object management, communication, interoperability, measurement, analysis, and user interfaces in the environment context.

IN4MATX 221. Software Architecture. 4 Units.
Study of the concepts, representation techniques, development methods, and tools for architecture-centric software engineering. Topics include domain-specific software architectures, architectural styles, architecture description languages, software connectors, and dynamism in architectures.

IN4MATX 223. Applied Software Design Techniques. 4 Units.
Study of concepts, representations, techniques, and case studies in structuring software systems, with an emphasis on design considerations. Topics include static and dynamic system structure, data models, abstractions, naming, protocols and application programmer interfaces.

IN4MATX 225. Information Retrieval, Filtering, and Classification. 4 Units.
Algorithms for the storage, retrieval, filtering, and classification of textual and multimedia data. The vector space model, Boolean and probabilistic queries, and relevance feedback. Latent semantic indexing; collaborative filtering; and relationship to machine learning methods.

Prerequisite: COMPSCI 161 and COMPSCI 171 and (I&C SCI 6N or MATH 3A or MATH 6G).

Same as COMPSCI 221.

Restriction: Graduate students only.

IN4MATX 231. User Interface Design and Evaluation. 4 Units.
Introduction to the design and evaluation of user interfaces, with an emphasis on methodology. Cognitive principles, design life cycle, on-line and off-line prototyping techniques. Toolkits and architectures for interactive systems. Evaluation techniques, including heuristic and laboratory methods.

IN4MATX 232. Research in Human-Centered Computing. 4 Units.
Introduction to contemporary topics in human-computer interaction, including methods, technologies, design, and evaluation. Emerging application domains and their challenges to traditional research methods. Advanced architectures and technologies. Critical issues.

Prerequisite: Some familiarity with HCI principles.

IN4MATX 233. Knowledge-Based User Interfaces. 4 Units.
Concepts related to the development of interactive software systems with a focus on knowledge-based tools and human-centered design. Topics span the fields of human-computer interaction, software engineering, and knowledge representation.

Prerequisite: COMPSCI 171.

IN4MATX 235. Advanced User Interface Architecture. 4 Units.
Architectural concerns in advanced interactive systems. The design of current and emerging platforms for novel interactive systems. Paradigms such as constraint-based programming, multimodal interaction, and perceptual user interfaces for individual, distributed, and ubiquitous applications.

IN4MATX 241. Introduction to Ubiquitous Computing. 4 Units.
The "disappearing computer" paradigm. Differences to the desktop computing model: applications, interaction in augmented environments, security, alternate media, small operating systems, sensors, and embedded systems design. Evaluation by project work and class participation.

Same as COMPSCI 248A.

IN4MATX 242. Ubiquitous Computing and Interaction. 4 Units.
Principles and design techniques for ubiquitous computing applications. Conceptual basis for tangible and embodied interaction. Interaction in virtual and augmented environments. Design methods and techniques. Design case studies. Examination by project work.

Prerequisite: IN4MATX 231 and IN4MATX 241.

Same as COMPSCI 248B.

IN4MATX 244. Introduction to Embedded and Ubiquitous Systems. 4 Units.
Embedded and ubiquitous system technologies including processors, DSP, memory, and software. System interfacing basics; communication strategies; sensors and actuators, mobile and wireless technology. Using pre-designed hardware and software components. Design case studies in wireless, multimedia, and/or networking domains.

Prerequisite: I&C SCI 51 and COMPSCI 152 and COMPSCI 161 and (I&C SCI 6N or MATH 3A or MATH 6G or I&C SCI 6D) or B.S. degree in Computer Science.

Same as COMPSCI 244.

IN4MATX 251. Computer-Supported Cooperative Work. 4 Units.
The role of information systems in supporting work in groups and organizations. Examines various technologies designed to support communication, information sharing, and coordination. Focuses on behavioral and social aspects of designing and using group support technologies.

IN4MATX 261. Social Analysis of Computing. 4 Units.
The social and economic impacts of computing and information technologies on groups, organizations, and society. Topics include computerization and changes in the character of work, social control and privacy, electronic communities, and risks of safety-critical systems to people.

IN4MATX 263. Computerization, Work, and Organizations. 4 Units.
Selected topics in the influence of computerization and information systems in transforming work and organizations. Theories of organization and organizational change. Processes by which diverse information technologies influence changes in work and organizations over short and long time periods.

Prerequisite: IN4MATX 251 or IN4MATX 261.

IN4MATX 265. Theories of Computerization and Information Systems . 4 Units.
Social and economic conceptions of information technology. Macrosocial and economic conditions that foster changes in information technologies. Social construction of information and computer technology in professional worlds. Theories of information technology and large-scale social change.

Prerequisite: IN4MATX 251 or IN4MATX 261.

IN4MATX 267. Digital Media and Society. 4 Units.
Selected topics in the technological and social aspects of online interactions, and policy including online games, social media, electronic activism, e-commerce, and digital libraries. Media-theoretic approaches to digital technology. Architectures, infrastructure considerations, and their consequences.

Prerequisite: IN4MATX 251 or IN4MATX 261.

IN4MATX 269. Computer Law. 4 Units.
The American legal system and its provisions affecting computer systems, computer networks, and information processing. Intellectual property, contracts, privacy, liability for malfunction, computer crime, constitutional issues, transborder data flow, computer-based evidence, and litigation.

Restriction: Graduate students only.

IN4MATX 273. Information Technology in Global Sustainability. 4 Units.
Explores the relationship between recent developments in information technology and the global transition to sustainability. Topics include the role of IT systems in the provision of human needs and wants (e.g., smart grids, food systems, and other IT-enabled infrastructure).

Restriction: Graduate students only.

IN4MATX 290. Research Seminar. 2 Units.
Forum for presentation and criticism by students of research work in progress. Presentation of problem areas and related work. Specific goals and progress of research.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

IN4MATX 291S. Literature Survey in Software Engineering. 2 Units.
Reading and analysis of relevant literature in Software Engineering under the direction of a faculty member.

Repeatability: May be repeated for credit unlimited times.

IN4MATX 295. Special Topics in Informatics. 4 Units.
Studies in selected areas of informatics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

IN4MATX 298. Thesis Supervision. 2-12 Units.
Individual research or investigation conducted in preparation for the M.S. thesis option or the dissertation requirements for the Ph.D. program.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

IN4MATX 299. Individual Study. 2-12 Units.
Individual research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Information and Computer Science Courses

I&C SCI 3. Internet Technologies and their Social Impact. 4 Units.
Examines current Internet technologies and social implications at the individual, group, and societal level. Blogs, wikis, sharing of video, photos, and music, e-commerce, social networking, gaming, and virtual environments. Issues include privacy, trust, identity, reputation, governance, copyright, and malicious behavior.

(III)

I&C SCI 4. Human Factors for the Web. 4 Units.
Principles of human-computer interaction in evaluating, designing, and developing information presented on the World Wide Web. User characteristics, usability analysis, navigation and organization. Color, typography, multimedia, information visualization, prototyping, user studies, evaluation strategies. Web accessibility.

Restriction: May not be taken for credit after IN4MATX 131.

(II)

I&C SCI 5. Global Disruption and Information Technology. 4 Units.
Explores how new forms of information technology may support transition to a sustainable civilization. Topics include design and implementation of IT systems, science of global change, online community building, and “green IT”. Activities involve reading, writing, discussion, and final project. Course may be offered online.

(II)

I&C SCI 6B. Boolean Algebra and Logic . 4 Units.
Relations and their properties; Boolean algebras, formal languages; finite automata.

Prerequisite: High school mathematics through trigonometry.

(Vb)

I&C SCI 6D. Discrete Mathematics for Computer Science. 4 Units.
Covers essential tools from discrete mathematics used in computer science with an emphasis on the process of abstracting computational problems and analyzing them mathematically. Topics include: mathematical induction, combinatorics, and recurrence relations.

Prerequisite: High school mathematics through trigonometry.

(Vb)

I&C SCI 6N. Computational Linear Algebra. 4 Units.
Matrices and linear transformations, systems of linear equations, determinants, linear vector spaces, eigenvalues and eigenvectors, orthogonal matrices, diagonalization, and least squares. Topics will be taught primarily from an algorithmic perspective, including computational solutions, applications, and numerical error analysis.

Overlaps with MATH 6G, MATH 3A.

(II, Vb)

I&C SCI 7. Introducing Modern Computational Tools. 4 Units.
A unified look at a spectrum of modern tools for building, solving, and analyzing simple computational models (deterministic and random) in diverse subject areas. Tools include those for numeric/symbolic computation, and those for acquiring, organizing, translating, processing, and displaying information.

(Va)

I&C SCI 8. Practical Computer Security. 4 Units.
Principles of practical computer security to enable students to defend themselves against malicious threats. Firewalls, anti-virus, secure setup of a wireless access point. Cryptography basics and its application. Embedded devices and related security issues.

(II)

I&C SCI 10. How Computers Work. 4 Units.
ntroduction to digital computer and communication systems. Capabilities and limitations of information technology. Representing information in digital form. Overview of computer organization, Internet, operating systems, software. Human-computer interaction and social impact.

Restriction: May not be taken for credit after I&C SCI 51, I&C SCI 52, I&C SCI 105, or IN4MATX 43.

(II)

I&C SCI 11. The Internet and Public Policy. 4 Units.
How the Internet works. Current public policy issues concerning the Internet. Introductory economics. Communications law. Interactions between information technology, economics, and law. Case studies about Internet and communications policy.

Same as ECON 11.

(II or III).

I&C SCI 21. Introduction to Computer Science I . 6 Units.
Introduces fundamental concepts related to computer software design and construction. Develops initial design and programming skills using a high-level language. Fundamental concepts of control structures, data structures, and object-oriented programming.

Same as CSE 21.
Overlaps with I&C SCI H21, I&C SCI 31, EECS 10, EECS 12, ENGRMAE 10.

Restriction: CSE 21 or I&C SCI 21 may not be taken for credit if taken after IN4MATX 42.

(II, Vb)

I&C SCI H21. Honors Introduction to Computer Science I. 6 Units.
Introduces fundamental concepts of computer software design and construction. Develops initial design and programming skills using a high-level language. Fundamental concepts of control structures, data structures, functional and object-oriented programming. Introduces topics in computer organization and social impact of technology.

Overlaps with I&C SCI 21, I&C SCI 31, CSE 21, EECS 10, EECS 12, ENGR 10.

Restriction: Information and Computer Science, Computer Science Engineering, and Computer Science majors only. Campuswide Honors Program students only. May not be taken for credit after IN4MATX 42.

(II, Vb)

I&C SCI 22. Introduction to Computer Science II. 6 Units.
Abstract behavior of classic data structures (stacks, queues, sorted and unsorted maps), alternative implementations, analysis of time, and space efficiency.

Prerequisite: CSE 21 or I&C SCI 21 or I&C SCI H21. CSE 21 with a grade of C or better. I&C SCI 21 with a grade of C or better. I&C SCI H21 with a grade of C or better.

Same as CSE 22.
Overlaps with I&C SCI H22, CSE 22, CSE 42, I&C SCI 32, CSE 43.

(II, Vb)

I&C SCI H22. Honors Introduction to Computer Science II. 6 Units.
Abstract behavior of classic data structures (stacks, queues, sorted and unsorted maps), alternative implementations. Recursion. Mathematical analysis of time and space efficiency, program analysis and correctness, system design techniques, programming paradigms.

Prerequisite: I&C SCI H21 or I&C SCI 21 or CSE 21. I&C SCI H21 with a grade of B- or better. I&C SCI 21 with a grade of A or better. CSE 21 with a grade of A or better.

Overlaps with IN4MATX 42, CSE 22, CSE 42, I&C SCI 22, I&C SCI 33, CSE 43.

(II, Vb)

I&C SCI H23. Honors Introduction to Computer Science III. 4 Units.
Builds on ICS H22 with respect to mathematical tools and analysis. Focuses on fundamental algorithms in computer science, basic data structures for primary and secondary memory, storage allocation and management techniques, data description, and design techniques.

Prerequisite: I&C SCI H22 or I&C SCI 22 or IN4MATX 42. I&C SCI H22 with a grade of B- or better. I&C SCI 22 with a grade of A or better CSE 22 with a grade of A or better. IN4MATX 42 with a grade of A or better.

Overlaps with I&C SCI 46, CSE 46.

(Vb)

I&C SCI 31. Introduction to Programming. 4 Units.
Introduction to fundamental concepts and techniques for writing software in a high-level programming language. Covers the syntax and semantics of data types, expressions, exceptions, control structures, input/output, methods, classes, and pragmatics of programming.

Same as CSE 41.
Overlaps with I&C SCI 21, CSE 21, I&C SCI H21, EECS 10, EECS 12.

(II, Vb)

I&C SCI 32. Programming with Software Libraries. 4 Units.
Construction of programs for problems and computing environments more varied than in CSE41. Using library modules for applications such as graphics, sound, GUI, database, Web, and network programming. Language features beyond those in CSE41 are introduced as needed.

Prerequisite: I&C SCI 31 or CSE 41. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better.

Same as CSE 42.
Overlaps with I&C SCI 22, CSE 22, I&C SCI H22, IN4MATX 42.

(II and (VA or VB)).

I&C SCI 33. Intermediate Programming. 4 Units.
Intermediate-level language features and programming concepts for larger, more complex, higher-quality software. Functional programming, name spaces, modules, class protocols, inheritance, iterators, generators, operator overloading, reflection. Analysis of time and space efficiency.

Prerequisite: I&C SCI 32 or CSE 42. I&C SCI 32 with a grade of C or better. CSE 42 with a grade of C or better.

Same as CSE 43.
Overlaps with I&C SCI 33, I&C SCI 22, CSE 22, I&C SCI H22, IN4MATX 42.

(II, Vb)

I&C SCI 45C. Programming in C/C++ as a Second Language. 4 Units.
An introduction to the lexical, syntactic, semantic, and pragmatic characteristics of the C/C++ languages for experienced programmers. Emphasis on object-oriented programming, using standard libraries, and programming with manual garbage collection. Formerly ICS 65.

Prerequisite: I&C SCI 22 or CSE 22 or IN4MATX 42 or I&C SCI 33 or CSE 43. I&C SCI 22 with a grade of C or better. CSE 22 with a grade of C or better. IN4MATX 42 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Same as CSE 45C.

I&C SCI 45J. Programming in Java as a Second Language. 4 Units.
An introduction to the lexical, syntactic, semantic, and pragmatic characteristics of the Java language for experienced programmers. Emphasis on object-oriented programming, using standard libraries, and programming with automatic garbage collection.

Prerequisite: I&C SCI 33 or CSE 43. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Overlaps with I&C SCI 22, CSE 22, I&C SCI 23, CSE 23, IN4MATX 45.

Restriction: I&C SCI 45J may not be taken for credit after I&C SCI 22, CSE 22, I&C SCI 23, CSE 23, or IN4MATX 45.

I&C SCI 46. Data Structure Implementation and Analysis. 4 Units.
Focuses on implementation and mathematical analysis of fundamental data structures and algorithms. Covers storage allocation and memory management techniques.

Prerequisite: CSE 45C or I&C SCI 45C. CSE 45C with a grade of C or better. I&C SCI 45C with a grade of C or better.

Same as CSE 46.
Overlaps with I&C SCI H23.

(Vb)

I&C SCI 51. Introductory Computer Organization. 6 Units.
Multilevel view of system hardware and software. Operation and interconnection of hardware elements. Instruction sets and addressing modes. Virtual memory and operating systems. Laboratory work using low-level programming languages. Course may be offered online.

Prerequisite: (I&C SCI 21 or CSE 21 or I&C SCI 31 or CSE 41 or IN4MATX 42) and I&C SCI 6B. IN4MATX 42 with a grade of C or better.

(II)

I&C SCI 52. Introduction to Software Engineering. 6 Units.
Introduction to concepts, methods, and current practice of software engineering. Study of large-scale software production; software life cycle models as an organizing structure; principles and techniques appropriate for each stage of production. Laboratory work involves a project illustrating these elements.

Prerequisite: I&C SCI 23. I&C SCI 23 with a grade of C or better.

Overlaps with I&C SCI 105, IN4MATX 43.

I&C SCI 53. Principles in System Design. 4 Units.
Principles and practice of engineering of computer software and hardware systems. Topics include techniques for controlling complexity; strong modularity using client-server design, virtual memory, and threads; networks; coordination of parallel activities; security and encryption; and performance optimizations.

Corequisite: I&C SCI 53L.
Prerequisite: I&C SCI 51.

I&C SCI 53L. Principles in System Design Library. 2 Units.
Required laboratory section and co-requisite for I&C SCI 53.

Corequisite: I&C SCI 53.
Prerequisite: I&C SCI 51.

I&C SCI 60. Computer Games and Society. 4 Units.
The study and critical analysis of computer games as art objects, cultural artifacts, gateways to virtual worlds, educational aids, and tools for persuasion and social change. Emphasis on understanding games in their historical and cultural context.

Overlaps with UNI STU 12A, UNI STU 12B, UNI STU 12C.

(III)

I&C SCI 61. Game Systems and Design. 4 Units.
Principles and usage of game design elements. Introduction to technologies that support modern computer games. Students design, implement, and critique several small games.

(II)

I&C SCI 62. Game Technologies and Interactive Media. 4 Units.
Technologies for interactive media and game design. Web-based software systems, virtual world platforms, and game engines. Emphasis on conceptual and architectural aspects of these technologies.

Prerequisite: I&C SCI 21 or CSE 21 or I&C SCI 31 or CSE 41 or IN4MATX 42. IN4MATX 42 with a grade of C or better.

I&C SCI 77A. Mathematics and Computation in the Digital Age: Introduction to Signal Processing. 4 Units.
Signals in Matlab; blurring, filtering; elements of linear algebra, statistics, optimization; blind matrix inversion; de-correlation method, stochastic gradient descent method, applications to sounds and images.

Prerequisite: MATH 2B and I&C SCI 31.

Same as MATH 77A.

Restriction: Lower-division students only.

(II, Va)

I&C SCI 77B. Mathematics and Computation in the Digital Age: Introduction to Collaborative Filtering. 4 Units.
Basic concepts of collaborative filtering; clustering; matrix factorization and principal components analysis; regression; classification: naive Bayes classifier, decision trees, Perceptron (neural networks).

Prerequisite: MATH 2B and I&C SCI 31.

Same as MATH 77B.

Restriction: Lower-division students only.

(II, Va)

I&C SCI 77C. Mathematics and Computation in the Digital Age: Introduction to Image Processing. 4 Units.
Image de-noising, de-blurring, low pass filtering; image segmentation and classification; Sparse representation; visualization.

Prerequisite: MATH 2B and I&C SCI 31.

Same as MATH 77C.

Restriction: Lower-division students only.

(II, Va)

I&C SCI 77D. Mathematics and Computation in the Digital Age: Intro to Game Simulation and Analysis. 4 Units.
Combinatorial Game Theory--game classification, tree graphs, strategy analysis, Sprague Grundy functions, Bouton's Theorem; Zero-Sum and General-Sum Game Theory--pay off matrices, Minimax Theorem, Nash equilibrium; machine learning--search algorithms.

Prerequisite: MATH 2B and I&C SCI 31.

Same as MATH 77D.

Restriction: Lower-division students only.

(II, Va)

I&C SCI 80. Special Topics in Information and Computer Science. 2-4 Units.
Studies in selected areas of information and computer sciences. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

I&C SCI 90. New Students Seminar. 1 Unit.
Introduces students to the Donald Bren School of Information and Computer Sciences. Focuses on advising students making the transition to UCI, community building, and mostly surveying the technical areas within departments in ICS, via talks by faculty on their research.

Grading Option: Pass/no pass only.

I&C SCI 105. Digital Information Systems. 4 Units.
Design and analysis of digital information systems. Covers underlying database and network technology, and software engineering principles used to build these systems. Evaluating digital information systems, and recognizing common flaws and vulnerabilities.

Prerequisite: I&C SCI 10 or I&C SCI 21 or CSE 21 or I&C SCI H21 or IN4MATX 41. I&C SCI 10 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. I&C SCI H21 with a grade of C or better. IN4MATX 41 with a grade of C or better.

Overlaps with I&C SCI 52, IN4MATX 43.

I&C SCI 139W. Critical Writing on Information Technology. 4 Units.
tudy and practice of critical writing and oral communication as it applies to information technology. Each student writes assignments of varying lengths, totaling at least 4,000 words.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only.

(Ib)

I&C SCI 160. Graphics Processors and Game Platforms. 4 Units.
Principles of computer architecture emphasizing hardware used with general purpose processor to support high-performance computer games and graphics engines.

Prerequisite: I&C SCI 51.

Overlaps with COMPSCI 152.

I&C SCI 161. Game Engine Lab. 4 Units.
The use of an open source game or graphics engine in the design and implementation of a computer game. Principles of game engine design. Students work on teams to design, implement, and evaluate new computer games based on an engine.

Prerequisite: I&C SCI 45C or I&C SCI 65.

I&C SCI 162. Modeling and World Building. 4 Units.
Use of 3D modeling software and related tools to design and create animated, textured models and expansive virtual worlds incorporating objects, scenes, and venues for activity within game worlds and online environments.

Prerequisite: COMPSCI 112.

I&C SCI 163. Mobile and Ubiquitous Games. 4 Units.
Design and technology of mobile games, including mixed reality gaming, urban games, and locative media. Case studies of significant systems. Uses and limitations of location-based technologies. Infrastructures and their relationships to gameplay and design.

Prerequisite: I&C SCI 61 and (I&C SCI 10 or I&C SCI 21 or I&C SCI 31 or IN4MATX 41).

I&C SCI 166. Game Design. 4 Units.
Game design takes into consideration psychology, narrative, platform features and limitations, marketing, computer science capabilities, human-computer interface principles, industry trends, aesthetic judgment, and other factors. Students focus on video game design through lectures, readings, presentations, implementation, and play testing.

Prerequisite: I&C SCI 61 and (IN4MATX 43 or I&C SCI 52).

I&C SCI 167. Multiplayer Game Systems. 4 Units.
Foundations and technologies that enable multiuser, networked, and persistent virtual environments. Emphasis on database design and management, network protocols, and concurrency control to accommodate large numbers of simultaneous users.

Corequisite: I&C SCI 160.
Prerequisite: I&C SCI 51.

I&C SCI 168. Multiplayer Game Project. 4 Units.
Designing and implementing a multiuser, networked, and persistent virtual environment or game. Emphasis on cultural aspects, community building, user interface issues and design, security, privacy, and economics.

Prerequisite: (I&C SCI 52 or IN4MATX 43) and I&C SCI 167. IN4MATX 43 with a grade of C or better.

I&C SCI 169A. Capstone Game Project I. 4 Units.
Students work in teams to design and implement a new computer game or virtual world. Emphasis on sound, art, and level design, building a community, cut scenes, production values, full utilization of hardware and software platform, and current industry trends.

Prerequisite: I&C SCI 168.

Grading Option: In progress only.

I&C SCI 169B. Capstone Game Project II. 4 Units.
Students work in teams to design and implement a new computer game or virtual world. Emphasis on sound, art, and level design, building a community, cut scenes, production values, full utilization of hardware and software platform, and current industry trends.

Prerequisite: I&C SCI 169A.

I&C SCI 192. Industrial or Public Sector Field Study. 2 Units.
Students participate in an off-campus, supervised internship for a minimum of 60 hours. Students apply classroom knowledge through internship projects in the private sector or nonprofit agencies.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

I&C SCI 193. Tutoring in ICS. 2 Units.
Principles and practice of providing technical assistance to novice learners in information and computer sciences.

Repeatability: May be taken for credit for 18 units.

Restriction: ICS Peer Tutoring Program students only.

I&C SCI H197. Honors Seminar. 2 Units.
An overview of computer science and selected recent trends in research. Students attend talks on current faculty research, with opportunities for discussion.

Grading Option: Pass/no pass only.

Restriction: Bren School of ICS Honors Program or Campuswide Honors Program students only.

I&C SCI 398A. Teaching Assistant Training Seminar. 2 Units.
Theories, methods, and resources for teaching computer science at the university level, particularly by teaching assistants. Classroom presentations, working with individuals, grading, motivating students. Participants will give and critique presentations and may be videotaped while teaching.

Grading Option: Satisfactory/unsatisfactory only.

I&C SCI 398B. Advanced Teaching Assistant Seminar. 4 Units.
Teaching computer science at the university level, emphasizing issues in teaching an entire course. Course organization, designing examinations and projects, grading, motivating students. Participants will begin to assemble teaching portfolios.

Prerequisite: I&C SCI 398A.

Grading Option: Satisfactory/unsatisfactory only.

I&C SCI 399. University Teaching. 4 Units.
Involves on-the-job experience for Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Restriction: Teaching assistants only.

Statistics Courses

STATS 7. Basic Statistics. 4 Units.
Introduces basic inferential statistics including confidence intervals and hypothesis testing on means and proportions, t-distribution, Chi Square, regression and correlation. F-distribution and nonparametric statistics included if time permits. Course may be offered online.

Overlaps with STATS 8, MGMT 7.

Restriction: STATS 7 may not be taken for credit if taken after STATS 67.

(Va)

STATS 8. Introduction to Biological Statistics . 4 Units.
Introductory statistical techniques used to collect and analyze experimental and observational data from health sciences and biology. Includes exploration of data, probability and sampling distributions, basic statistical inference for means and proportions, linear regression, and analysis of variance. Course may be offered online.

Overlaps with SOCECOL 13, MGMT 7.

(Va)

STATS 67. Introduction to Probability and Statistics for Computer Science. 4 Units.
Introduction to the basic concepts of probability and statistics with discussion of applications to computer science.

Prerequisite: MATH 2B.

Overlaps with STATS 7, MGMT 7.

Restriction: STATS 7 and MGMT 7 may not be taken for credit if taken after STATS 67.

(Va)

STATS 110. Statistical Methods for Data Analysis I. 4 Units.
Introduction to statistical methods for analyzing data from experiments and surveys. Methods covered include two-sample procedures, analysis of variance, simple and multiple linear regression.

Prerequisite: STATS 7 or (STATS 120A and STATS 120B and STATS 120C).

Concurrent with STATS 201.

STATS 111. Statistical Methods for Data Analysis II. 4 Units.
Introduction to statistical methods for analyzing data from surveys or experiments. Emphasizes application and understanding of methods for categorical data including contingency tables, logistic and Poisson regression, loglinear models.

Prerequisite: STATS 110.

Concurrent with STATS 202.

STATS 112. Statistical Methods for Data Analysis III. 4 Units.
Introduction to statistical methods for analyzing longitudinal data from experiments and cohort studies. Topics covered include survival methods for censored time-to-event data, linear mixed models, non-linear mixed effects models, and generalized estimating equations.

Prerequisite: STATS 111.

Concurrent with STATS 203.

STATS 115. Introduction to Bayesian Data Analysis. 4 Units.
Basic Bayesian concepts and methods with emphasis on data analysis. Special emphasis on specification of prior distributions. Development for one-two samples and on to binary, Poisson, and linear regression. Analyses performed using free OpenBugs software.

Prerequisite: STATS 120C. Recommended: STATS 110 or STATS 202 or STATS 210 or STATS 211.

Concurrent with STATS 205.

STATS 120A. Introduction to Probability and Statistics. 4 Units.
Introduction to basic principles of probability and statistical inference. Axiomatic definition of probability, random variables, probability distributions, expectation.

Prerequisite: MATH 2A and MATH 2B and (MATH 2D or MATH 4).

Overlaps with MATH 130A.

STATS 120B. Introduction to Probability and Statistics. 4 Units.
Introduction to basic principles of probability and statistical inference. Point estimation, interval estimating, and testing hypotheses, Bayesian approaches to inference.

Prerequisite: STATS 120A.

STATS 120C. Introduction to Probability and Statistics. 4 Units.
Introduction to basic principles of probability and statistical inference. Linear regression, analysis or variance, model checking.

Prerequisite: STATS 120B.

STATS 121. Probability Models. 4 Units.
Advanced probability, discrete time Markov chains, Poisson processes, continuous time Markov chains. Queuing or simulation as time permits.

Prerequisite: STATS 120A.

Concurrent with COMPSCI 278.

STATS 140. Multivariate Statistical Methods. 4 Units.
Theory and application of multivariate statistical methods. Topics include: statistical inference for the multivariate normal model and its extensions to multiple samples and regression, use of statistical packages for data visualization and reduction, discriminant analysis, cluster analysis, and factor analysis.

Prerequisite: STATS 120C or MATH 121A.

Concurrent with STATS 240.

STATS 199. Individual Study. 2-5 Units.
Individual research or investigations under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

STATS 200A. Intermediate Probability and Statistical Theory. 4 Units.
Basics of probability theory, random variables and basic transformations, univariate distributions—discrete and continuous, multivariate distributions.

Prerequisite: STATS 120C.

STATS 200B. Intermediate Probability and Statistical Theory. 4 Units.
Random samples, transformations, limit laws, normal distribution theory, introduction to stochastic processes, data reduction, point estimation (maximum likelihood).

Prerequisite: STATS 200A.

STATS 200C. Intermediate Probability and Statistical Theory. 4 Units.
Interval estimation, hypothesis testing, decision theory and Bayesian inference, basic linear model theory.

Prerequisite: STATS 200B.

STATS 201. Statistical Methods for Data Analysis I. 4 Units.
Introduction to statistical methods for analyzing data from experiments and surveys. Methods covered include two-sample procedures, analysis of variance, simple and multiple linear regression.

Prerequisite: Knowledge of basic statistics.

Concurrent with STATS 110.

STATS 202. Statistical Methods for Data Analysis II. 4 Units.
Introduction to statistical methods for analyzing data from surveys or experiments. Emphasizes application and understanding of methods for categorical data including contingency tables, logistic and Poisson regression, loglinear models.

Prerequisite: STATS 201.

Concurrent with STATS 111.

STATS 203. Statistical Methods for Data Analysis III. 4 Units.
Introduction to statistical methods for analyzing longitudinal data from experiments and cohort studies. Topics covered include survival methods for censored time-to-event data, linear mixed models, non-linear mixed effects models, and generalized estimating equations.

Prerequisite: STATS 202.

Concurrent with STATS 112.

STATS 205. Introduction to Bayesian Data Analysis. 4 Units.
Basic Bayesian concepts and methods with emphasis on data analysis. Special emphasis on specification of prior distributions. Development for one-two samples and on to binary, Poisson and linear regression. Analyses performed using free OpenBugs software.

Prerequisite: STATS 120C. Recommended: STATS 110 or STATS 202 or STATS 210 or STATS 211.

Concurrent with STATS 115.

STATS 210. Statistical Methods I: Linear Models. 4 Units.
Statistical methods for analyzing data from surveys and experiments. Topics include randomization and model-based inference, two-sample methods, analysis of variance, linear regression and model diagnostics.

Prerequisite: Knowledge of basic statistics, calculus, linear algebra.

STATS 211. Statistical Methods II: Generalized Linear Models. 4 Units.
Development of the theory and application of generalized linear models. Topics include likelihood estimation and asymptotic distributional theory for exponential families, quasi-likelihood and mixed model development. Emphasizes methodological development and application to real scientific problems.

Corequisite: STATS 200B.
Prerequisite: STATS 210.

STATS 212. Statistical Methods III: Methods for Correlated Data. 4 Units.
Development and application of statistical methods for analyzing corrected data. Topics covered include repeated measures ANOVA, linear mixed models, non-linear mixed effects models, and generalized estimating equations. Emphasizes both theoretical development and application of the presented methodology.

Prerequisite: STATS 211.

STATS 220A. Advanced Probability and Statistics Topics. 4 Units.
Advanced topics in probability and statistical inference including measure theoretic probability, large sample theory, decision theory, resampling and Monte Carlo methods, nonparametric methods.

Prerequisite: STATS 200C.

STATS 220B. Advanced Probability and Statistics Topics. 4 Units.
Advanced topics in probability and statistical inference including measure theoretic probability, large sample theory, decision theory, resampling and Monte Carlo methods, nonparametric methods.

Prerequisite: STATS 220A.

STATS 225. Bayesian Statistical Analysis. 4 Units.
Introduction to the Bayesian approach to statistical inference. Topics include univariate and multivariate models, choice of prior distributions, hierarchical models, computation including Markov chain Monte Carlo, model checking, and model selection.

Prerequisite: Two quarters of upper-division or graduate training in probability and statistics.

STATS 226. Advanced Topics in Modern Bayesian Statistical Inference. 4 Units.
Modern Bayesian Statistics: selected topics from theory of Markov chains, application of theory to modern methods of Markov chain Monte Carlo sampling; Bayesian non-parametric and semiparametric modeling, including Dirichlet Process Mixtures; Mixtures of Polya Trees.

Prerequisite: STATS 200C.

STATS 230. Statistical Computing Methods. 4 Units.
Numerical computations and algorithms with applications in statistics. Topics include optimization methods including the EM algorithm, random number generation and simulation, Markov chain simulation tools, and numerical integration.

Prerequisite: Two quarters of upper-division or graduate training in probability and statistics.

Overlaps with COMPSCI 206.

STATS 235. Modern Data Analysis Methods . 4 Units.
Introduces selected modern tools for data analysis. Emphasizes use of computational and resampling techniques for data analyses when the data do not conform to standard toolbox of regression models and/or complexity of modeling problem threatens validity of standard methods.

Prerequisite: STATS 120C.

Restriction: Graduate students only.

STATS 240. Multivariate Statistical Methods. 4 Units.
Theory and application of multivariate statistical methods. Topics include: statistical inference for the multivariate normal model and its extensions to multiple samples and regression, use of statistical packages for data visualization and reduction, discriminant analysis, cluster analysis, and factor analysis.

Prerequisite: STATS 120C or MATH 121A.

Concurrent with STATS 140.

STATS 245. Time Series Analysis. 4 Units.
Statistical models for analysis of time series from time and frequency domain perspectives. Emphasizes theory and application of time series data analysis methods. Topics include ARMA/ARIMA models, model identification/estimation, linear operators, Fourier analysis, spectral estimation, state space models, Kalman filter.

Prerequisite: STATS 200C.

STATS 246. Spectral Analysis . 4 Units.
Spectral methods that are most commonly utilized for ,analyzing univariate and multivariate time series and signals. These methods include spectral and coherence estimation, transfer function modeling, classification and discrimination of time series, non-stationary time series, ,time-frequency analysis, and wavelets analysis.

Prerequisite: STATS 200A and STATS 200B and STATS 210.

STATS 250. Biostatistics. 4 Units.
Statistical methods commonly used to analyze data arising from clinical studies. Topics include analysis of observational studies and randomized clinical trials, techniques in the analysis of survival and longitudinal data, approaches to handling missing data, meta-analysis, nonparametric methods.

Prerequisite: STATS 210.

STATS 255. Statistical Methods for Survival Data. 4 Units.
Statistical methods for analyzing survival data from cohort studies. Topics include parametric and nonparametric methods, the Kaplan-Meier estimator, log-rank tests, regression models, the Cox proportional hazards model and accelerated failure time models, efficient sampling designs, discrete survival models.

Prerequisite: STATS 211.

STATS 257. Introduction to Statistical Genetics. 4 Units.
Provides students with knowledge of the basic principles, concepts, and methods used in statistical genetic research. Topics include principles of population genetics, and statistical methods for family- and population-based studies.

Prerequisite: Two quarters of upper-division or graduate training in statistical methods.

Same as EPIDEM 215.

STATS 260. Inference with Missing Data. 4 Units.
Statistical methods and theory useful for analysis of multivariate data with partially observed variables. Bayesian and likelihood-based methods developed. Topics include EM-type algorithms, MCMC samplers, multiple imputation, and general location model. Applications from economics, education, and medicine are discussed.

Prerequisite: STATS 200C and STATS 210.

STATS 262. Theory and Practice of Sample Surveys. 4 Units.
Basic techniques and statistical methods used in designing surveys and analyzing collected survey data. Topics include simple random sampling, ratio and regression estimates, stratified sampling, cluster sampling, sampling with unequal probabilities, multistage sampling, and methods to handle nonresponse.

Prerequisite: STATS 120C.

STATS 265. Causal Inference. 4 Units.
Various approaches to causal inference focusing on the Rubin causal model and propensity-score methods. Topics include randomized experiments, observational studies, non-compliance, ignorable and non-ignorable treatment assignment, instrumental variables, and sensitivity analysis. Applications from economics, politics, education, and medicine.

Prerequisite: STATS 200C and STATS 210.

STATS 270. Stochastic Processes. 4 Units.
Introduction to the theory and application of stochastic processes. Topics include Markov chains, continuous-time Markov processes, Poisson processes, and Brownian motion. Applications include Markov chain Monte Carlo methods and financial modeling (for example, option pricing).

Prerequisite: STATS 120C.

Overlaps with MATH 271A, MATH 271B, MATH 271C.

STATS 275. Statistical Consulting. 4 Units.
Training in collaborative research and practical application of statistics. Emphasis on effective communication as it relates to identifying scientific objectives, formulating a statistical analysis plan, choice of statistical methods, and interpretation of results and their limitations to non-statisticians.

Prerequisite: STATS 203 or STATS 212.

Repeatability: May be taken for credit 2 times.

STATS 280. Seminar in Statistics. 0.5 Units.
Periodic seminar series covering topics of current research in statistics and its application.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

STATS 281. Topics in Astrostatistics. 1-4 Units.
Topics in statistical methods for astronomy, astrophysics, particle physics, and solar physics, typically including spectral analysis, image processing and analysis, time series, classification, clustering, massive data, etc. Emphasizes computationally intensive methods, Bayesian and frequentist methods, machine learning, and signal processing.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

STATS 295. Special Topics in Statistics. 4 Units.
Studies in selected areas of statistics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

STATS 298. Thesis Supervision. 2-12 Units.
Individual research or investigation conducted in preparation for the M.S. thesis option or the dissertation requirements for the Ph.D. program.

Repeatability: May be repeated for credit unlimited times.

STATS 299. Individual Study. 2-12 Units.
Individual research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

Department of Computer Science

3019 Donald Bren Hall; 949-824-1546
http://www.cs.uci.edu/
Alexandru Nicolau, **Department Chair**
Rina Dechter, **Department Vice Chair**

Undergraduate Major in Computer Science

The Computer Science major emphasizes the principles of computing that underlie our modern world, and provides a strong foundational education to prepare students for the broad spectrum of careers in computing. This major can serve as preparation for either graduate study or a career in industry. Students receive a solid background in low-level architecture and systems; middle-level infrastructure, algorithms, and mathematical foundations. This is a highly flexible degree that allows students to explore a broad range of topics in modern computing. In order to achieve some focus in their upper-division studies, students are required to satisfy the requirements for one of the eight specializations described below. Additional electives can be used to satisfy a second specialization or obtain a broader understanding of the field.

Algorithms. This specialization focuses on fundamental computational techniques, including their analysis and applications to topics in computer vision, computer games, graphics, artificial intelligence, and information retrieval. Topics include data structures, graph and network algorithms, computational geometry, probabilistic algorithms, complexity theory, and cryptography.

Architecture and Embedded Systems. This specialization integrates principles of embedded systems, software, hardware, computer architecture, distributed systems and networks, and prepares students to design and create efficient hardware/software architectures for emerging application areas. Students in this specialization will build upon a strong foundation in software and hardware and learn how to design networked embedded systems, and efficient computer architectures for a diverse set of application domains such as gaming, visualization, search, databases, transaction processing, data mining, and high-performance and scientific computing.

Bioinformatics. This specialization introduces students to the interdisciplinary intersection of biology and medicine with computer science and information technology. Students who complete the specialization will understand biomedical computing problems from the computer science perspectives, and be able to design and develop software that solves computational problems in biology and medicine.

Information. This specialization is intended to prepare students for working with and developing a wide variety of modern data and information systems. Topics covered by this concentration include database management, information retrieval, Web search, data mining, and data-intensive computing.

Intelligent Systems. This specialization will introduce students to the principles underlying intelligent systems, including topics such as representing human knowledge, building automated reasoning systems, developing intelligent search techniques, and designing algorithms that adapt and learn from data. Students in this specialization will use these principles to solve problems across a variety of applications such as computer vision, information retrieval, data mining, automated recommender systems, bioinformatics, as well as individually designed projects.

Networked Systems. This specialization focuses on Internet architecture, Internet applications, and network security. It also encourages students to learn about operating systems, databases, search, programming, embedded systems, and performance.

Systems and Software. This specialization deals with principles and design of systems and software. It emphasizes the interaction between software and the computing infrastructure on which it runs and the performance impact of design decisions. Core topics include the hardware/software interface, languages and compilers, operating systems, parallel and distributed computing. Elective topics include networking, security, graphics, and databases.

Visual Computing. This specialization encompasses the digital capture, processing, synthesis and display of visual data such as images and video. This specialization includes computer vision, image processing, and graphics, and covers such topics as the representation of 3D objects, visual recognition of objects and people, interactive and photo-realistic image rendering, and physics and perception of light and color.

The Department also offers a joint undergraduate degree in Computer Science and Engineering, in conjunction with The Henry Samueli School of Engineering; information is available in the Interdisciplinary Studies (p. 1102) section of the *Catalogue.*

Admissions

Freshman Applicants: See the Undergraduate Admissions (p. 52) section.

Transfer Applicants:

Junior-level applicants who satisfactorily complete course requirements will be given preference for admission. Applicants must satisfy the following requirements:

1. Complete one year of approved college-level math, preferably courses in calculus equivalent to UCI's MATH 2A - MATH 2B; if not available, two semester courses equivalent to other major-related math courses are acceptable.
2. Completion of one year of transferable computer science courses with at least one course involving concepts such as those found in Java, Python, C++, or other object-oriented or high-level programming language.

NOTE: The introductory sequence in ICS has moved to Python. The Bren School of ICS strongly encourages all participants to become familiar with this programming language prior to matriculation. Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major(s) of interest. Java is used extensively in the curriculum; therefore, transfer students should plan to learn it by studying on their own or by completing a Java-related programming course prior to their first quarter at UCI.

Additional courses beyond those required for admission must be taken to fulfill the lower-division degree requirements, as many are prerequisites for upper-division courses. For some transfer students, this may mean that it will take longer than two years to complete their degree.

Requirements for the B.S. Degree in Computer Science

All students must meet the University Requirements (p. 71)**.**

Major Requirements

Lower-division	
A. Core	
I&C SCI 31	Introduction to Programming
I&C SCI 32	Programming with Software Libraries
I&C SCI 33	Intermediate Programming
I&C SCI 51	Introductory Computer Organization
I&C SCI 45C	Programming in C/C++ as a Second Language
I&C SCI 46	Data Structure Implementation and Analysis
I&C SCI 53	Principles in System Design
I&C SCI 53L	Principles in System Design Library
I&C SCI 90	New Students Seminar
IN4MATX 43	Introduction to Software Engineering
B. Complete:	
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
I&C SCI 6B	Boolean Algebra and Logic
I&C SCI 6D	Discrete Mathematics for Computer Science
I&C SCI 6N	Computational Linear Algebra
or MATH 3A	Introduction to Linear Algebra
STATS 67	Introduction to Probability and Statistics for Computer Science
C. Two courses approved for General Education category II except those offered by CSE, Economics, ICS, or Mathematics. University Studies courses can be used with the approval of the CS Vice Chair for Undergraduate Studies.	
Upper-division	
A. Core	
COMPSCI 161	Design and Analysis of Algorithms
I&C SCI 139W	Critical Writing on Information Technology
B. Electives: Select eleven of the following:	
COMPSCI 111–189	
IN4MATX 102	Concepts of Programming Language II
IN4MATX 113	Requirements Analysis and Engineering
IN4MATX 115	Software Testing, Analysis, and Quality Assurance
IN4MATX 121	Software Design: Applications
IN4MATX 122	Software Design: Structure and Implementation
IN4MATX 123	Software Architecture
IN4MATX 131	Human Computer Interaction

IN4MATX 133	User Interaction Software
IN4MATX 134	Project in User Interaction Software
I&C SCI 160	Graphics Processors and Game Platforms
I&C SCI 161	Game Engine Lab
I&C SCI 162	Modeling and World Building
C. The upper-division electives must satisfy the following criteria:	
1. At least two project courses from:	
COMPSCI 113	Computer Game Development
COMPSCI 114	Projects in Advanced 3D Computer Graphics
COMPSCI 117	Project in Computer Vision
COMPSCI 122B	Project in Databases and Web Applications
COMPSCI 122C	Principles of Data Management
COMPSCI 133	Advanced Computer Networks
COMPSCI 142B	Language Processor Construction
COMPSCI 143B	Project in Operating System Organization
COMPSCI 145A- 145B	Embedded Computing Systems and Embedded Computing System Lab
COMPSCI 153	Logic Design Laboratory
COMPSCI 154	Computer Design Laboratory
COMPSCI 165	Project In Algorithms And Data Structures
COMPSCI 175	Project in Artificial Intelligence
COMPSCI 189	Project in Bioinformatics
IN4MATX 134	Project in User Interaction Software
2. The set of chosen electives should satisfy at least one of the following specializations:	
Algorithms	
Two courses from:	
COMPSCI 111	Digital Image Processing
COMPSCI 112	Computer Graphics
COMPSCI 116	Computational Photography and Vision
COMPSCI 121	Information Retrieval
COMPSCI 125	Next Generation Search Systems
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 178	Machine Learning and Data-Mining
COMPSCI 184A	Representations and Algorithms for Molecular Biology
and at least four courses from:	
COMPSCI 162	Formal Languages and Automata
COMPSCI 163	Graph Algorithms
COMPSCI 164	Computational Geometry and Geometric Modeling
COMPSCI 165	Project In Algorithms And Data Structures
COMPSCI 167	Introduction to Applied Cryptography
COMPSCI 168	Network Optimization
COMPSCI 169	Introduction to Optimization
COMPSCI 177	Applications of Probability in Computer Science
COMPSCI 179	Algorithms for Probabilistic and Deterministic Graphical Models
Architecture and Embedded Systems	
COMPSCI 145A- 145B	Embedded Computing Systems and Embedded Computing System Lab (counts as one course)
COMPSCI 151	Digital Logic Design
COMPSCI 152	Computer Systems Architecture
and two courses from:	
COMPSCI 131	Parallel and Distributed Computing
COMPSCI 132	Computer Networks

COMPSCI 142A	Compilers and Interpreters
COMPSCI 143A	Principles of Operating Systems
COMPSCI 144	High-performance Computers and Program Optimization
and three courses from:	
COMPSCI 113	Computer Game Development
COMPSCI 133	Advanced Computer Networks
COMPSCI 142B	Language Processor Construction
COMPSCI 143B	Project in Operating System Organization
COMPSCI 144	High-performance Computers and Program Optimization
COMPSCI 146	Programming in Multitasking Operating Systems
COMPSCI 153	Logic Design Laboratory
COMPSCI 154	Computer Design Laboratory
Bioinformatics	
COMPSCI 178	Machine Learning and Data-Mining
COMPSCI 184A	Representations and Algorithms for Molecular Biology
COMPSCI 189	Project in Bioinformatics
and three courses from:	
COMPSCI 122A	Introduction to Data Management
COMPSCI 163	Graph Algorithms
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 175	Project in Artificial Intelligence
COMPSCI 184B	Probabilistic Modeling of Biological Data
COMPSCI 184C	Computational Systems Biology
one of which must be:	
COMPSCI 184B	Probabilistic Modeling of Biological Data
or COMPSCI 184C	Computational Systems Biology
Information	
COMPSCI 121	Information Retrieval
COMPSCI 122A	Introduction to Data Management
COMPSCI 178	Machine Learning and Data-Mining
and three courses from:	
COMPSCI 122B	Project in Databases and Web Applications
COMPSCI 125	Next Generation Search Systems
COMPSCI 132	Computer Networks
COMPSCI 134	Computer and Network Security
COMPSCI 141	Concepts in Programming Languages I
COMPSCI 142A	Compilers and Interpreters
COMPSCI 143A	Principles of Operating Systems
COMPSCI 163	Graph Algorithms
COMPSCI 165	Project In Algorithms And Data Structures
COMPSCI 167	Introduction to Applied Cryptography
COMPSCI 179	Algorithms for Probabilistic and Deterministic Graphical Models
at least one of which must be:	
COMPSCI 122B	Project in Databases and Web Applications
or COMPSCI 125	Next Generation Search Systems
or COMPSCI 179	Algorithms for Probabilistic and Deterministic Graphical Models
Intelligent Systems	
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 175	Project in Artificial Intelligence
COMPSCI 178	Machine Learning and Data-Mining
and at least one course from:	
COMPSCI 177	Applications of Probability in Computer Science

or COMPSCI 179	Algorithms for Probabilistic and Deterministic Graphical Models
and at least one course from:	
COMPSCI 162	Formal Languages and Automata
COMPSCI 163	Graph Algorithms
COMPSCI 164	Computational Geometry and Geometric Modeling
COMPSCI 168	Network Optimization
COMPSCI 169	Introduction to Optimization
and at least one course from:	
COMPSCI 116	Computational Photography and Vision
COMPSCI 121	Information Retrieval
COMPSCI 125	Next Generation Search Systems
COMPSCI 174	Bioinformatics
COMPSCI 184B	Probabilistic Modeling of Biological Data
Networked Systems	
COMPSCI 132	Computer Networks
COMPSCI 133	Advanced Computer Networks
COMPSCI 143A	Principles of Operating Systems
and four courses from:	
COMPSCI 115	Computer Simulation
COMPSCI 121	Information Retrieval
COMPSCI 122A	Introduction to Data Management
COMPSCI 122B	Project in Databases and Web Applications
COMPSCI 125	Next Generation Search Systems
COMPSCI 131	Parallel and Distributed Computing
COMPSCI 134	Computer and Network Security
COMPSCI 137	Internet Applications Engineering
COMPSCI 141	Concepts in Programming Languages I
COMPSCI 143B	Project in Operating System Organization
COMPSCI 145A	Embedded Computing Systems
COMPSCI 146	Programming in Multitasking Operating Systems
COMPSCI 163	Graph Algorithms
COMPSCI 167	Introduction to Applied Cryptography
COMPSCI 168	Network Optimization
COMPSCI 169	Introduction to Optimization
COMPSCI 177	Applications of Probability in Computer Science
at least two of which must be from:	
COMPSCI 131	Parallel and Distributed Computing
COMPSCI 134	Computer and Network Security
COMPSCI 137	Internet Applications Engineering
COMPSCI 143B	Project in Operating System Organization
COMPSCI 167	Introduction to Applied Cryptography
Systems and Software	
COMPSCI 131	Parallel and Distributed Computing
COMPSCI 141	Concepts in Programming Languages I
COMPSCI 142A	Compilers and Interpreters
COMPSCI 143A	Principles of Operating Systems
COMPSCI 152	Computer Systems Architecture
and two courses from:	
COMPSCI 112	Computer Graphics
COMPSCI 122A	Introduction to Data Management
COMPSCI 122B	Project in Databases and Web Applications
COMPSCI 132	Computer Networks

COMPSCI 134	Computer and Network Security
COMPSCI 142B	Language Processor Construction
COMPSCI 143B	Project in Operating System Organization
COMPSCI 144	High-performance Computers and Program Optimization
COMPSCI 145A- 145B	Embedded Computing Systems and Embedded Computing System Lab
COMPSCI 146	Programming in Multitasking Operating Systems
at least one of which must be:	
COMPSCI 142B	Language Processor Construction
or COMPSCI 143B	Project in Operating System Organization
Visual Computing	
COMPSCI 111	Digital Image Processing
COMPSCI 112	Computer Graphics
COMPSCI 116	Computational Photography and Vision
and three courses from:	
COMPSCI 114	Projects in Advanced 3D Computer Graphics
COMPSCI 115	Computer Simulation
COMPSCI 117	Project in Computer Vision
COMPSCI 163	Graph Algorithms
COMPSCI 164	Computational Geometry and Geometric Modeling
COMPSCI 169	Introduction to Optimization
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 178	Machine Learning and Data-Mining
I&C SCI 160	Graphics Processors and Game Platforms
I&C SCI 161	Game Engine Lab
I&C SCI 162	Modeling and World Building
at least one of which must be:	
COMPSCI 114	Projects in Advanced 3D Computer Graphics
or COMPSCI 117	Project in Computer Vision

Sample Program of Study — Computer Science

Freshman		
Fall	**Winter**	**Spring**
I&C SCI 31	I&C SCI 32	I&C SCI 33
MATH 2A	MATH 2B	IN4MATX 43
WRITING 39A	WRITING 39B	I&C SCI 6B
I&C SCI 90	GE III	WRITING 39C
Sophomore		
Fall	**Winter**	**Spring**
I&C SCI 51	I&C SCI 46	CS Spec/Elective
I&C SCI 6D	I&C SCI 53	STATS 67
I&C SCI 45C	I&C SCI 53L	GE III
	I&C SCI 6N	
Junior		
Fall	**Winter**	**Spring**
COMPSCI 161	CS Spec./Elective	CS Spec./Elective
Science Elective	CS Spec./Elective	CS Spec./Elective
GE III	I&C SCI 139W	Science Elective
GE VII	GE VIII	GE VI
Senior		
Fall	**Winter**	**Spring**
CS Spec./Elective	CS Spec./Elective	CS Spec./Elective
CS Spec./Elective	CS Spec./Elective	CS Spec./Elective
GE IV	GE IV	GE IV

Minor in Bioinformatics

The minor provides a focused study of bioinformatics to supplement a student's major program of study and prepares students for a profession, career, or academic pursuit in which biomedical computing is an integral part but is not the primary focus. The Bioinformatics minor contributes to students' competence in computing applied to biomedical problems and data, as well as exposing them to the fundamentals of the life sciences from a computer science perspective. The minor allows students sufficient flexibility to pursue courses that complement their major field or address specific interests.

Students who complete the minor requirements will be able to do the following: synthesize computer science, quantitative methods, and biological science; understand the synergistic set of reciprocal influences between life and computational sciences and technologies; discuss biomedical computing problems and corresponding computer science perspectives; and employ principles, methods, and technologies fundamental to biomedical computing.

Requirements

Select one of the following:	
I&C SCI 21- 22	Introduction to Computer Science I and Introduction to Computer Science II
or	
I&C SCI 31/CSE 41	Introduction to Programming
Complete:	
I&C SCI 32/CSE 42	Programming with Software Libraries
I&C SCI 33/CSE 43	Intermediate Programming
BIO SCI 93	From DNA to Organisms
COMPSCI 183/BIO SCI M123	Introduction to Computational Biology
COMPSCI 184A	Representations and Algorithms for Molecular Biology
COMPSCI 184B	Probabilistic Modeling of Biological Data
or COMPSCI 184C	Computational Systems Biology
COMPSCI 189	Project in Bioinformatics

NOTE: A maximum of two courses may be taken Pass/Not Pass toward a minor. Bren School majors should refer to the Majors/Minors Restrictions catalog section before attempting to minor in Bionformatics. Students who are considering a major in Computer Science or Computer Science and Engineering must complete the major requirements for a letter grade.

Undergraduate Major in Computer Science and Engineering (CSE)

This program is administered jointly by the Department of Computer Science in the Bren School of ICS, and the Department of Electrical Engineering and Computer Science (EECS) in The Henry Samueli School of Engineering. For information, see the Interdisciplinary Studies (p. 1102) section of the *Catalogue*.

Requirements for the B.S. Degree in Computer Science and Engineering

All students must meet the University Requirements (p. 71)**.**

Major Requirements: See the Interdisciplinary Studies (p. 1102) **section.**

Graduate Program in Computer Science

The field of Computer Science is concerned with the design, analysis, and implementation of computer systems as well as the use of computation as it is applied to virtually every field of study and use in the everyday world. Computer systems can range in scope from small embedded systems to the Internet as a whole. Research in computer science involves mathematical analysis, empirical experimentation, and the implementation of prototype systems. Core research areas include artificial intelligence and machine learning, bioinformatics, computer architecture, embedded systems, graphics and visual computing, databases and information management, multimedia, networked and distributed systems, programming languages and compilers, security and cryptography, design and analysis of algorithms, scientific computing, and ubiquitous computing.

The M.S. and Ph.D. degrees in Computer Science (CS) are broad and flexible programs which offer students opportunities for graduate study in the full spectrum of intellectual activity in computer science.

Master of Science in Computer Science

The course requirements for the M.S. are identical to those of the Ph.D., although completion plans differ. For general information about admissions, the M.S. completion plan options, visit the Bren School of ICS Graduate Programs (p. 989) section of the *Catalogue*.

Doctor of Philosophy in Computer Science

Required Courses

Each student must complete at least 47 units of course work with an average GPA of at least 3.5 for Ph.D. students and 3.0 for M.S. students. In addition, students must receive at least a B in each course counted toward filling these requirements. The set of core and elective courses chosen by a student must be approved by the student's research advisor before advancement to candidacy. Faculty associated with each research area will provide suggested curricula for that area to guide students in their selection of courses. These curricula will also help Ph.D. students to prepare for their candidacy examination (see below) which must be taken in a specific research area.

Students must complete three quarters of COMPSCI 200S, four core courses, and seven elective courses. The course requirements are as follows:

Students must select four areas from the list of seven areas given below. From each area, they must select at least one of the courses listed for that area.

Data Structures and Algorithms	
COMPSCI 260	Fundamentals of the Design and Analysis of Algorithms
COMPSCI 261	Data Structures
COMPSCI 263	Analysis of Algorithms
Architecture/Embedded Systems	
COMPSCI 250A	Computer Systems Architecture
COMPSCI 244	Introduction to Embedded and Ubiquitous Systems
System Software	
COMPSCI 241	Advanced Compiler Construction
COMPSCI 243	High-Performance Architectures and Their Compilers
COMPSCI 230	Distributed Computer Systems
Artificial Intelligence	
COMPSCI 271	Introduction to Artificial Intelligence
COMPSCI 273A	Machine Learning
Networks/Multimedia	
COMPSCI 232	Computer and Communication Networks
COMPSCI 203	Network and Distributed Systems Security
COMPSCI 212	Multimedia Systems and Applications
Database Systems	
COMPSCI 222	Principles of Data Management
COMPSCI 223	Transaction Processing and Distributed Data Management
Scientific and Visual Computing	
COMPSCI 206	Principles of Scientific Computing
COMPSCI 211A	Visual Computing

Seven elective courses from any set of CS, Informatics, or Statistics courses, including the above core courses, but excluding COMPSCI 290, COMPSCI 298, COMPSCI 299, or any course with a suffix of "S."

Two of these courses can be graduate courses offered by a department outside of ICS, with written consent of the advisor (M.S. students must obtain written consent from the Computer Science Vice Chair for Graduate Studies).

Two of the courses can be undergraduate courses from the following list:

COMPSCI 111	Digital Image Processing
COMPSCI 112	Computer Graphics
COMPSCI 122A	Introduction to Data Management
COMPSCI 132	Computer Networks
COMPSCI 142A	Compilers and Interpreters
COMPSCI 143A	Principles of Operating Systems
COMPSCI 152	Computer Systems Architecture
COMPSCI 161	Design and Analysis of Algorithms
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 178	Machine Learning and Data-Mining

I&C SCI 161	Game Engine Lab
I&C SCI 162	Modeling and World Building
I&C SCI 163	Mobile and Ubiquitous Games
I&C SCI 166	Game Design

Students may not retake courses they have used toward an undergraduate degree and receive credit toward the graduate requirements.

No more than two undergraduate courses or COMPSCI 295s may be taken to satisfy elective course requirements.

Ph.D. students are required to serve as teaching assistants for at least two quarters.

Research Project for the Ph.D. Degree

Doctoral students must find a faculty advisor and successfully complete a research project with that faculty member by the end of their second year. In coordination with this project the student must also take at least one independent studies course (COMPSCI 299) with their faculty advisor. The objective of the research project is to demonstrate early in the program the student's ability to carry out basic research in computer science.

Finally, the student must present the outcome of the research in a technical report, which must be approved by the advisor. The project may or may not be a stepping-stone toward a dissertation, and must be completed by the end of the second year, and prior to advancement to candidacy.

Advancement to Candidacy Examination

The objective of the candidacy examination is to demonstrate in-depth knowledge of an area of computer science and readiness to carry out independent research at the doctoral level in that area. The student must complete all pre-candidacy course requirements and the research project prior to advancing to candidacy. All requirements for candidacy including the candidacy examination must be completed by the end of the third year (or, for students entering the program with an M.S. in Computer Science, by the end of the second year). If the student does not pass on the first trial, the student will be allowed until the end of the first quarter of the fourth year to advance to candidacy. Consult the ICS Graduate Office for policies regarding committee membership. The format is an oral examination during which the student is tested on knowledge relevant to the chosen area of specialization. Each area is defined by a set of topics and reading list, which are maintained by the Computer Science Department office. New areas or changes to existing areas must be approved by a majority vote of the CS faculty in accordance with the Department's bylaws. The current areas include the following: Algorithms and Data Structures; Computer Architecture and Embedded Systems; Database Systems and Multimedia; Computer Networks; Distributed Systems; Artificial Intelligence and Machine Learning; Informatics in Biology and Medicine; Computer Graphics and Visual Computing; Cryptography and Computer Security; Computational Neuroscience; Scientific Computing; Systems Software.

The examination is graded pass or fail. In order to pass, the Candidacy Committee must unanimously approve the final outcome. In the case of a fail, the examination may be retaken once. Students who fail on the second try will be recommended for disqualification from the doctoral program.

Doctoral Dissertation Topic Defense

The student must produce a substantial written document representing the dissertation plan. This must include the proposed dissertation abstract, a dissertation outline, and a detailed plan for completing the work. A dissertation defense committee is formed in accordance with UCI Senate regulations. The dissertation committee must unanimously approve the student's proposal. At the discretion of the student's advisor, the student may be required to give an oral presentation of the proposed plan to the committee. This must be completed by the end of the fourth year. It is expected that this will be done at least a year prior to the final examination and before most of the dissertation research and writing are undertaken. The idea is for students to demonstrate that they have a clear plan for carrying out the research for their dissertation. It also gives the student an understanding of what will be expected for final approval of the dissertation.

Doctoral Dissertation and Final Examination

Ph.D. students are required to complete a Ph.D. dissertation in accordance with Academic Senate regulations. In addition, they must pass an oral dissertation defense which consists of a public seminar presenting results followed by a private examination by the doctoral committee and other interested members of the Computer Science Department faculty.

Students entering the Ph.D. program with an M.S. in Computer Science must advance to candidacy within two years. All others must advance within three years. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Graduate Program in Mathematical and Computational Biology

The graduate program in Mathematical and Computational Biology (MCB) is a one-year "gateway" program designed to function in concert with selected graduate programs, including the Ph.D. in Computer Science. The time to degree for students entering the Ph.D. program in Computer Science from MCB begins when the student first transfers to the Computer Science program. Detailed information is available at the Mathematical, Computational and Systems Biology (http://mcsb.bio.uci.edu) website and in the School of Biological Sciences (p. 289) section of the *Catalogue.*

Faculty

Shannon L. Alfaro, M.S. University of California, Irvine, *Lecturer of Computer Science*

Animashree Anandkumar, Ph.D. Cornell University, *Assistant Professor of Electrical Engineering and Computer Science; Computer Science* (statistical inference and learning of graphical models, scalable network algorithms)

Nader Bagherzadeh, Ph.D. University of Texas at Austin, *Professor of Electrical Engineering and Computer Science; Computer Science* (parallel processing, computer architecture, computer graphics, VLSI design)

Pierre F. Baldi, Ph.D. California Institute of Technology, *UCI Chancellor's Professor of Computer Science; Biological Chemistry; Biomedical Engineering; Developmental and Cell Biology* (bioinformatics, computational biology)

Lubomir Bic, Ph.D. University of California, Irvine, *Professor of Computer Science; Biomedical Engineering; Electrical Engineering and Computer Science* (parallel and distributed computing, mobile agents)

Elaheh Bozorgzadeh, Ph.D. University of California, Los Angeles, *Associate Professor of Computer Science; Electrical Engineering and Computer Science* (design automation and synthesis for embedded systems, VLSI CAD, reconfigurable computing)

Michael Carey, Ph.D. University of California, Berkeley, *Donald Bren Professor of Information & Computer Sciences* and *Professor of Computer Science*

Pai H. Chou, Ph.D. University of Washington, *Professor of Electrical Engineering and Computer Science; Computer Science* (embedded systems, wireless sensor systems, medical devices, real-time systems, hardware/software co-synthesis)

Rina Dechter, Ph.D. University of California, Los Angeles, *Professor of Computer Science*

Michael B. Dillencourt, Ph.D. University of Maryland, College Park, *Professor of Computer Science*

James P. Dourish, Ph.D. University College London, *Professor of Informatics; Computer Science* (human-computer interaction, computer-supported cooperative work)

Nikil D. Dutt, Ph.D. University of Illinois at Urbana–Champaign, *UCI Chancellor's Professor of Computer Science; Electrical Engineering and Computer Science* (embedded systems, computer architecture, electronic design automation, software systems, brain-inspired architectures and computing)

Magda S. El Zarki, Ph.D. Columbia University, *Professor of Computer Science; Electrical Engineering and Computer Science; Informatics* (telecommunications, networks, wireless communication, video transmission)

David A. Eppstein, Ph.D. Columbia University, *Professor of Computer Science*

Julian Feldman, Ph.D. Carnegie Institute of Technology, *Professor Emeritus of Computer Science*

Charless C. Fowlkes, Ph.D. University of California, Berkeley, *Associate Professor of Computer Science; Cognitive Sciences; Electrical Engineering and Computer Science* (computer vision, machine learning, computational biology)

Michael S. Franz, Ph.D. Swiss Federal Institute of Technology in Zurich, *Professor of Computer Science; Electrical Engineering and Computer Science* (systems software, particularly compilers and virtual machines, trustworthy computing, software engineering)

Daniel H. Frost, M.S. University of California, Irvine, *Senior Lecturer of Computer Science; Informatics* (artificial intelligence, software engineering, computer graphics, teaching of programming)

Tony D. Givargis, Ph.D. University of California, Riverside, *Professor of Computer Science; Informatics* (embedded systems, platform-based system-on-a-chip design, low-power electronics)

Michael T. Goodrich, Ph.D. Purdue University, *UCI Chancellor's Professor of Computer Science; Electrical Engineering and Computer Science* (computer security, algorithm design, data structures, Internet algorithmics, geometric computing, graphic drawing)

Richard H. Granger, Ph.D. Yale University, *Professor Emeritus of Computer Science*

Ian G. Harris, Ph.D. University of California, San Diego, *Associate Professor of Computer Science; Electrical Engineering and Computer Science* (hardware/software covalidation, manufacturing test)

Wayne B. Hayes, Ph.D. University of Toronto, *Associate Professor of Computer Science*

Dan S. Hirschberg, Ph.D. Princeton University, *Professor of Computer Science; Electrical Engineering and Computer Science* (analyses of algorithms, concrete complexity, data structures, models of computation)

Alexander T. Ihler, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Computer Science*

Sandra S. Irani, Ph.D. University of California, Berkeley, *Professor of Computer Science*

Ramesh Chandra Jain, Ph.D. Indian Institute of Technology Kharagpur, *Donald Bren Professor of Information & Computer Sciences* and *Professor of Computer Science*

Stanislaw M. Jarecki, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Computer Science*

Scott A. Jordan, Ph.D. University of California, Berkeley, *Professor of Computer Science; Electrical Engineering and Computer Science* (pricing and differentiated services in the Internet, resource allocation in wireless networks, telecommunications policy)

Dmitri V. Kalashnikov, Ph.D. Purdue University, *Associate Adjunct Professor of Computer Science*

David G. Kay, J.D. Loyola Marymount University, *Senior Lecturer of Informatics; Computer Science* (computer law, computer science education)

Dennis F. Kibler, Ph.D. University of California, Irvine, *Professor Emeritus of Computer Science*

Alfred Kobsa, Ph.D. University of Vienna, *Professor of Informatics; Computer Science* (user modeling, human-computer interaction, artificial intelligence, cognitive science, interdisciplinary computer science)

Jeffrey Krichmar, Ph.D. George Mason University, *Professor of Cognitive Sciences; Computer Science*

Fadi J. Kurdahi, Ph.D. University of Southern California, *Director, Center for Embedded Computer Systems and Professor of Electrical Engineering and Computer Science; Computer Science* (VLSI system design, design automation of digital systems)

Richard H. Lathrop, Ph.D. Massachusetts Institute of Technology, *Professor of Computer Science; Biomedical Engineering* (modeling structure and function, machine learning, intelligent systems and molecular biology, protein structure/function prediction)

Marco Levorato, Ph.D. University of Padua, *Assistant Professor of Computer Science*

Chen Li, Ph.D. Stanford University, *Professor of Computer Science*

Kwei-Jay Lin, Ph.D. University of Maryland, College Park, *Professor of Electrical Engineering and Computer Science; Computer Science* (real-time systems, distributed systems, service-oriented computing)

Cristina V. Lopes, Ph.D. Northeastern University, *Professor of Informatics; Computer Science* (programming languages, acoustic communications, operating systems, software engineering)

George S. Lueker, Ph.D. Princeton University, *Professor Emeritus of Computer Science*

Aditi Majumder, Ph.D. University of North Carolina at Chapel Hill, *Associate Professor of Computer Science; Electrical Engineering and Computer Science* (novel displays and cameras for computer graphics and visualization, human-computer interaction, applied computer vision)

Gopi Meenakshisumdaram, Ph.D. University of North Carolina at Chapel Hill, *Professor of Computer Science; Electrical Engineering and Computer Science* (geometry and topology for computer graphics, image-based rendering, object representation, surface reconstruction, collision detection, virtual reality, telepresence)

Sharad Mehrotra, Ph.D. University of Texas at Austin, *Professor of Computer Science*

Eric D. Mjolsness, Ph.D. California Institute of Technology, *Professor of Computer Science; Mathematics* (applied mathematics, mathematical biology, modeling languages)

Alexandru Nicolau, Ph.D. Yale University, *Professor of Computer Science; Electrical Engineering and Computer Science* (architecture, parallel computation, programming languages and compilers)

Donald J. Patterson, Ph.D. University of Washington, *Associate Professor of Informatics; Computer Science* (ubiquitous computing, pervasive computing, human-computer interaction, artificial intelligence, intelligent context for situated computing)

Richard Pattis, M.S. Stanford University, *Senior Lecturer of Computer Science; Informatics* (MicroWorlds for teaching programming, debugging, computational tools for non-computer scientists)

Deva Kannan Ramanan, Ph.D. University of California, Berkeley, *Associate Professor of Computer Science*

Amelia C. Regan, Ph.D. University of Texas at Austin, *Professor of Computer Science*

Isaac D. Scherson, Ph.D. Weizmann Institute of Science, *Professor of Computer Science; Electrical Engineering and Computer Science* (parallel computing architectures, massively parallel systems, parallel algorithms, interconnection networks, performance evaluation)

Babak Shahbaba, Ph.D. University of Toronto, *Assistant Professor of Statistics; Computer Science*

Phillip C-Y Sheu, Ph.D. University of California, Berkeley, *Professor of Electrical Engineering and Computer Science; Biomedical Engineering; Computer Science* (database systems, interactive multimedia systems)

Alice Silverberg, Ph.D. Princeton University, *Professor of Mathematics; Computer Science* (algebra and number theory)

Patrick J. Smyth, Ph.D. California Institute of Technology, *Professor of Computer Science; Statistics*

Alexander W. Thornton, B.S. University of California, Irvine, *Lecturer of Computer Science*

Gene Y. Tsudik, Ph.D. University of Southern California, *UCI Chancellor's Professor of Computer Science*

Kojiro Umezaki, M.A. Dartmouth College, *Associate Professor of Music; Computer Science*

Alexander Veidenbaum, Ph.D. University of Illinois at Urbana-Champaign, *Professor of Computer Science*

Nalini Venkatasubramanian, Ph.D. University of Illinois at Urbana-Champaign, *Professor of Computer Science*

Max Welling, Ph.D. Utrecht University, *Professor of Computer Science; Statistics*

Xaiohui Xie, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Computer Science; Developmental and Cell Biology* (computational biology, bioinformatics, genomics, neural computation, machine learning)

Guoqing Xu, Ph.D. Ohio State University, *Assistant Professor of Computer Science*

Charles S. Zender, Ph.D. University of Colorado Boulder, *Professor of Earth System Science; Computer Science*

Hong-Kai Zhao, Ph.D. University of California, Los Angeles, *Professor of Mathematics; Computer Science* (applied and computational mathematics, inverse problems and imaging)

Courses

COMPSCI 111. Digital Image Processing. 4 Units.
Introduction to the fundamental concepts of digital signal and image processing as applicable in areas such as multimedia, graphics, AI, data mining, databases, vision, or video games. Topics include image representation, space- and frequency-domain transformations, filters, segmentation, and compression.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and I&C SCI 6D and (MATH 6G or MATH 3A or I&C SCI 6N). I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 6D with a grade of C or better. MATH 6G with a grade of C or better. MATH 3A with a grade of C or better. I&C SCI 6N with a grade of C or better.

COMPSCI 112. Computer Graphics. 4 Units.
Introduction to the fundamental principles of 3D computer graphics including polygonal modeling, geometric transformations, visibility algorithms, illumination models, texturing, and rasterization. Use of an independently-learned 3D graphics API to implement these techniques.

Prerequisite: (I&C SCI 22 or CSE 22 or I&C SCI H22 or I&C SCI 33 or CSE 43) and (I&C SCI 45C or CSE 45C) and (MATH 6G or MATH 3A or I&C SCI 6N). I&C SCI 22 with a grade of C or better. CSE 22 with a grade of C or better. I&C SCI H22 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 45C with a grade of C or better. CSE 45C with a grade of C or better. MATH 6G with a grade of C or better. MATH 3A with a grade of C or better. I&C SCI 6N with a grade of C or better.

COMPSCI 113. Computer Game Development. 4 Units.
Introduction to the principles of interactive 2D and 3D computer game development. Concepts in computer graphics, algorithms, software engineering, art and graphics, music and sound, story analysis, and artificial intelligence are presented and are the basis for student work.

Prerequisite: COMPSCI 112 or COMPSCI 171 or IN4MATX 121 or ART 106B or I&C SCI 163 or I&C SCI 166.

Same as IN4MATX 125.

COMPSCI 114. Projects in Advanced 3D Computer Graphics. 4 Units.
Projects in advanced 3D graphics such as illumination, geometric modeling, visualization, and animation. Topics may include physically based and global illumination, solid modeling, curved surfaces, multiresolution modeling, image-based rendering, basic concepts of animation, and scientific visualization.

Prerequisite: COMPSCI 112 and (I&C SCI 45C or CSE 45C). I&C SCI 45C with a grade of C or better. CSE 45C with a grade of C or better. Recommended: COMPSCI 161 or CSE 161 or COMPSCI 164 or COMPSCI 165.

COMPSCI 115. Computer Simulation. 4 Units.
Discrete event-driven simulation; continuous system simulation; basic probability as pertaining to input distributions and output analysis; stochastic and deterministic simulation; static and dynamic system simulation.

Prerequisite: I&C SCI 6B and (MATH 6G or I&C SCI 6N) and STATS 67 and I&C SCI 51 and (I&C SCI 52 or IN4MATX 43). I&C SCI 6B with a grade of C or better. MATH 6G with a grade of C or better. I&C SCI 6N with a grade of C or better. STATS 67 with a grade of C or better. I&C SCI 51 with a grade of C or better. I&C SCI 52 with a grade of C or better. IN4MATX 43 with a grade of C or better.

Restriction: Upper-division students only.

COMPSCI 116. Computational Photography and Vision. 4 Units.
Introduces the problems of computer vision through the application of computational photography. Specific topics include photo-editing (image warping, compositing, hole filling), panoramic image stitching, and face detection for digital photographs.

Prerequisite: I&C SCI 6D and (MATH 6G or MATH 3A or I&C SCI 6N) and MATH 2B and (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46). I&C SCI 6D with a grade of C or better. MATH 6G with a grade of C or better. MATH 3A with a grade of C or better. I&C SCI 6N with a grade of C or better. MATH 2B with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

COMPSCI 117. Project in Computer Vision. 4 Units.
Students undertake construction of a computer vision system. Topics may include automatically building 3D models from photographs, searching photo collections, robot navigation, and human motion tracking.

Prerequisite: I&C SCI 6D and (MATH 6G or MATH 3A or I&C SCI 6N) and MATH 2B and (I&C SCI 23 or CSE 23 or I&C SCI H23 or I&C SCI 46 or CSE 46) and (COMPSCI 112 or COMPSCI 116 or COMPSCI 171 or COMPSCI 178). I&C SCI 6D with a grade of C or better. MATH 6G with a grade of C or better. MATH 3A with a grade of C or better. I&C SCI 6N with a grade of C or better. MATH 2B with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI H23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

COMPSCI 121. Information Retrieval. 4 Units.
An introduction to information retrieval including indexing, retrieval, classifying, and clustering text and multimedia documents.

Prerequisite: (IN4MATX 45 or I&C SCI 46 or CSE 46 or ((I&C SCI 33 or CSE 43) and I&C SCI 45J)) and (STATS 7 or STATS 67). IN4MATX 45 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 45J with a grade of C or better.

Same as IN4MATX 141.

COMPSCI 122A. Introduction to Data Management. 4 Units.
Introduction to the design of databases and the use of database management systems (DBMS) for applications. Topics include entity-relationship modeling for design, relational data model, relational algebra, relational design theory, and Structured Query Language (SQL) programming.

(Design units: 1)

Prerequisite: I&C SCI 23 or CSE 23 or I&C SCI H23 or I&C SCI 46 or CSE 46 or IN4MATX 45 or I&C SCI 33 or CSE 43 or EECS 114. I&C SCI 23 with a grade of C or better CSE 23 with a grade of C or better I&C SCI H23 with a grade of C or better I&C SCI 46 with a grade of C or better CSE 46 with a grade of C or better IN4MATX 45 with a grade of C or better I&C SCI 33 with a grade of C or better CSE 43 with a grade of C or better

Same as EECS 116.

Restriction: School of Information and Computer Sciences majors and Computer Engineering majors have first consideration for enrollment.

COMPSCI 122B. Project in Databases and Web Applications. 4 Units.
Introduces students to advanced database technologies and Web applications. Topics include but are not limited to database connectivity (ODBC/JDBC), extending databases using stored procedures, database administration, Web servers, Web programming languages (Java servlets, XML, Ajax, and mobile platforms).

Prerequisite: (COMPSCI 122A or EECS 116) and I&C SCI 45J.

COMPSCI 122C. Principles of Data Management. 4 Units.
Covers fundamental principles underlying data management systems. Content includes key techniques including storage management, buffer management, record-oriented file system, access methods, query optimization, and query processing.

Prerequisite: COMPSCI 122A and COMPSCI 143A and COMPSCI 152.

Concurrent with COMPSCI 222.

COMPSCI 125. Next Generation Search Systems. 4 Units.
Discusses concepts and techniques related to all aspects of search systems. After considering basic search technology and the state-of-art systems, rapidly developing techniques for multimedia search, local search, event-search, and video-on-demand are explored.

Prerequisite: I&C SCI 21 or CSE 21 or IN4MATX 41 or I&C SCI 31 or IN4MATX 41.

Restriction: Upper-division students only.

Concurrent with COMPSCI 225.

COMPSCI 131. Parallel and Distributed Computing. 4 Units.
Parallel and distributed computer systems. Parallel programming models. Common parallel and distributed programming issues. Specific topics covered include parallel programming, performance models, coordination and synchronization, consistency and replication, transactions, fault tolerance.

Prerequisite: I&C SCI 53 and I&C SCI 53L and I&C SCI 45C.

COMPSCI 132. Computer Networks. 4 Units.
Computer network architectures, protocols, and applications. Internet congestion control, addressing, and routing. Local area networks. Multimedia networking.

(Design units: 2)

Prerequisite: EECS 55 or STATS 67.

Same as EECS 148.

Restriction: Computer Engineering and Computer Science and Engineering majors have first consideration for enrollment.

COMPSCI 133. Advanced Computer Networks. 4 Units.
Fundamental principles in computer networks are applied to obtain practical experience and skills necessary for designing and implementing computer networks, protocols, and network applications. Various network design techniques, simulation techniques, and UNIX network programming are covered.

Prerequisite: COMPSCI 132.

COMPSCI 134. Computer and Network Security. 4 Units.
Overview of modern computer and networks security, attacks, and countermeasures. Authentication, identification, data secrecy, data integrity, authorization, access control, computer viruses, network security. Also covers secure e-commerce and applications of public key methods, digital certificates, and credentials.

Prerequisite: I&C SCI 6D and (I&C SCI 33 or CSE 43 or I&C SCI 22 or CSE 22 or IN4MATX 42) and (COMPSCI 122A or EECS 116 or COMPSCI 132 or COMPSCI 143A or CSE 104).

COMPSCI 137. Internet Applications Engineering. 4 Units.
Concepts in Internet applications engineering with emphasis on the Web. Peer-to-Peer and Interoperability. Topics include HTTP and REST, Remote Procedure/Method Calls, Web Services, data representations, content distribution networks, identity management, relevant W3C/IETF standards, and relevant new large-scale computing styles.

Prerequisite: COMPSCI 132.

Same as IN4MATX 124.

Restriction: Upper-division students only.

COMPSCI 141. Concepts in Programming Languages I. 4 Units.
In-depth study of several contemporary programming languages stressing variety in data structures, operations, notation, and control. Examination of different programming paradigms, such as logic programming, functional programming and object-oriented programming; implementation strategies, programming environments, and programming style. Course may be offered online.

Prerequisite: (IN4MATX 42 or I&C SCI 51 or CSE 31 or EECS 31) and (IN4MATX 45 or I&C SCI 46 or CSE 46 or I&C SCI 33 or CSE 43). IN4MATX 42 with a grade of C or better. I&C SCI 51 with a grade of C or better. CSE 31 with a grade of C or better. EECS 31 with a grade of C or better. IN4MATX 45 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Same as IN4MATX 101, CSE 141.

COMPSCI 142A. Compilers and Interpreters. 4 Units.
Introduction to the theory of programming language processors covering lexical analysis, syntax analysis, semantic analysis, intermediate representations, code generation, optimization, interpretation, and run-time support.

Prerequisite: CSE 141 or COMPSCI 141 or IN4MATX 101.

Same as CSE 142.

COMPSCI 142B. Language Processor Construction. 4 Units.
Project course which provides working laboratory experience with construction and behavior of compilers and interpreters. Students build actual language processors and perform experiments which reveal their behaviors.

Prerequisite: COMPSCI 142A or CSE 142.

COMPSCI 143A. Principles of Operating Systems. 4 Units.
Principles and concepts of process and resource management, especially as seen in operating systems. Processes, memory management, protection, scheduling, file systems, and I/O systems are covered. Concepts illustrated in the context of several well-known systems. Course may be offered online. Course may be offered online.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and (I&C SCI 51 or EECS 31 or CSE 31).

Overlaps with EECS 111.

COMPSCI 143B. Project in Operating System Organization. 4 Units.
Detailed specification and design of critical components of an actual operating system including a memory manager, a process server, and a file/IO subsystem. Hardware/software tradeoffs. Emphasis on logical organization of system and communication.

Prerequisite: COMPSCI 143A or CSE 104.

COMPSCI 144. High-performance Computers and Program Optimization. 4 Units.
Analyzes the relationship between computer architecture and program optimization. High-performance and parallelizing compilers for RISC, Superscalar, and VLIW architectures are discussed.

Prerequisite: I&C SCI 51. Recommended: COMPSCI 142A. I&C SCI 51 with a grade of C or better.

COMPSCI 145A. Embedded Computing Systems. 4 Units.
Principles of embedded computing systems: embedded systems architecture, hardware/software components, system software and interfacing, real-time operating systems, hardware/software co-development, and communication issues. Examples of embedded computing in real-world application domains. Simple programming using an embedded systems development environment.

Corequisite: COMPSCI 145B.
Prerequisite: (CSE 46 or I&C SCI 46 or CSE 23 or I&C SCI 23 or I&C SCI 51 or CSE 31 or EECS 31).

Same as CSE 145A.

COMPSCI 145B. Embedded Computing System Lab. 2 Units.
Laboratory section to accompany CSE 145A or COMPSCI 145A.

(Design units: 0)

Corequisite: CSE145A or COMPSCI 145A.

Same as CSE 145B.

COMPSCI 146. Programming in Multitasking Operating Systems. 4 Units.
User- and systems-level programming of modern Internet-connected, multi-user, multitasking operating systems. Shells, scripting, filters, pipelines, programmability, extensibility, concurrency, inter-process communication. Concrete examples of a modern operating system (such as, but not necessarily, Unix programmed in C) are used.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and I&C SCI 51. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 51 with a grade of C or better. Recommended: COMPSCI 143A.

COMPSCI 151. Digital Logic Design. 4 Units.
Boolean algebra. Design/analysis of combinational and sequential systems using SSI/MSI/LSI modules. Number systems. Error detecting and correction codes. Arithmetic algorithms. Hardware/ firmware implementation of algorithms.

Prerequisite: (I&C SCI 33 or CSE 43 or I&C SCI 23 or CSE 43) and I&C SCI 51 and I&C SCI 6B and I&C SCI 6D. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 51 with a grade of C or better.

COMPSCI 152. Computer Systems Architecture. 4 Units.
Design of computer elements; ALU, control unit, and arithmetic circuits. Memory hierarchy and organization. Caches. Function unit sharing and pipelining. I/O and interrupt processing. RTL and behavioral modeling using hardware description languages. Microprocessor organization and implementation techniques.

Prerequisite: COMPSCI 151.

Overlaps with I&C SCI 160, EECS 112.

COMPSCI 153. Logic Design Laboratory. 4 Units.
Introduction to standard integrated circuits. Construction and debugging techniques. Design of digital systems using LSI and MSI components. Practical use of circuits in a laboratory environment, including implementation of small digital systems such as arithmetic modules, displays, and timers.

Prerequisite: COMPSCI 151.

COMPSCI 154. Computer Design Laboratory. 4 Units.
Underlying primitives of computer instruction sets. Principles of microprogramming. Microprogramming. Microprograms written for one or more systems. Typical microprogramming applications discussed and implemented or simulated.

Prerequisite: Prerequisite or corequisite: COMPSCI 151.

COMPSCI 161. Design and Analysis of Algorithms. 4 Units.
Techniques for efficient algorithm design, including divide-and-conquer and dynamic programming, and time/space analysis. Fast algorithms for problems applicable to networks, computer games, and scientific computing, such as sorting, shortest paths, minimum spanning trees, network flow, and pattern matching.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and I&C SCI 6B and I&C SCI 6D and MATH 2B. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

Same as CSE 161.

COMPSCI 162. Formal Languages and Automata. 4 Units.
Formal aspects of describing and recognizing languages by grammars and automata. Parsing regular and context-free languages. Ambiguity, nondeterminism. Elements of computability; Turning machines, random access machines, undecidable problems, NP-completeness.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and MATH 2A and MATH 2B and I&C SCI 6B and I&C SCI 6D. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

Same as LINGUIS 102.

COMPSCI 163. Graph Algorithms. 4 Units.
Algorithms for solving fundamental problems in graph theory. Graph representations, graph traversal, network flow, connectivity, graph layout, matching problems.

Prerequisite: COMPSCI 161 or CSE 161.

COMPSCI 164. Computational Geometry and Geometric Modeling. 4 Units.
Algorithms and data structures for computational geometry and geometric modeling, with applications to game and graphics programming. Topics: convex hulls, Voronoi diagrams, algorithms for triangulation, motion planning, and data structures for geometric searching and modeling of 2D and 3D objects.

Prerequisite: I&C SCI 23 or CSE 23 or I&C SCI H23 or I&C SCI 46 or CSE 46. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI H23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

COMPSCI 165. Project In Algorithms And Data Structures. 4 Units.
Design, implementation, execution, and analysis of algorithms for problems such as sorting, searching, data compression, and data encryption. Time-space-structure trade-offs.

Prerequisite: COMPSCI 161 or CSE 161. Recommended: I&C SCI 45C OR CSE 45C.

COMPSCI 167. Introduction to Applied Cryptography. 4 Units.
An introduction to the essential aspects of applied cryptography, as it is used in practice. Topics include classical cryptography, block ciphers, stream ciphers, public-key cryptography, digital signatures, one-way hash functions, basic cryptographic protocols, and digital certificates and credentials.

Prerequisite: COMPSCI 161 or CSE 161.

Restriction: Upper-division students only.

COMPSCI 168. Network Optimization. 4 Units.
Network modeling techniques and related algorithms for solving large-scale integer programming problems. Exact methods and heuristic techniques. Applications include computer and communications networks and transportation and logistics networks.

Restriction: Upper-division students only.

COMPSCI 169. Introduction to Optimization. 4 Units.
A broad introduction to optimization. Unconstrained and constrained optimization. Equality and inequality constraints. Linear and integer programming. Stochastic dynamic programming.

Prerequisite: (I&C SCI 6N or MATH 3A or MATH 6G) and STATS 67.

Concurrent with COMPSCI 268.

COMPSCI 171. Introduction to Artificial Intelligence. 4 Units.
Different means of representing knowledge and uses of representations in heuristic problem solving. Representations considered include predicate logic, semantic nets, procedural representations, natural language grammars, and search trees.

Corequisite: STATS 67.
Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and MATH 2B.

COMPSCI 172B. Neural Networks and Deep Learning . 4 Units.
Neural network and deep learning from multiple perspectives. Theory of parallel distributed processing systems, algorithmic approaches for learning from data in various manners, applications to difficult problems in AI from computer vision, to natural language understanding, to bioinformatics and chemoinformatics.

Prerequisite: STATS 120A and STATS 120B, or MATH 121A, or COMPSCI 178, or COMPSCI 273A, or equivalents.

Concurrent with COMPSCI 274C.

COMPSCI 174. Bioinformatics. 4 Units.
Introduces fundamental problems in biology that lend themselves to computational approaches. The lectures present the necessary biological background to understand the importance of the problem and the data available for algorithmic analysis.

Prerequisite: COMPSCI 171. COMPSCI 171 with a grade of C or better.

COMPSCI 175. Project in Artificial Intelligence. 4 Units.
Construction of a working artificial intelligence system. Evaluation of capabilities of the system including impact of knowledge representation.

Prerequisite: COMPSCI 171.

COMPSCI 177. Applications of Probability in Computer Science. 4 Units.
Application of probability to real-world problems in computer science. Typical topics include analysis of algorithms and graphs, probabilistic language models, network traffic modeling, data compression, and reliability modeling.

Prerequisite: MATH 2B and STATS 67 and I&C SCI 6B and I&C SCI 6D and (MATH 6G or MATH 3A or I&C SCI 6N).

COMPSCI 178. Machine Learning and Data-Mining. 4 Units.
Introduction to principles of machine learning and data mining applied to real-world datasets. Typical applications include spam filtering, object recognition, and credit scoring.

Prerequisite: I&C SCI 6B and I&C SCI 6D and (I&C SCI 6N or MATH 6G or MATH 3A) and MATH 2B and STATS 67.

COMPSCI 179. Algorithms for Probabilistic and Deterministic Graphical Models. 4 Units.
Graphical model techniques dealing with probabilistic and deterministic knowledge representations. Focuses on graphical models. such as constraint networks, Bayesian networks and Markov networks that have become a central paradigm for knowledge representation and reasoning in Artificial Intelligence and general computer science.

Prerequisite: I&C SCI 23 or CSE 23 or I&C SCI 46 or (CSE 46 and MATH 2A and MATH 2B and STATS 67)

Restriction: Prerequisite required

COMPSCI 183. Introduction to Computational Biology. 4 Units.
The use of theories and methods based on computer science, mathematics, and physics in molecular biology and biochemistry. Basics in biomolecular modeling. Analysis of sequence and structural data of biomolecules. Analysis of biomolecular functions.

Prerequisite: MATH 2D or MATH 2J or STATS 7 or STATS 8.

Same as BIO SCI M123.

Concurrent with MOL BIO 223.

COMPSCI 184A. Representations and Algorithms for Molecular Biology. 4 Units.
Introduction to computational methods in molecular biology, aimed at those interested in learning about this interdisciplinary area. Covers computational approaches to understanding and predicting the structure, function, interactions, and evolution of DNA, RNA, proteins, and related molecules and processes.

Prerequisite: BIO SCI M123 or COMPSCI 183.

Concurrent with COMPSCI 284A.

COMPSCI 184B. Probabilistic Modeling of Biological Data. 4 Units.
A unified Bayesian probabilistic framework for modeling and mining biological data. Applications range from sequence (DNA, RNA, proteins) to gene expression data. Graphical models, Markov models, stochastic grammars, structure prediction, gene finding, evolution, DNA arrays, single- and multiple-gene analysis.

Prerequisite: COMPSCI 184A.

Concurrent with COMPSCI 284B.

COMPSCI 184C. Computational Systems Biology. 4 Units.
Computational inference and modeling of gene regulation networks, signal transduction pathways, and the effects of regulatory networks in cellular processes, development, and disease. Introduction of required mathematical, computational, and data handling tools.

Prerequisite: COMPSCI 184A.

Concurrent with COMPSCI 284C.

COMPSCI 189. Project in Bioinformatics. 4 Units.
Teaches problem definition and analysis, data representation, algorithm design, component integration, solution validation, and testability with teams specifying, designing, building, and testing a solution to a bioinformatics problem. Lectures include engineering values, discussions, and ethical ramifications of biomedical computing issues.

Prerequisite: COMPSCI 184A. COMPSCI 184A with a grade of C or better.

COMPSCI 190. Special Topics in Information and Computer Science. 4 Units.
Studies in selected areas of Information and Computer Science. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

COMPSCI H198. Honors Research. 4 Units.
Directed independent research in computer science for honors students.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only. Bren School of ICS Honors Program or Campuswide Honors Program students only.

COMPSCI 199. Individual Study. 2-5 Units.
Individual research or investigation with Computer Science faculty.

Repeatability: May be repeated for credit unlimited times.

COMPSCI 200S. Seminar in Computer Science Research. 1 Unit.
Graduate colloquium series. Includes weekly talks by notable computer scientists.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

COMPSCI 201. Foundations of Cryptographic Protocols. 4 Units.
Explores fundamental cryptographic tools, including encryption, signatures, and identification schemes. Students are introduced to the provable security paradigm of modern cryptography, focusing on understanding of security properties provided by cryptographic tools, and on proving security (or insecurity) of cryptographic constructions.

Prerequisite: COMPSCI 260 or COMPSCI 263.

COMPSCI 202. Applied Cryptography. 4 Units.
Design and analysis of algorithms for applied cryptography. Topics include symmetric and asymmetric key encryption, digital signatures, one-way hash functions, digital certificates and credentials, and techniques for authorization, non-repudiation, authentication, identification, data integrity, proofs of knowledge, and access control.

Prerequisite: COMPSCI 260 and COMPSCI 263.

COMPSCI 203. Network and Distributed Systems Security. 4 Units.
Modern computer and networks security: attacks and countermeasures, authentication, identification, data secrecy, data integrity, authorization, access control, computer viruses, network security. Group communication and multicast security techniques. Covers secure e-commerce and applications of public key methods, digital certificates, and credentials.

Prerequisite: EECS 148 or COMPSCI 132.

Same as NET SYS 240.

COMPSCI 206. Principles of Scientific Computing. 4 Units.
Overview of widely used principles and methods of numerical and scientific computing, including basic concepts and computational methods in linear algebra, optimization, and probability.

Prerequisite: Basic courses in multivariate calculus, linear algebra, and probability.

Overlaps with STATS 230.

COMPSCI 211A. Visual Computing. 4 Units.
Fundamentals of image processing (convolution, linear filters, spectral analysis), vision geometry (projective geometry, camera models and calibration, stereo reconstruction), radiometry (color, shading, illumination, BRDF), and visual content synthesis (graphics pipeline, texture- bump-, mip-mapping, hidden surface removal, anti-aliasing).

COMPSCI 211B. Computer Graphics and Visualization. 4 Units.
Advanced topics in 3D graphics on rendering, geometric modeling, and visualization. Subjects range from illumination and shading, and multiresolution representations, to other advanced algorithms and data structures in graphics. Also looks at trends that go beyond traditional computer graphics.

Prerequisite: COMPSCI 211A.

COMPSCI 212. Multimedia Systems and Applications. 4 Units.
Organization and structure of modern multimedia systems; audio and video encoding/compression; quality of service concepts; scheduling algorithms for multimedia; resource management in distributed and multimedia systems; multimedia protocols over high-speed networks; synchronization schemes; multimedia applications and teleservices.

Prerequisite: (COMPSCI 143A and COMPSCI 161) or B.S. degree in Computer Science. Recommended: COMPSCI 131 and COMPSCI 132 and COMPSCI 133.

COMPSCI 213. Introduction to Visual Perception. 4 Units.
Introduction to the process of human visual perception. Offers the physiological and psychophysical approach to understand vision, introducing concepts of perception of color, depth, movement. Examples of quantification and application of these models in computer vision, computer graphics, multimedia, HCI.

Prerequisite: MATH 121A.

COMPSCI 216. Image Understanding. 4 Units.
The goal of image understanding is to extract useful semantic information from image data. Course covers low-level image and video processing techniques, feature descriptors, segmentation, objection recognition, and tracking.

Prerequisite: I&C SCI 6D and (I&C SCI 6N or MATH 6G or MATH 3A) and MATH 2B and I&C SCI 46.

COMPSCI 217. Light and Geometry in Computer Vision. 4 Units.
Examines the issues of light transport and multiview geometry in computer vision. Applications include camera calibration, 3D understanding, stereo reconstruction, and illumination estimation.

Prerequisite: I&C SCI 6D and (I&C SCI 6N or MATH 6G or MATH 3A) and MATH 2B and I&C SCI 46 and COMPSCI 211A.

COMPSCI 221. Information Retrieval, Filtering, and Classification. 4 Units.
Algorithms for the storage, retrieval, filtering, and classification of textual and multimedia data. The vector space model, Boolean and probabilistic queries, and relevance feedback. Latent semantic indexing; collaborative filtering; and relationship to machine learning methods.

Prerequisite: COMPSCI 161 and COMPSCI 171 and (I&C SCI 6N or MATH 3A or MATH 6G).

Same as IN4MATX 225.

Restriction: Graduate students only.

COMPSCI 222. Principles of Data Management. 4 Units.
Covers fundamental principles underlying data management systems. Content includes key techniques including storage management, buffer management, record-oriented file system, access methods, query optimization, and query processing.

Prerequisite: COMPSCI 122A and COMPSCI 143A and COMPSCI 152.

Concurrent with COMPSCI 122C.

COMPSCI 223. Transaction Processing and Distributed Data Management. 4 Units.
Covers fundamental principles underlying transaction processing including database consistency, concurrency control, database recovery, and fault-tolerance. Includes transaction processing in centralized, distributed, parallel, and client-server environments.

Prerequisite: COMPSCI 222 and COMPSCI 131.

COMPSCI 224. Advanced Topics in Data Management. 4 Units.
Selected advanced topics in data management. Content differs in each offering and with instructor's interests. Intended for students interested in data management with focus on reading and critiquing recent research papers, presentations, and substantial research projects.

Prerequisite: COMPSCI 143A and COMPSCI 152 and COMPSCI 161 and COMPSCI 222 and COMPSCI 223.

COMPSCI 225. Next Generation Search Systems. 4 Units.
Discusses concepts and techniques related to all aspects of search systems. After considering basic search technology and the state-of-art systems, rapidly developing techniques for multimedia search, local search, event-search, and video-on-demand are explored.

Prerequisite: I&C SCI 21 or CSE 21 or IN4MATX 41 or I&C SCI 31 or CSE 41.

Restriction: Upper-division or Graduate students only.

Concurrent with COMPSCI 125.

COMPSCI 230. Distributed Computer Systems. 4 Units.
Principles of distributed computing systems. Topics covered include message-passing, remote procedure calls, distributed shared memory synchronization, resource and process/thread management, distributed file systems, naming and security.

COMPSCI 232. Computer and Communication Networks. 4 Units.
Network architecture of the Internet, telephone networks, cable networks, and cell phone networks. Network performance models. Network performance models. Advanced concepts and implementations of flow and congestion control, addressing, internetworking, forwarding, routing, multiple access, streaming, and quality-of-service.

Prerequisite: EECS 148 or COMPSCI 132.

Same as EECS 248A, NET SYS 201.

Restriction: Graduate students only.

COMPSCI 233. Networking Laboratory. 4 Units.
A laboratory-based introduction to basic networking concepts such as addressing, sub-netting, bridging, ARP, and routing. Network simulation and design. Structured around weekly readings and laboratory assignments.

Prerequisite: EECS 148 or COMPSCI 132.

Same as NET SYS 202.

COMPSCI 234. Advanced Networks. 4 Units.
Design principles of networked systems, advanced routing and congestion control algorithms, network algorithms, network measurement, management, security, Internet economics, and emerging networks.

Prerequisite: NET SYS 201 or COMPSCI 232 OR EECS 248A.

Same as NET SYS 210.

COMPSCI 236. Wireless and Mobile Networking. 4 Units.
Introduction to wireless networking. The focus is on layers 2 and 3 of the OSI reference model, design, performance analysis, and protocols. Topics covered include: an introduction to wireless networking, digital cellular, next generation cellular, wireless LANs, and mobile IP.

Prerequisite: EECS 148 or COMPSCI 132.

Same as NET SYS 230.

COMPSCI 237. Middleware for Networked and Distributed Systems. 4 Units.
Discusses concepts, techniques, and issues in developing distributed systems middleware that provides high performance and Quality of Service for emerging applications. Also covers existing standards (e.g., CORBA, DCOM, Jini, Espeak) and their relative advantages and shortcomings.

Prerequisite: An undergraduate-level course in operating systems and networks.

Same as NET SYS 260.

COMPSCI 240. Language-Based Security. 4 Units.
Teaches state-of-the art language-based techniques for increasing the security and reliability of software systems. Covers static (e.g., bytecode verification, proof-carrying code) and dynamic (e.g., reference monitors, stack inspection) techniques. Also discusses information flow and securing legacy code.

Prerequisite: COMPSCI 230 or COMPSCI 242 or COMPSCI 262.

COMPSCI 241. Advanced Compiler Construction. 4 Units.
Advanced study of programming language implementation techniques: optimizations such as common sub-expression elimination, register allocation, and instruction scheduling. Implementation of language features such as type-directed dispatch, garbage collection, dynamic linking, and just-in-time code generation.

Prerequisite: COMPSCI 142A.

COMPSCI 242. Parallel Computing. 4 Units.
Definition of parallel processing systems. Theory and application of arrays, trees, and hypercubes. Computational models, applications: sorting, integer arithmetic, matrix operations, Fast Fourier Transform, and others. Interconnection networks: a framework for the description, analysis, and construction of hypercube-derived networks.

COMPSCI 243. High-Performance Architectures and Their Compilers. 4 Units.
Emphasis on the development of automatic tools (i.e., compilers/environments) for the efficient exploitation of parallel machines, and the trade-offs between hardware and software in the design of supercomputing and high-performance machines.

COMPSCI 244. Introduction to Embedded and Ubiquitous Systems. 4 Units.
Embedded and ubiquitous system technologies including processors, DSP, memory, and software. System interfacing basics; communication strategies; sensors and actuators, mobile and wireless technology. Using pre-designed hardware and software components. Design case studies in wireless, multimedia, and/or networking domains.

Prerequisite: I&C SCI 51 and COMPSCI 152 and COMPSCI 161 and (I&C SCI 6N or MATH 3A or MATH 6G or I&C SCI 6D) or B.S. degree in Computer Science.

Same as IN4MATX 244.

COMPSCI 245. Software for Embedded Systems. 4 Units.
Embedded computing elements, device interfaces, time-critical IO handling. Embedded software design under size, performance, and reliability constraints. Software timing and functional validation. Programming methods and compilation for embeddable software. Embedded runtime systems. Case studies of real-time software systems.

Prerequisite: I&C SCI 51 and COMPSCI 152 and COMPSCI 161 and (I&C SCI 6N or MATH 3A or MATH 6G or I&C SCI 6D) or B.S. degree in Computer Science.

COMPSCI 246. Valifation and Testing of Embedded Systems. 4 Units.
Embedded system building blocks including IP cores. Co-simulation. Formal verification using model checking. Verification environments. Test challenges in core integration: compliance, feature, random, and collision testing. Core access and test integration. Interface-based verification and standards.

Prerequisite: B.S. degree in Computer Science or basic courses in algorithms & data structures, calculus, discrete math, linear algebra, symbolic logic.

COMPSCI 247. Design Automation and Prototyping of Embedded Systems. 4 Units.
System representation and modeling. Abstract and language models. Simulation as a modeling activity. Computation and hw/sw systems prototypes. System analysis using models. Constraint and interface modeling. Behavioral compilation and synthesis.

Prerequisite: I&C SCI 6D and I&C SCI 51 and COMPSCI 152 and COMPSCI 161 and COMPSCI 244 and (I&C SCI 6N or MATH 3A or MATH 6G) or B.S. degree in Computer Science.

COMPSCI 248A. Introduction to Ubiquitous Computing. 4 Units.
The "disappearing computer" paradigm. Differences to the desktop computing model: applications, interaction in augmented environments, security, alternate media, small operating systems, sensors, and embedded systems design. Evaluation by project work and class participation.

Same as IN4MATX 241.

COMPSCI 248B. Ubiquitous Computing and Interaction. 4 Units.
Principles and design techniques for ubiquitous computing applications. Conceptual basis for tangible and embodied interaction. Interaction in virtual and augmented environments. Design methods and techniques. Design case studies. Examination by project work.

Prerequisite: IN4MATX 231 and IN4MATX 241.

Same as IN4MATX 242.

COMPSCI 249S. Seminar in Compilers and Operating Systems. 2 Units.
Current research and research trends in system-level software such as compilers and operating systems. Forum for presentation and criticism by students of new published research and work in progress.

Prerequisite: (COMPSCI 142A and COMPSCI 143A) or B.S. degree in Computer Science.

Repeatability: May be taken for credit 4 times.

COMPSCI 250A. Computer Systems Architecture. 4 Units.
Study of architectural issues and their relation to technology and software: design of processor, interconnections, and memory hierarchies.

Prerequisite: COMPSCI 152.

COMPSCI 250B. Modern Microprocessors. 4 Units.
Fundamental concepts and recent advances in computer architecture necessary to understand and use modern microprocessors. Topics span out-of-order execution, multiple instruction issue, control/data speculation, predication, advanced cache and DRAM organizations, embedded systems, DSP and multi-media instructions.

Prerequisite: COMPSCI 250A.

Overlaps with COMPSCI 243.

COMPSCI 252. Introduction to Computer Design. 4 Units.
The methodology and use of CAD tools for computer design, accomplished by a lab in which students practice design using commercially available silicon compilers and other tools.

Prerequisite: COMPSCI 151 and COMPSCI 152.

COMPSCI 253. Analysis of Programming Languages. 4 Units.
Concepts in modern programming languages, their interaction, and the relationship between programming languages and methods for large-scale, extensible software development. Empirical analysis of programming language usage.

Same as IN4MATX 212.

COMPSCI 259S. Seminar in Design Science. 2 Units.
Current research and research trends in design science. Forum for presentation and criticism by students of research work in progress.

Repeatability: May be taken for credit 18 times.

COMPSCI 260. Fundamentals of the Design and Analysis of Algorithms. 4 Units.
Covers fundamental concepts in the design and analysis of algorithms and is geared toward non-specialists in theoretical computer science. Topics include: deterministic and randomized graph algorithms, fundamental algorithmic techniques like divide-and-conquer strategies and dynamic programming, and NP-completeness.

Prerequisite: COMPSCI 161.

COMPSCI 261. Data Structures. 4 Units.
An in-depth treatment of data structures and their associated management algorithms including resource complexity analysis.

Prerequisite: I&C SCI 46 and COMPSCI 161.

COMPSCI 262. Computational Complexity. 4 Units.
Advanced course in computational models and complexity classes. Covers the fundamentals of Turing Machines, Decidability, and NP-completeness. Includes discussion of more advanced topics including polynomial hierarchy, randomized complexity classes, #P-completeness and hardness of approximation.

Prerequisite: COMPSCI 162.

COMPSCI 263. Analysis of Algorithms. 4 Units.
Analysis of correctness and complexity of various efficient algorithms; discussion of problems for which no efficient solutions are known.

Prerequisite: COMPSCI 161 and COMPSCI 261.

COMPSCI 264. Quantum Computation and Information. 4 Units.
Basic models for quantum computation and their foundations in quantum mechanics. Quantum complexity classes and quantum algorithms including algorithms for factoring and quantum simulation. Introduction to quantum information theory and quantum entanglement.

Prerequisite: Basic courses in linear algebra and algorithms.

COMPSCI 265. Graph Algorithms. 4 Units.
Graph definitions, representation methods, graph problems, algorithms, approximation methods, and applications.

Prerequisite: COMPSCI 161 and COMPSCI 261.

COMPSCI 266. Computational Geometry. 4 Units.
An overview of some of the basic problems in computational geometry and of some algorithmic and data-structuring techniques appropriate to their solution.

Prerequisite: COMPSCI 161 and COMPSCI 261.

COMPSCI 267. Data Compression. 4 Units.
An introduction to the theory and practice of modern data compression techniques. Topics include codes, coding, modeling, text compression, lossless and lossy image compression standards and systems, audio compression.

Prerequisite: (COMPSCI 261 and COMPSCI 260) or COMPSCI 261.

COMPSCI 268. Introduction to Optimization. 4 Units.
A broad introduction to optimization. Unconstrained and constrained optimization. Equality and inequality constraints. Linear and integer programming. Stochastic dynamic programming.

Prerequisite: STATS 67 and (I&C SCI 6N or MATH 3A or MATH 6G).

Concurrent with COMPSCI 169.

COMPSCI 269S. Seminar in the Theory of Algorithms and Data Structures. 2 Units.
Current research and research trends in the Theory of algorithms and data structures.

Repeatability: May be taken for credit 18 times.

COMPSCI 271. Introduction to Artificial Intelligence. 4 Units.
The study of theories and computational models for systems which behave and act in an intelligent manner. Fundamental subdisciplines of artificial intelligence including knowledge representation, search, deduction, planning, probabilistic reasoning, natural language parsing and comprehension, knowledge-based systems, and learning.

COMPSCI 273A. Machine Learning. 4 Units.
Computational approaches to learning algorithms for classifications, regression, and clustering. Emphasis is on discriminative classification methods such as decision trees, rules, nearest neighbor, linear models, and naive Bayes.

Prerequisite: COMPSCI 271 and COMPSCI 206.

COMPSCI 274A. Probablistic Learning: Theory and Algorithms. 4 Units.
An introduction to probabilistic and statistical techniques for learning from data, including parameter estimation, density estimation, regression, classification, and mixture modeling.

Prerequisite: COMPSCI 206.

COMPSCI 274B. Learning in Graphical Models. 4 Units.
Models for data analysis are presented in the unifying framework of graphical models. The emphasis is on learning from data but inference is also covered. Real world examples are used to illustrate the material.

Prerequisite: COMPSCI 274A.

COMPSCI 274C. Neural Networks and Deep Learning. 4 Units.
Neural network and deep learning from multiple perspectives. Theory of parallel distributed processing systems, algorithmic approaches for learning from data in various manners, applications to difficult problems in AI from computer vision, to natural language understanding, to bioinformatics and chemoinformatics.

Prerequisite: STATS 120A and STATS 120B, or MATH 121A or COMPSCI 178 or COMPSCI 273A, or equivalents.

Overlaps with COMPSCI 274A, COMPSCI 279S, COMPSCI 277, COMPSCI 276, COMPSCI 278, COMPSCI 274B.

Concurrent with COMPSCI 172B.

COMPSCI 275. Network-based Reasoning/Constraint Networks. 4 Units.
Study of the theory and techniques of constraint network model. Covers techniques for solving constraint satisfaction problems: backtracking techniques, consistency algorithms, and structure-based techniques. Tractable subclasses. Extensions into applications such as temporal reasoning, diagnosis, and scheduling.

Prerequisite: Basic course in algorithm design and analysis.

COMPSCI 276. Network-based reasoning/Belief Networks. 4 Units.
Focuses on reasoning with uncertainty using "Bayes Networks" that encode knowledge as probabilistic relations between variables, and the main task is, given some observations, to update the degree of belief in each proposition.

Prerequisite: A basic course in probability.

COMPSCI 277. Data Mining. 4 Units.
Introduction to the general principles of inferring useful knowledge from large data sets (commonly known as data mining or knowledge discovery). Relevant concepts from statistics, databases and data structures, optimization, artificial intelligence, and visualization are discussed in an integrated manner.

Prerequisite: COMPSCI 273A or COMPSCI 274A.

COMPSCI 278. Probability Models. 4 Units.
Advanced probability, discrete time Markov chains, Poisson processes, continuous time Markov chains. Queuing or simulation as time permits.

Prerequisite: STATS 120A.

Concurrent with STATS 121.

COMPSCI 279S. Seminar in Artificial Intelligence. 2 Units.
Current research and research trends in artificial intelligence.

Repeatability: May be taken for credit 18 times.

COMPSCI 284A. Representations and Algorithms for Molecular Biology. 4 Units.
Introduction to computational methods in molecular biology, aimed at those interested in learning about this interdisciplinary area. Covers computational approaches to understanding and predicting the structure, function, interactions, and evolution of DNA, RNA, proteins, and related molecules and processes.

Prerequisite: A Basic course in algorithms, or a basic course in molecular biology.

Concurrent with COMPSCI 184A.

COMPSCI 284B. Probabilistic Modeling of Biological Data. 4 Units.
A unified Bayesian probabilistic framework for modeling and mining biological data. Applications range from sequence (DNA, RNA, proteins) to gene expression data. Graphical models, Markov models, stochastic grammars, structure prediction, gene finding, evolution, DNA arrays, single- and multiple-gene analysis.

Prerequisite: COMPSCI 284A.

Concurrent with COMPSCI 184B.

COMPSCI 284C. Computational Systems Biology. 4 Units.
Computational inference and modeling of gene regulation networks, signal transduction pathways, and the effects of regulatory networks in cellular processes, development, and disease. Introduction of required mathematical, computational, and data handling tools.

Prerequisite: COMPSCI 284A or COMPSCI 284B or (BIO SCI 99 and MATH 2D and MATH 2J).

Concurrent with COMPSCI 184C.

COMPSCI 285. Mathematical and Computational Biology . 4 Units.
Analytical and numerical methods for dynamical systems, temporal-spatial dynamics, steady state, stability, stochasticity. Application to life sciences: genetics, tissue growth and patterning, cancers, ion channels gating, signaling networks, morphogen gradients. Probabilistic methods.

Prerequisite: MATH 227A.

Same as MATH 227C.

COMPSCI 288A. Biological Networks. 4 Units.
Introduces the basics of primarily graph theoretic analysis and modeling of biological networks. Presents the necessary biological background for understanding different types of biological networks as well as mathematical, algorithmic, and computational complexity issues associated with them.

Prerequisite: I&C SCI 6D and (COMPSCI 161 or CSE 161)and BIO SCI M123.

COMPSCI 289S. Seminar for Informatics in Biology and Medicine. 2 Units.
Current research and research trends in bioinformatics and medical informatics. Forum for presentation and criticism by students of recently published research and work in progress.

Prerequisite: COMPSCI 284A or COMPSCI 284B.

Repeatability: May be repeated for credit unlimited times.

COMPSCI 290. Research Seminar. 2 Units.
Forum for presentation and criticism by students of research work in progress. Presentation of problem areas and related work. Specific goals and progress of research.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

COMPSCI 295. Special Topics in Information and Computer Science . 4 Units.
Studies in selected areas of Information and Computer Science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

COMPSCI 296. Elements of Scientific Writing. 4 Units.
Introduces the concepts and principles of good scientific writing, demonstrates them by examples drawn from the literature, and uses a hands-on approach to apply them to documents being written by the participants.

Grading Option: Satisfactory/unsatisfactory only.

COMPSCI 298. Thesis Supervision. 2-12 Units.
Individual research or investigation conducted in preparation for the M.S. thesis option or the dissertation requirements for the Ph.D. program.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Information and Computer Science majors only.

COMPSCI 299. Individual Study. 1-12 Units.
Individual research or investigation with Computer Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only. School of Information and Computer Science majors only.

Department of Informatics

5019 Donald Bren Hall; 949-824-2901
http://www.informatics.uci.edu/
André van der Hoek, **Department Chair**

Informatics is the interdisciplinary study of the design, application, use, and impact of information technology. It goes beyond technical design, to focus on the relationship between information system design and use in real-world settings. These investigations lead to new forms of system architecture, new approaches to system design and development, new means of information system implementation and deployment, and new models of interaction between technology and social, cultural, and organizational settings.

Undergraduate Major in Informatics

Students in the Informatics major study human-computer interaction, social computing, computer-supported cooperative work, ubiquitous computing, organizational computing, and other topics that address the relationship between information technology design and use in social and organizational settings. The Informatics major addresses the broad set of issues surrounding design, all from a multidisciplinary perspective that includes computer science, information science, organizational science, social science, and cognitive science.

Courses offer extensive treatment of the conceptual underpinnings of the discipline and provide in-depth practical experiences, often performed on real-world examples and involving outside organizations. Students completing the major will be well suited for advanced careers in information technology or for further study at the graduate level. Specific careers include, but are not limited to, system or information analyst; system or information designer; project manager; and user interface and interaction designer. Career settings include corporations, nonprofit organizations, start-ups, and independent consulting.

Informatics majors complete one of two specializations: Human-Computer Interaction (HCI) or Organizations and Information Technology (OIT). More information is available at the Department of Informatics (http://www.ics.uci.edu/informatics/ugrad) website.

Admissions

Freshmen Applicants: See the Undergraduate Admissions (p. 52) section.

Transfer Applicants:

Students transferring into the major must satisfy the following requirements:

1. Completion of one college-level mathematics course; courses equivalent to I&C SCI 6B Boolean Algebra and Logic , STATS 7 Basic Statistics or STATS 67 Introduction to Probability and Statistics for Computer Science are preferred as these courses facilitate scheduling after transfer to UCI.
2. Completion of one year of transferable computer science courses with at least one course involving concepts such as those found in Java, Python, C++, or other object-oriented or high-level programming language.

NOTE: The introductory sequence in ICS has moved to Python. The Bren School of ICS strongly encourages all participants to become familiar with this programming language prior to matriculation. Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major(s) of interest. Java is used extensively in the curriculum; therefore, transfer students should plan to learn it by studying on their own or by completing a Java-related programming course prior to their first quarter at UCI.

Additional courses beyond those required for admission must be taken to fulfill the lower-division degree requirements, as many are prerequisites for upper-division courses. For some transfer students, this may mean that it will take longer than two years to complete their degree.

More information is available at Department of Informatics (http://www.ics.uci.edu/informatics/ugrad) website or at the ICS Student Affairs Office; telephone (949) 824-5156; e-mail: ucounsel@uci.edu.

Requirements for the B.S. Degree in Informatics

All students must meet the University Requirements (p. 71)**.**

Major Requirements

Lower-division	
A. Select one of the following:	
IN4MATX 41- 42- 45	Informatics Core Course I and Informatics Core Course II and Patterns of Software Construction
or	
I&C SCI 31- 32- 33	Introduction to Programming and Programming with Software Libraries and Intermediate Programming
or	
I&C SCI 21- 22- 46	Introduction to Computer Science I and Introduction to Computer Science II and Data Structure Implementation and Analysis
or	
I&C SCI 21- 22-IN4MATX 45	Introduction to Computer Science I and Introduction to Computer Science II and Patterns of Software Construction
B. Select one of the following:	
I&C SCI 90	New Students Seminar
or IN4MATX 44	Seminar in Informatics Research Topics
C. Select one of the following:	
I&C SCI 52	Introduction to Software Engineering
or IN4MATX 43	Introduction to Software Engineering
D. Complete:	
I&C SCI 45J	Programming in Java as a Second Language
E. Complete:	
I&C SCI 6B	Boolean Algebra and Logic
and	
STATS 7	Basic Statistics
or STATS 67	Introduction to Probability and Statistics for Computer Science
Upper-division	
A. Informatics Core Requirements:	
IN4MATX 113	Requirements Analysis and Engineering
IN4MATX 121	Software Design: Applications

IN4MATX 131	Human Computer Interaction
IN4MATX 151	Project Management
IN4MATX 161	Social Analysis of Computerization
IN4MATX 191A- 191B- 191C	Senior Design Project and Senior Design Project and Senior Design Project
B. One of the following specializations:	
Human-Computer Interaction	
Complete:	
IN4MATX 132	Project in Human-Computer Interaction Requirements and Evaluation
and select three of the following:	
IN4MATX 133	User Interaction Software
IN4MATX 141	Information Retrieval
IN4MATX 143	Information Visualization
IN4MATX 153	Computer Supported Cooperative Work
IN4MATX 162W	Organizational Information Systems
IN4MATX 171	Introduction to Medical Informatics
and select two project courses from the following:	
IN4MATX 125	Computer Game Development
IN4MATX 134	Project in User Interaction Software
IN4MATX 148	Project in Ubiquitous Computing
IN4MATX 163	Project in the Social and Organizational Impacts of Computing
and select four additional courses from the following:	
Informatics 100–190	
PUBHLTH 166	Geographic Information Systems
Organizations and Information Technology	
Complete:	
IN4MATX 141	Information Retrieval
IN4MATX 162W	Organizational Information Systems
IN4MATX 163	Project in the Social and Organizational Impacts of Computing
MGMT 5	Management of Contemporary Organizations
MGMT 102	Managing Organizational Behavior
and select four of the following:	
MGMT 107	Introduction to Management Information Systems
MGMT 159	Design Management
MGMT 170	Technologies for Business
MGMT 173	Business Intelligence for Analytical Decisions
MGMT 175	Information Technology (IT) and Strategy
MGMT 178	Management of Information Technology
PSY BEH 9	Introduction to Psychology
PSY BEH 104S	Social Animal: An Introduction to Social Psychology
PSY BEH 176S	Motivation
PSY BEH 180S	Organizational/Industrial Psychology
SOCIOL 41	Small Group Dynamics
SOCIOL 135	Social Psychology of Networks
SOCIOL 141	Organizations
SOCIOL 143	Social Networks and Social Support
SOCIOL 145	Occupations and Professions
IN4MATX 100–190	
and select two additional courses from the following:	
IN4MATX 100–190	
COMPSCI 100–199	

Major and minor restrictions: Informatics majors pursuing minors outside of the Bren School of ICS may not count more than four courses toward both the major and minor.

Sample Program of Study — Informatics: Human-Computer Interaction (HCI)

Freshman		
Fall	**Winter**	**Spring**
I&C SCI 31	I&C SCI 32	I&C SCI 33
STATS 7	I&C SCI 6B	IN4MATX 43
WRITING 39A	WRITING 39B	WRITING 39C
I&C SCI 90		
Sophomore		
Fall	**Winter**	**Spring**
I&C SCI 45J	Informatics Core	Informatics Core
Informatics Core	Specialization	Specialization
Specialization	GE III	GE III
GE II	GE IV	GE IV
Junior		
Fall	**Winter**	**Spring**
Informatics Core	Informatics Core	IN4MATX 191A
Specialization	Specialization	Specialization
GE III	UD Writing	GE VI
Senior		
Fall	**Winter**	**Spring**
IN4MATX 191B	IN4MATX 191C	Elective
Specialization	Specialization	GE IV
GE VII	Specialization	GE VIII

Sample Program of Study — Informatics: Organizations and Information Technology (OIT)

Freshman		
Fall	**Winter**	**Spring**
I&C SCI 31	I&C SCI 32	I&C SCI 33
STATS 7	I&C SCI 6B	IN4MATX 43
WRITING 39A	WRITING 39B	WRITING 39C
I&C SCI 90		
Sophomore		
Fall	**Winter**	**Spring**
I&C SCI 45J	Informatics Core	Informatics Core
Informatics Core	Specialization	Specialization
Specialization	GE III	GE III
GE II	GE IV	GE IV
Junior		
Fall	**Winter**	**Spring**
Informatics Core	Informatics Core	IN4MATX 191A
Specialization	Specialization	Specialization
GE III	UD Writing	GE VI
Senior		
Fall	**Winter**	**Spring**
IN4MATX 191B	IN4MATX 191C	Specialization
Specialization	Specialization	GE IV
GE VII	Specialization	GE VIII

Minor in Digital Information Systems

Students outside the Bren School of ICS may pursue a minor in Digital Information Systems (DIS). The minor is designed for students who want to learn about information systems, computation, and digital communication without preparing to be computer programmers. Students completing the DIS minor will be able to understand the role of digital information systems in society, and will learn about the technological underpinnings of these systems and constraints on their design and use.

Requirements for the Minor

Select two of the following:

I&C SCI 3	Internet Technologies and their Social Impact

I&C SCI 4	Human Factors for the Web
I&C SCI 5	Global Disruption and Information Technology
I&C SCI 7	Introducing Modern Computational Tools
I&C SCI 8	Practical Computer Security
I&C SCI 11	The Internet and Public Policy
I&C SCI 22	Introduction to Computer Science II
or CSE 22	Introduction to Computer Science II
I&C SCI H22	Honors Introduction to Computer Science II
IN4MATX 42	Informatics Core Course II
or I&C SCI 32	Programming with Software Libraries
IN4MATX 43	Introduction to Software Engineering [1]
I&C SCI 61	Game Systems and Design
Select one of the following:	
I&C SCI 10	How Computers Work
I&C SCI 21	Introduction to Computer Science I
or CSE 21	Introduction to Computer Science I
I&C SCI H21	Honors Introduction to Computer Science I
IN4MATX 41	Informatics Core Course I
or I&C SCI 31	Introduction to Programming
Select four of the following:	
I&C SCI 105	Digital Information Systems [1]
IN4MATX 131	Human Computer Interaction
IN4MATX 132	Project in Human-Computer Interaction Requirements and Evaluation
IN4MATX 143	Information Visualization
IN4MATX 148	Project in Ubiquitous Computing
IN4MATX 151	Project Management
IN4MATX 161	Social Analysis of Computerization
IN4MATX 162W	Organizational Information Systems
IN4MATX 163	Project in the Social and Organizational Impacts of Computing
IN4MATX 171	Introduction to Medical Informatics
IN4MATX 172	Project in Health Informatics

[1] Students cannot take both IN4MATX 43 and I&C SCI 105.

NOTE: Bren School of ICS majors may not minor in Digital Information Systems. Courses used to complete the minor in Digital Information Systems may not also count toward the requirements for the Information and Computer Science minor or the Informatics minor.

Minor in Health Informatics

The minor in Health Informatics prepares students to understand the expanding role of information technology (IT) in health care and to participate in creating IT solutions to health care issues. It includes course work and fieldwork addressing a variety of health care IT settings. Students completing this minor will gain practical experience applying IT to serve the health care needs of communities and individuals.

Requirements for the Minor

Complete:	
IN4MATX 171	Introduction to Medical Informatics
IN4MATX 172	Project in Health Informatics
Select two of the following:	
I&C SCI 4	Human Factors for the Web [1]
I&C SCI 7	Introducing Modern Computational Tools [1]
I&C SCI 10	How Computers Work [1]
I&C SCI 31	Introduction to Programming [1]
I&C SCI 32	Programming with Software Libraries [1]

IN4MATX 121	Software Design: Applications
IN4MATX 123	Software Architecture
IN4MATX 131	Human Computer Interaction
IN4MATX 133	User Interaction Software
IN4MATX 143	Information Visualization
COMPSCI 111	Digital Image Processing
COMPSCI 121/IN4MATX 141	Information Retrieval
COMPSCI 122A	Introduction to Data Management
COMPSCI 131	Parallel and Distributed Computing
COMPSCI 134	Computer and Network Security
COMPSCI/CSE 145A	Embedded Computing Systems
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 178	Machine Learning and Data-Mining
Select two of the following:	
NUR SCI 110W	Frameworks for Professional Nursing Practice
PUBHLTH 101	Introduction to Epidemiology
PUBHLTH 104	Analytic and Applied Epidemiology
PUBHLTH 122	Health Policy
PUBHLTH 124	Environmental and Public Health Policy
Select one of the following:	
IN4MATX 151	Project Management
IN4MATX 161	Social Analysis of Computerization
IN4MATX 162W	Organizational Information Systems
STATS 7	Basic Statistics
STATS 8	Introduction to Biological Statistics
STATS 67	Introduction to Probability and Statistics for Computer Science

[1] This course may only be counted by majors outside of the Bren School of ICS.

NOTE: No more than one of these courses may be used to satisfy both the requirements of this minor and the requirements of the student's major. A student must earn a grade of C or better in all courses used to satisfy the requirements of this minor.

Minor in Informatics

The minor provides a focused study of Informatics to supplement a student's major program of study and prepares students for a profession, career, or academic pursuit in which information and software design is an integral part but is not the primary focus. The minor allows students sufficient flexibility to pursue courses that complement their major field or address specific interests. The minor particularly centers on understanding the relationships among computers and people, and how these relationships must be addressed in information and software design.

Requirements for the Minor

Select one of the following:	
IN4MATX 41- 42- 45	Informatics Core Course I and Informatics Core Course II and Patterns of Software Construction
or	
I&C SCI 31- 32- 33	Introduction to Programming and Programming with Software Libraries and Intermediate Programming
Complete:	
I&C SCI 90	New Students Seminar
or IN4MATX 44	Seminar in Informatics Research Topics
Complete:	
I&C SCI 52	Introduction to Software Engineering
or IN4MATX 43	Introduction to Software Engineering
Complete:	
IN4MATX 131	Human Computer Interaction

and	
IN4MATX 161	Social Analysis of Computerization

and at least two additional upper-division courses in Informatics

NOTE: A maximum of two courses can be taken Pass/Not Pass toward a minor. Bren School majors should refer to the Majors/Minors Restrictions catalog section before attempting to minor in Digital Information Systems, Health Informatics, or Informatics. Students who are considering a major in Informatics must complete the major requirements for a letter grade.

Graduate Program in Software Engineering

The field of Software Engineering is concerned with the creation and analysis of the complex software systems that underlie modern society. Research in Software Engineering targets software artifacts and the people who create them. The field is large, and it encompasses engineering design research, i.e., the creation of new software artifacts with some desirable properties, as well as empirical research, i.e., the study of the effects that software development tools and methods have in the context of software development teams. Topics include software architectures, testing and debugging, software development tools, formal languages, requirements engineering, mining of large software-related data sources, reverse engineering, and development processes.

The Ph.D. degree in Software Engineering (SE) offers students opportunities for graduate study in the spectrum of intellectual activity in SE. The M.S. degree in SE complements undergraduate knowledge in related fields with a solid framework for understanding the development of complex software systems.

Undergraduate Preparation for Admission. Typically, incoming students will have an undergraduate degree in computer science, though students may have an undergraduate degree in any field. Additionally they must have significant experience in software development. The ideal applicant is one who shows a considerable analytical depth in the practice of software development, typically gained from first-hand experience with large projects. Students admitted without a major in computer science, informatics, or equivalent will be expected to take undergraduate courses to fill any gaps.

Incoming students who already have a M.S. in Computer Science or closely related field may be exempted from (part of) the pre-candidacy course requirements by petition to the Graduate Dean, as filed by the student's faculty advisor.

Program of Study for the Ph.D. Degree

Pre-Candidacy Course Requirements

Students must complete four software engineering core courses, six elective courses, and two quarters of seminars, literature survey, and individual study courses.

1. Software Engineering Core Courses:

IN4MATX 211	Software Engineering
IN4MATX 212	Analysis of Programming Languages
IN4MATX 215	Software Analysis and Testing
IN4MATX 221	Software Architecture

2. Software Engineering Electives. Six elective courses chosen from the following courses offered by the School of ICS (all four units). The set of elective courses chosen by the student must be approved by the student's research advisor. With the advisor's permission, the student may substitute other non-seminar courses, as long as they are related to the student's research interests.

IN4MATX 203	Qualitative Research Methods in Information Systems
IN4MATX 205	Quantitative Research Methods in Information Systems
IN4MATX 214	Requirements Engineering and Specification
IN4MATX 217	Software Processes
IN4MATX 219	Software Environments
IN4MATX 223	Applied Software Design Techniques
IN4MATX 231	User Interface Design and Evaluation
IN4MATX 233	Knowledge-Based User Interfaces
IN4MATX 235	Advanced User Interface Architecture
IN4MATX 241	Introduction to Ubiquitous Computing
IN4MATX 242	Ubiquitous Computing and Interaction
IN4MATX 251	Computer-Supported Cooperative Work
IN4MATX 261	Social Analysis of Computing
IN4MATX 269	Computer Law
COMPSCI 203	Network and Distributed Systems Security
COMPSCI 221	Information Retrieval, Filtering, and Classification

COMPSCI 222	Principles of Data Management
COMPSCI 225	Next Generation Search Systems
COMPSCI 230	Distributed Computer Systems
COMPSCI 232	Computer and Communication Networks
COMPSCI 237	Middleware for Networked and Distributed Systems
COMPSCI 241	Advanced Compiler Construction
COMPSCI 273A	Machine Learning
COMPSCI 277	Data Mining
3. Seminars and Individual Study:	
IN4MATX 209S	Seminar in Informatics (two quarters; four units each)
IN4MATX 291S	Literature Survey in Software Engineering (two quarters; two units each)
IN4MATX 299	Individual Study (two quarters; four units each)

Qualifying Examinations

Written Comprehensive Examination

Students must pass a written examination testing their knowledge of the relevant topics and literature in Software Engineering and their ability to formulate clear arguments in writing and under time constraints. This examination is based on a predetermined reading list maintained by the program faculty. Preparation for this exam is done during two quarters of IN4MATX 291S. This exam is administered at most twice a year.

The exam is graded a Ph.D. PASS, M.S. PASS or FAIL. In case of M.S. PASS or FAIL, it may be re-taken once more, within 12 months, in an attempt to qualify for a Ph.D. PASS. A second M.S. PASS or FAIL results in disqualification of the student from the doctoral program (with or without a terminal M.S. degree).

Research Assessment

Students must find a faculty advisor and successfully complete a research project with that faculty member. The research project should be done over at least two quarters of independent study with that faculty member. The goal of this research assessment is to introduce the student to the practice of scientific publication.

Based on the project, the student must produce a research paper of publishable quality. This research paper must be reviewed by three faculty members in a peer-review process, revised by the student, and approved by the three faculty members.

The research assessment is graded PASS or FAIL. In case of FAIL, the student can re-submit the paper at most one more time within the maximum period of six months. A second FAIL results in disqualification from the program.

Advancement to Candidacy Examination

Each Ph.D. student must pass the oral advancement to candidacy exam, which assesses the student's ability to conduct, present, and orally defend research work at the doctoral level. The research project and paper are the basis for the student's oral advancement to candidacy exam. The oral candidacy exam consists of the research presentation by the student, followed by questions from the candidacy committee.

The student must complete the course requirements, and pass the two qualifying examinations prior to advancing to candidacy. The candidacy committee will consist of five faculty members, the majority of whom must be members of the student's program, and is conducted in accordance with UCI Senate regulations.

Dissertation Topic Defense

The student must present a carefully articulated document representing the student's dissertation plan. This document must include the proposed dissertation abstract, a discussion of the approach, a comprehensive survey of related work, and a plan for completing the work. The dissertation plan is presented by the student to the dissertation committee, who must unanimously approve the student's proposal. The dissertation defense committee is formed in accordance to UCI Senate regulations.

Doctoral Dissertation and Final Examination

Students are required to complete a doctoral dissertation in accordance with Academic Senate regulations. In addition, they must pass an oral thesis defense which consists of a public presentation of the student's research followed by an oral examination by the student's doctoral committee. The committee must approve the thesis unanimously.

The normative time for advancement to candidacy is three years. The normative time for completion of the Ph.D. is six years, and the maximum time permitted is seven years.

Program of Study for the M.S. Degree

Course Requirements

M.S. students must complete four software engineering core courses, six elective courses, and two quarters of seminars (IN4MATX 209S). Students doing Capstone Plan I (Thesis) must complete two quarters, four units each, of Thesis Supervision (IN4MATX 298); students doing Capstone Plan II (Comprehensive Examination) must complete two quarters of literature survey courses.

The course requirements are identical to the Ph.D. degree, diverging only in making the Literature Survey and the Individual Study courses mutually exclusive, depending on the students' Capstone option.

Capstone Requirement

Plan I: Thesis Option. Students must take and pass the Research Assessment examination. Additionally, students are required to defend their thesis in a public exam according to UCI Senate Policy. This requirement must be completed by the end of the second year.

Plan II: Comprehensive Examination Option. Students must take the written comprehensive examination, and obtain an M.S. PASS or higher. This requirement must be completed by the end of the second year. In case of FAIL, the exam may be re-taken once more. A second FAIL results in disqualification of the student from the master's program.

Restriction

The M.S. degree will not be awarded to students who currently hold a M.S. degree in software engineering or a related field from the same or another university.

Requirements Beyond Graduate Division Minimum Requirements

All Ph.D. students are expected to maintain a minimum GPA of 3.5 throughout the program. All M.S. students are expected to maintain a minimum GPA of 3.0 throughout the program. Failure to maintain this minimum will result in a recommendation that the student be disqualified. In addition, no grade lower than a B is counted toward satisfying any course requirements.

Graduate Concentrations

For graduate concentrations in Informatics, visit the Bren School of ICS Graduate Programs (p. 989) section of the *Catalogue*.

Faculty

Geoffrey C. Bowker, Ph.D. University of Melbourne, *Professor of Informatics; Anthropology* (values in design, social studies of databases, science and technology studies)

Yunan Chen, Ph.D. Drexel University, *Associate Professor of Informatics; Program in Public Health* (medical informatics, human-computer interaction)

John Christopher Dobrian, Ph.D. University of California, San Diego, *Professor of Music; Informatics* (electronic music, composition)

James P. Dourish, Ph.D. University College London, *Professor of Informatics; Computer Science* (human-computer interaction, computer-supported cooperative work)

Magda S. El Zarki, Ph.D. Columbia University, *Professor of Computer Science; Electrical Engineering and Computer Science; Informatics* (telecommunications, networks, wireless communication, video transmission)

Daniel H. Frost, M.S. University of California, Irvine, *Senior Lecturer of Computer Science; Informatics* (artificial intelligence, software engineering, computer graphics, teaching of programming)

Tony D. Givargis, Ph.D. University of California, Riverside, *Professor of Computer Science; Informatics* (embedded systems, platform-based system-on-a-chip design, low-power electronics)

Judith Gregory, Ph.D. University of California, San Diego, *Associate Adjunct Professor of Informatics* (values in design, translational biomedical informatics, participatory design, design and emotion)

Vijay Gurbaxani, Ph.D. University of Rochester, *Taco Bell Chair in Information Technology Management* and *Professor of Paul Merage School of Business; Informatics* (economics of information systems management, impact of information technology on organization and market structure)

Gillian Hayes, Ph.D. Georgia Institute of Technology, *Associate Professor of Informatics; Education* (interactive and collaborative technology, human-computer interaction, computer-supported cooperative work, educational technology, ubiquitous computing)

Mizuko Ito, Ph.D. Stanford University, *John D. and Catherine T. MacArthur Foundation Chair in Digital Media and Learning* and *Professor in Residence of Anthropology; Education; Informatics* (ethnography, game studies, youth culture, learning sciences, online communities)

James Jones, Ph.D. Georgia Institute of Technology, *Assistant Professor of Informatics* (software engineering, software testing and analysis, debugging and fault localization, static and dynamic analysis, software visualization)

David G. Kay, J.D. Loyola Marymount University, *Senior Lecturer of Informatics; Computer Science* (computer law, computer science education)

Cory P. Knobel, Ph.D. University of Michigan, *Assistant Adjunct Professor of Informatics* (interactive and collaborative technology, values in design, modes of knowledge representation, philosophy of science and technology)

Alfred Kobsa, Ph.D. University of Vienna, *Professor of Informatics; Computer Science* (user modeling, human-computer interaction, artificial intelligence, cognitive science, interdisciplinary computer science)

Peter O. Krapp, Ph.D. University of California, Santa Barbara, *Department Chair and Professor of Film and Media Studies; English; Informatics* (media history, secret communication, digital culture, cultural memory, computer games, history and theory of artificial worlds)

Cristina V. Lopes, Ph.D. Northeastern University, *Professor of Informatics; Computer Science* (programming languages, acoustic communications, operating systems, software engineering)

Gloria J. Mark, Ph.D. Columbia University, *Professor of Informatics* (computer-supported cooperative work, human-computer interaction)

Melissa Mazmanian, Ph.D. Massachusetts Institute of Technology, *Assistant Professor of Informatics* (computer-mediated communication, organization studies, information and communication technologies in practice, social response to emerging technologies, work/non-work negotiations in the information age)

Bonnie A. Nardi, Ph.D. University of California, Irvine, *Professor of Informatics* (computer-supported collaborative work, human-computer interaction, computer-mediated communication, user studies methods, activity theory, cultural responses to technology development)

Emily Navarro, Ph.D. University of California, Irvine, *Lecturer of Informatics*

Gary Olson, Ph.D. Stanford University, *Donald Bren Professor of Information & Computer Sciences* and *Professor of Informatics* (interactive and collaborative technology, human-computer interaction, computer-supported cooperative work)

Judith Olson, Ph.D. University of Michigan, *Donald Bren Professor of Information & Computer Sciences* and *Professor of Informatics; Paul Merage School of Business; Planning, Policy, and Design* (interactive and collaborative technology, human-computer interaction, computer-supported cooperative work)

Donald J. Patterson, Ph.D. University of Washington, *Associate Professor of Informatics; Computer Science* (ubiquitous computing, pervasive computing, human-computer interaction, artificial intelligence, intelligent context for situated computing)

Richard Pattis, M.S. Stanford University, *Senior Lecturer of Computer Science; Informatics* (MicroWorlds for teaching programming, debugging, computational tools for non-computer scientists)

Simon G. Penny, M.F.A. Hong Kong University of Science and Technology, *Professor of Art; Informatics* (robotic sculpture, interactive environments, electronic media, art practice history, critical theory)

Kavita S. Philip, Ph.D. Cornell University, *Associate Professor of History; Comparative Literature; Informatics* (science and technology studies, South Asian studies, political ecology, critical studies of race, gender, colonialism, new media, globalization)

David F. Redmiles, Ph.D. University of Colorado Boulder, *Professor of Informatics* (computer-supported cooperative work, human computer interaction, software engineering, globally distributed development teams, user interfaces, software tools)

Debra J. Richardson, Ph.D. University of Massachusetts, *Professor of Informatics* (software engineering, program testing, life-cycle validation, software environments)

Joshua Tanenbaum, M.A. Simon Fraser University, *Acting Assistant Professor of Informatics* (digital games and narrative, tangible and wearable interaction, maker and DIY culture, nonverbal communication and virtual worlds)

Richard N. Taylor, Ph.D. University of Colorado Boulder, *Professor Emeritus of Informatics* (software engineering, user interfaces, environments, team support)

William M. Tomlinson, Ph.D. Massachusetts Institute of Technology, *Professor of Informatics; Education* (environmental informatics, educational technology, computer graphics/visualization/digital arts)

André W. van der Hoek, Ph.D. University of Colorado Boulder, *Professor of Informatics* (software engineering)

Alladi Venkatesh, Ph.D. Syracuse University, *Professor of Paul Merage School of Business; Informatics* (social impacts of information technology, Internet and the New Economy, Smart Home technologies, children and multimedia)

Mark J. Warschauer, Ph.D. University of Hawaii at Manoa, *Professor of Education; Informatics* (language, literacy, technology)

Hadar Ziv, Ph.D. University of California, Irvine, *Lecturer of Informatics* (software testing, requirements engineering, Bayesian modeling)

Courses

IN4MATX 12. Barter to Bitcoin: Society, Technology and the Future of Money. 4 Units.
Digital money has captured the broad imagination of speculators, coders, regulators, criminals and the mass media. Course puts this change in context: how do we understand money as a social, political and technological phenomenon? Course may be offered online.

Same as SOC SCI 11A.

(II, III)

IN4MATX 41. Informatics Core Course I. 6 Units.
Fundamental concepts of computer software design and construction. Data, algorithms, functions, and abstractions. Overview of computer systems: data representation, architectural components, operating systems, networks. Introduction to information systems: parties involved, architectural alternatives, usability, organizational and social concerns.

Restriction: IN4MATX 41 may not be taken for credit if taken after I&C SCI 22 or CSE 22.

(II, Vb)

IN4MATX 42. Informatics Core Course II. 6 Units.
Alternative data structure implementations; analysis of time and space efficiency. Object-oriented programming concepts and techniques: classes, objects, inheritance, interfaces. Formal languages and automata. Problem modeling and design tradeoffs.

Prerequisite: IN4MATX 41. IN4MATX 41 with a grade of C or better.

Overlaps with I&C SCI 32, CSE 42, I&C SCI 33, CSE 43, I&C SCI 22, CSE 22.

(II, Vb)

IN4MATX 43. Introduction to Software Engineering. 4 Units.
Concepts, methods, and current practice of software engineering. Large-scale software production, software life cycle models, principles and techniques for each stage of development.

Overlaps with I&C SCI 52, I&C SCI 105.

IN4MATX 44. Seminar in Informatics Research Topics. 2 Units.
Introduction to current research topics in Informatics. Various faculty members present current research and relate it to the course content of the Informatics degree program.

Grading Option: Pass/no pass only.

IN4MATX 45. Patterns of Software Construction. 4 Units.
Building software applications; reusing and integrating components; designing for reuse. Effective use of libraries and APIs, file and network I/O, creation of user interfaces.

Prerequisite: IN4MATX 42 or I&C SCI 22 or CSE 22 or I&C SCI H22. I&C SCI H22 with a grade of C or better.

(Vb)

IN4MATX 101. Concepts in Programming Languages I. 4 Units.
In-depth study of several contemporary programming languages stressing variety in data structures, operations, notation, and control. Examination of different programming paradigms, such as logic programming, functional programming and object-oriented programming; implementation strategies, programming environments, and programming style. Course may be offered online.

Prerequisite: (IN4MATX 42 or I&C SCI 51 or CSE 31 or EECS 31) and (IN4MATX 45 or I&C SCI 46 or CSE 46 or I&C SCI 33 or CSE 43). IN4MATX 42 with a grade of C or better. I&C SCI 51 with a grade of C or better. CSE 31 with a grade of C or better. EECS 31 with a grade of C or better. IN4MATX 45 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Same as CSE 141, COMPSCI 141.

IN4MATX 102. Concepts of Programming Language II. 4 Units.
In-depth study of major programming paradigms: imperative, functional, declarative, object-oriented, and aspect-oriented. Understanding the role of programming languages in software development and the suitability of languages in context. Domain-specific languages. Designing new languages for better software development support.

Prerequisite: IN4MATX 101 or COMPSCI 141 or CSE 141. CSE 141 with a grade of C or better.

IN4MATX 113. Requirements Analysis and Engineering. 4 Units.
Aims to equip students to develop techniques of software-intensive systems through successful requirements analysis techniques and requirements engineering. Students learn systematic process of developing requirements through cooperative problem analysis, representation, and validation.

Prerequisite: IN4MATX 42 or I&C SCI 22 or CSE 22 or I&C SCI 33 or CSE 43 and (IN4MATX 43 or I&C SCI 52). IN4MATX 42 with a grade of C or better. I&C SCI 22 with a grade of C or better. CSE 22 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. IN4MATX 43 with a grade of C or better. I&C SCI 52 with a grade of C or better.

IN4MATX 115. Software Testing, Analysis, and Quality Assurance. 4 Units.
Preparation for developing high-quality software through successful veri#cation and validation techniques. Fundamental principles of software testing, implementing software testing practices, ensuring the thoroughness of testing to gain con#dence in the correctness of the software.

Prerequisite: (I&C SCI 45J or I&C SCI 45C or I&C SCI 65 or I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46 or IN4MATX 45) and (IN4MATX 43 or I&C SCI 52). I&C SCI 45J with a grade of C or better. I&C SCI 45C with a grade of C or better. I&C SCI 65 with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. IN4MATX 45 with a grade of C or better. IN4MATX 43 with a grade of C or better. I&C SCI 52 with a grade of C or better.

IN4MATX 117. Project in Software System Design. 4 Units.
Specification, design, construction, testing, and documentation of a complete software system. Special emphasis on the need for and use of teamwork, careful planning, and other techniques for working with large systems.

Prerequisite: (IN4MATX 43 or I&C SCI 52) and (I&C SCI 33 or CSE 43 or I&C SCI 22 or CSE 22 or IN4MATX 42) I&C SCI 52 with a grade of a C or better. IN4MATX 42 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 121. Software Design: Applications. 4 Units.
Introduction to application design: designing the overall functionality of a software application. Topics include general design theory, software design theory, and software architecture. Includes practice in designing and case studies of existing designs.

Prerequisite: IN4MATX 45 or I&C SCI 23 or CSE 23 or I&C SCI 33 or CSE 43. IN4MATX 45 with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 122. Software Design: Structure and Implementation. 4 Units.
Introduction to implementation design: designing the internals of a software application. Topics include design aesthetics, design implementation, design recovery, design patterns, and component reuse. Includes practice in designing and case studies of existing designs.

Prerequisite: (I&C SCI 45J or I&C SCI 46 or IN4MATX 45) and (IN4MATX 101 or COMPSCI 141 or CSE 141).

IN4MATX 123. Software Architecture. 4 Units.
Prepares students to engineer well-structured software systems. Students learn a wide range of software architectural styles, architectural platforms that provide standard services to applications, and formal architecture description languages.

Prerequisite: IN4MATX 122 or ((IN4MATX 101 or COMPSCI 141 or CSE 141) and IN4MATX 113).

IN4MATX 124. Internet Applications Engineering. 4 Units.
Concepts in Internet applications engineering with emphasis on the Web. Peer-to-Peer and Interoperability. Topics include HTTP and REST, Remote Procedure/Method Calls, Web Services, data representations, content distribution networks, identity management, relevant W3C/IETF standards, and relevant new large-scale computing styles.

Prerequisite: COMPSCI 132.

Same as COMPSCI 137.

Restriction: Upper-division students only.

IN4MATX 125. Computer Game Development. 4 Units.
Introduction to the principles of interactive 2D and 3D computer game development. Concepts in computer graphics, algorithms, software engineering, art and graphics, music and sound, story analysis, and artificial intelligence are presented and are the basis for student work.

Prerequisite: COMPSCI 112 or COMPSCI 171 or IN4MATX 121 or ART 106B or I&C SCI 163 or I&C SCI 166.

Same as COMPSCI 113.

IN4MATX 131. Human Computer Interaction. 4 Units.
Basic principles of human-computer interaction (HCI). Introduces students to user interface design techniques, design guidelines, and usability testing. Students gain the ability to design and evaluate user interfaces and become familiar with some of the outstanding research problems in HCI.

Prerequisite: IN4MATX 41 or I&C SCI 10 or I&C SCI 21 or CSE 21 or I&C SCI H21 or I&C SCI 31 or CSE 41 or ENGR 10 or ENGRMAE 10 or EECS 10. IN4MATX 41 with a grade of C or better. I&C SCI 10 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. I&C SCI H21 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. ENGR 10 with a grade of C or better. ENGRMAE 10 with a grade of C or better. EECS 10 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 132. Project in Human-Computer Interaction Requirements and Evaluation. 4 Units.
Students undertake significant projects in the elicitation and specification of HCI requirements and the thorough evaluation of user interfaces.

Prerequisite: IN4MATX 131.

IN4MATX 133. User Interaction Software. 4 Units.
Introduction to human-computer interaction programming. Emphasis on current tools, standards, methodologies for implementing effective interaction designs. Widget toolkits, Web interface programming, geo-spatial and map interfaces, mobile phone interfaces. Strategies for evaluation of user interfaces.

Prerequisite: IN4MATX 45 or I&C SCI 23 or CSE 23 or ((I&C SCI 33 or CSE 43) and I&C SCI 45J). IN4MATX 45 with a grade of C or better. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 45J with a grade of C or better.

IN4MATX 134. Project in User Interaction Software. 4 Units.
Students complete an end-to-end user interface programming project based on an iterative design paradigm. Topics may include requirements brainstorming, paper prototyping, iterative development, cognitive walk-through, quantitative evaluation, and acceptance testing. Materials fee.

Prerequisite: IN4MATX 131 and IN4MATX 133.

IN4MATX 141. Information Retrieval. 4 Units.
An introduction to information retrieval including indexing, retrieval, classifying, and clustering text and multimedia documents.

Prerequisite: (IN4MATX 45 or I&C SCI 46 or CSE 46 or ((I&C SCI 33 or CSE 43) and I&C SCI 45J)) and (STATS 7 or STATS 67). IN4MATX 45 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better. I&C SCI 45J with a grade of C or better.

Same as COMPSCI 121.

IN4MATX 143. Information Visualization. 4 Units.
Introduction to interactive visual interfaces for large datasets, and to principles of human visual perception and human computer interaction that inform their design. Various applications for data analysis and monitoring are discussed.

Prerequisite: IN4MATX 131 or I&C SCI 52 or (IN4MATX 43 and (I&C SCI 31 or CSE 41 or I&C SCI 21 or CSE 21 or IN4MATX 41)). IN4MATX 131 with a grade of C or better. I&C SCI 52 with a grade of C or better. IN4MATX 43 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. IN4MATX 41 with a grade of C or better.

IN4MATX 148. Project in Ubiquitous Computing. 4 Units.
Introduction to ubiquitous computing research methods, tools, and techniques. Prototyping, design, and evaluation of physical computing applications, smart environments, embedded systems, and future computing scenarios. Includes hands-on in-class laboratory exercises. Materials fee.

Prerequisite: I&C SCI 10 or I&C SCI 21 or CSE 21 or I&C SCI 31 or CSE 41 or IN4MATX 41. I&C SCI 10 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. IN4MATX 41 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 151. Project Management. 4 Units.
Introduces theoretical and practical aspects of project management. Topics include organizational theory, group behavior, project management skills, case studies, personal and group productivity tools, management of distributed work, stakeholders, consultants, and knowledge management. Students do a project exercise.

Prerequisite: IN4MATX 43 or I&C SCI 52. I&C SCI 52 with a grade of C or better.

Restriction: Upper-division students only.

IN4MATX 153. Computer Supported Cooperative Work. 4 Units.
Introduces concepts and principles of collaborative systems. Topics may include shared workspaces, group interaction, workflow, architectures, interaction between social and technical features of group work, and examples of collaborative systems used in real-world settings. Students develop a simple collaborative application.

Prerequisite: (IN4MATX 161 or I&C SCI 52 or IN4MATX 43) and (I&C SCI 31 or CSE 41 or I&C SCI 21 or CSE 21 or IN4MATX 41). I&C SCI 52 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. IN4MATX 41 with a grade of C or better.

IN4MATX 161. Social Analysis of Computerization. 4 Units.
Introduction of computerization as a social process. Examines the social opportunities and problems raised by new information technologies, and the consequences of different ways of organizing. Topics include computerization and work life, privacy, virtual communities, productivity paradox, systems risks.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement. IN4MATX 41 or I&C SCI 10 or I&C SCI 21 or CSE 21 or I&C SCI 31 or CSE 41 or ENGR 10 or EECS 10 or ENGRMAE 10. IN4MATX 41 with a grade of C or better. I&C SCI 10 with a grade of C or better. I&C SCI 21 with a grade of C or better. CSE 21 with a grade of C or better. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better. ENGR 10 with a grade of C or better. EECS 10 with a grade of C or better. ENGRMAE 10 with a grade of C or better.

IN4MATX 162W. Organizational Information Systems. 4 Units.
Introduction to role of information systems in organizations, components and structure of organizational information systems, and techniques used in information systems analysis, design, and implementation.

Prerequisite: IN4MATX 161. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

IN4MATX 163. Project in the Social and Organizational Impacts of Computing . 4 Units.
Students undertake projects intended to gather and analyze data from situations in which computers are used, organize and conduct experiments intended to test hypotheses about impacts, and explore the application of concepts learned in previous courses.

Prerequisite: IN4MATX 162.

IN4MATX 171. Introduction to Medical Informatics. 4 Units.
Broad overview of medical informatics for students with varied backgrounds. Electronic medical records, online resources, mobile technologies, patient safety, and computational design. Legal, ethical, and public policy issues. Health systems management. Evaluation and fieldwork for health systems.

Same as PUBHLTH 105.

Restriction: Upper-division students only.

IN4MATX 172. Project in Health Informatics. 4 Units.
Students undertake significant quarter-long projects related to health informatics. Topics may include field evaluations of health care technologies, prototypes, iterative design, and system implementations.

Prerequisite: PUBHLTH 105 or IN4MATX 171.

Same as PUBHLTH 106.

IN4MATX 190. Special Topics in Informatics. 4 Units.
Studies in selected areas of informatics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

IN4MATX 191A. Senior Design Project. 4 Units.
Group supervised project in which students analyze, specify, design, construct, evaluate, and adapt a significant information processing system. Topics include team management, professional ethics, and systems analysis.

Prerequisite: Prerequisite or corequisite: IN4MATX 123 or IN4MATX 124. Prerequisite: IN4MATX 121 and IN4MATX 131 and IN4MATX 151 and IN4MATX 161.

Restriction: Upper-division students only.

IN4MATX 191B. Senior Design Project. 4 Units.
Group supervised project in which students analyze, specify, design, construct, evaluate, and adapt a significant information processing system. Topics include team management, professional ethics, and systems analysis.

Prerequisite: IN4MATX 191A.

Grading Option: In progress only.

IN4MATX 191C. Senior Design Project. 4 Units.
Group supervised project in which students analyze, specify, design, construct, evaluate, and adapt a significant information processing system. Topics include team management, professional ethics, and systems analysis.

Prerequisite: IN4MATX 191B.

IN4MATX H198. Honors Research. 4 Units.
Directed independent research in Informatics for honors students.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be repeated for credit unlimited times.

Restriction: Bren School of ICS Honors Program or the Campuswide Honors Program students only.

IN4MATX 199. Individual Study. 2-5 Units.
Individual research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

IN4MATX 201. Research Methodology for Informatics. 4 Units.
Introduction to strategies and idioms of research in Informatics. Includes examination of issues in scientific inquiry, qualitative and quantitative methods, and research design. Both classic texts and contemporary research literature are read and analyzed.

IN4MATX 203. Qualitative Research Methods in Information Systems. 4 Units.
Introduction to qualitative research methods used to study computerization and information systems, such as open-ended interviewing, participant observation, and ethnography. Studies of the methods in practice through examination of research literature.

Prerequisite: IN4MATX 261 or IN4MATX 251.

IN4MATX 205. Quantitative Research Methods in Information Systems. 4 Units.
Quantitative research methods used to study computerization and information systems. Design of instruments, sampling, sample sizes, and data analysis. Validity and reliability. Longitudinal versus cross-sectional designs. Analysis of secondary data. Studies of the methods through examination of research literature.

Prerequisite: (IN4MATX 251 or IN4MATX 261) and basic knowledge of elementary statistics.

IN4MATX 207S. Doctoral Seminar on Research and Writing. 2 Units.
Doctoral seminar centered on original research and writing. Provides a chance for doctoral students at all levels to present original work, brainstorm ongoing issues, and learn to provide and receive critical feedback from peers.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

IN4MATX 209S. Seminar in Informatics. 2 Units.
Current research and research trends in informatics. Forum for presentation and criticism by students of research work in progress.

Repeatability: Unlimited as topics vary.

IN4MATX 211. Software Engineering. 4 Units.
Study of the concepts, methods, and tools for the analysis, design, construction, and measurement of complex software-intensive systems. Underlying principles emphasized. State-of-the-art software engineering and promising research areas covered, including project management.

IN4MATX 212. Analysis of Programming Languages. 4 Units.
Concepts in modern programming languages, their interaction, and the relationship between programming languages and methods for large-scale, extensible software development. Empirical analysis of programming language usage.

Same as COMPSCI 253.

IN4MATX 214. Requirements Engineering and Specification. 4 Units.
Study of rigorous techniques in requirements engineering – requirements definition phase of software development – with focus on modeling and specification. Topics include notations and models for requirements specification; and methods, tools and processes for software requirements elicitation, representation, analysis.

Restriction: Graduate students only.

IN4MATX 215. Software Analysis and Testing. 4 Units.
Studies techniques for developing confidence in software from traditional testing schemes to integrated, multitechnique analytic approaches. Considers strengths and weaknesses and explores opportunities for synergistic technique application. Emphasis is on approaches integrated into the software process.

IN4MATX 217. Software Processes. 4 Units.
Explores vehicles for modeling, coding, and analyzing software processes. Considers integration of software process programming approaches with traditional management issues. Explores the use of software process execution as a vehicle for effective integration of tools into environments.

IN4MATX 219. Software Environments. 4 Units.
Study of the requirements, concepts, and architectures of comprehensive, integrated, software development and maintenance environments. Major topics include process support, object management, communication, interoperability, measurement, analysis, and user interfaces in the environment context.

IN4MATX 221. Software Architecture. 4 Units.
Study of the concepts, representation techniques, development methods, and tools for architecture-centric software engineering. Topics include domain-specific software architectures, architectural styles, architecture description languages, software connectors, and dynamism in architectures.

IN4MATX 223. Applied Software Design Techniques. 4 Units.
Study of concepts, representations, techniques, and case studies in structuring software systems, with an emphasis on design considerations. Topics include static and dynamic system structure, data models, abstractions, naming, protocols and application programmer interfaces.

IN4MATX 225. Information Retrieval, Filtering, and Classification. 4 Units.
Algorithms for the storage, retrieval, filtering, and classification of textual and multimedia data. The vector space model, Boolean and probabilistic queries, and relevance feedback. Latent semantic indexing; collaborative filtering; and relationship to machine learning methods.

Prerequisite: COMPSCI 161 and COMPSCI 171 and (I&C SCI 6N or MATH 3A or MATH 6G).

Same as COMPSCI 221.

Restriction: Graduate students only.

IN4MATX 231. User Interface Design and Evaluation. 4 Units.
Introduction to the design and evaluation of user interfaces, with an emphasis on methodology. Cognitive principles, design life cycle, on-line and off-line prototyping techniques. Toolkits and architectures for interactive systems. Evaluation techniques, including heuristic and laboratory methods.

IN4MATX 232. Research in Human-Centered Computing. 4 Units.
Introduction to contemporary topics in human-computer interaction, including methods, technologies, design, and evaluation. Emerging application domains and their challenges to traditional research methods. Advanced architectures and technologies. Critical issues.

Prerequisite: Some familiarity with HCI principles.

IN4MATX 233. Knowledge-Based User Interfaces. 4 Units.
Concepts related to the development of interactive software systems with a focus on knowledge-based tools and human-centered design. Topics span the fields of human-computer interaction, software engineering, and knowledge representation.

Prerequisite: COMPSCI 171.

IN4MATX 235. Advanced User Interface Architecture. 4 Units.
Architectural concerns in advanced interactive systems. The design of current and emerging platforms for novel interactive systems. Paradigms such as constraint-based programming, multimodal interaction, and perceptual user interfaces for individual, distributed, and ubiquitous applications.

IN4MATX 241. Introduction to Ubiquitous Computing. 4 Units.
The "disappearing computer" paradigm. Differences to the desktop computing model: applications, interaction in augmented environments, security, alternate media, small operating systems, sensors, and embedded systems design. Evaluation by project work and class participation.

Same as COMPSCI 248A.

IN4MATX 242. Ubiquitous Computing and Interaction. 4 Units.
Principles and design techniques for ubiquitous computing applications. Conceptual basis for tangible and embodied interaction. Interaction in virtual and augmented environments. Design methods and techniques. Design case studies. Examination by project work.

Prerequisite: IN4MATX 231 and IN4MATX 241.

Same as COMPSCI 248B.

IN4MATX 244. Introduction to Embedded and Ubiquitous Systems. 4 Units.
Embedded and ubiquitous system technologies including processors, DSP, memory, and software. System interfacing basics; communication strategies; sensors and actuators, mobile and wireless technology. Using pre-designed hardware and software components. Design case studies in wireless, multimedia, and/or networking domains.

Prerequisite: I&C SCI 51 and COMPSCI 152 and COMPSCI 161 and (I&C SCI 6N or MATH 3A or MATH 6G or I&C SCI 6D) or B.S. degree in Computer Science.

Same as COMPSCI 244.

IN4MATX 251. Computer-Supported Cooperative Work. 4 Units.
The role of information systems in supporting work in groups and organizations. Examines various technologies designed to support communication, information sharing, and coordination. Focuses on behavioral and social aspects of designing and using group support technologies.

IN4MATX 261. Social Analysis of Computing. 4 Units.
The social and economic impacts of computing and information technologies on groups, organizations, and society. Topics include computerization and changes in the character of work, social control and privacy, electronic communities, and risks of safety-critical systems to people.

IN4MATX 263. Computerization, Work, and Organizations. 4 Units.
Selected topics in the influence of computerization and information systems in transforming work and organizations. Theories of organization and organizational change. Processes by which diverse information technologies influence changes in work and organizations over short and long time periods.

Prerequisite: IN4MATX 251 or IN4MATX 261.

IN4MATX 265. Theories of Computerization and Information Systems . 4 Units.
Social and economic conceptions of information technology. Macrosocial and economic conditions that foster changes in information technologies. Social construction of information and computer technology in professional worlds. Theories of information technology and large-scale social change.

Prerequisite: IN4MATX 251 or IN4MATX 261.

IN4MATX 267. Digital Media and Society. 4 Units.
Selected topics in the technological and social aspects of online interactions, and policy including online games, social media, electronic activism, e-commerce, and digital libraries. Media-theoretic approaches to digital technology. Architectures, infrastructure considerations, and their consequences.

Prerequisite: IN4MATX 251 or IN4MATX 261.

IN4MATX 269. Computer Law. 4 Units.
The American legal system and its provisions affecting computer systems, computer networks, and information processing. Intellectual property, contracts, privacy, liability for malfunction, computer crime, constitutional issues, transborder data flow, computer-based evidence, and litigation.

Restriction: Graduate students only.

IN4MATX 273. Information Technology in Global Sustainability. 4 Units.
Explores the relationship between recent developments in information technology and the global transition to sustainability. Topics include the role of IT systems in the provision of human needs and wants (e.g., smart grids, food systems, and other IT-enabled infrastructure).

Restriction: Graduate students only.

IN4MATX 290. Research Seminar. 2 Units.
Forum for presentation and criticism by students of research work in progress. Presentation of problem areas and related work. Specific goals and progress of research.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

IN4MATX 291S. Literature Survey in Software Engineering. 2 Units.
Reading and analysis of relevant literature in Software Engineering under the direction of a faculty member.

Repeatability: May be repeated for credit unlimited times.

IN4MATX 295. Special Topics in Informatics. 4 Units.
Studies in selected areas of informatics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

IN4MATX 298. Thesis Supervision. 2-12 Units.
Individual research or investigation conducted in preparation for the M.S. thesis option or the dissertation requirements for the Ph.D. program.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

IN4MATX 299. Individual Study. 2-12 Units.
Individual research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Statistics

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Jessica Utts, **Department Chair**

Statistics is the science concerned with developing and studying methods for collecting, analyzing, interpreting, and presenting empirical data. Statistical principles and methods are important for addressing questions in public policy, medicine, industry, and virtually every branch of science. Interest in statistical methods has increased dramatically with the abundance of large databases in fields like computer science (Internet and Web traffic), business and marketing (transaction records), and biology (the human genome and related data). It is the substantive questions in such areas of application that drive the development of new statistical methods and motivate the mathematical study of the properties of these methods.

Undergraduate Program in Statistics

The Department of Statistics offers lower-division undergraduate courses designed to introduce students to the field of statistics (STATS 7, STATS 8, STATS 67) and upper-division undergraduate courses on the theoretical foundations of probability and statistics (STATS 120A-STATS 120B-STATS 120C, STATS 121) and statistical methodology (STATS 110-STATS 111-STATS 112). The Department is in the process of planning an undergraduate degree program in Statistics. In the interim, students interested in focusing on statistics are encouraged to consider a minor in Statistics along with a major in a field of interest.

Minor in Statistics

The minor in Statistics is designed to provide students with exposure to both statistical theory and practice. The minor requires a total of seven courses. These include a mathematics course, five core statistics courses, and an elective that may be taken from among several departments. Some of the courses used to complete the minor may include prerequisites that may or may not be part of a student's course requirements for their major. Because of this, the minor is somewhat intensive, but it is a useful complement to a variety of undergraduate fields for mathematically inclined students. The minor, supplemented with a few additional courses (mathematics and computing), would provide sufficient background for graduate study in statistics. Students considering a minor in Statistics should meet with the Director of Undergraduate Studies in Statistics as early as possible to plan their course work.

NOTE: Students may not receive both a minor in Statistics and a specialization in Statistics within the Mathematics major.

Requirements for the Minor

Required Courses	
MATH 3A	Introduction to Linear Algebra
or MATH 6G	Linear Algebra
STATS 110- 111	Statistical Methods for Data Analysis I and Statistical Methods for Data Analysis II
STATS 120A- 120B- 120C	Introduction to Probability and Statistics and Introduction to Probability and Statistics and Introduction to Probability and Statistics
Select one elective from the following: [1]	
I&C SCI 21	Introduction to Computer Science I
MATH 105A	Numerical Analysis
or MATH 105B	Numerical Analysis
MATH 130B	Probability and Stochastic Processes
or MATH 130C	Probability and Stochastic Processes
STATS 7	Basic Statistics (or equivalent course) [2]
STATS 112	Statistical Methods for Data Analysis III
STATS 121	Probability Models

1 Or can substitute another course with approval of the Director of Undergraduate Studies.

2 Only if taken prior to STATS 110

NOTE: A maximum of two courses can be taken Pass/Not Pass toward a minor.

Graduate Program in Statistics

Research in statistics can range from mathematical studies of the theoretical underpinnings of a statistical model or method to the development of novel statistical models and methods and a thorough study of their properties. Frequently, statistics research is motivated and informed by collaborations with experts in a particular substantive field. Their scientific studies and data collection efforts may yield complex data that cannot be adequately handled using standard statistical methodology. Statisticians aim to develop methods that address the scientific or policy questions of the researcher. In doing so, statisticians must consider how efficiently and effectively the proposed methodology can be implemented and what guarantees can be provided as to the performance of the proposed methods. Such questions can often be answered using a combination of mathematical, analytical, and computational techniques.

Background: Individuals from a variety of backgrounds can make significant contributions to the field of statistics as long as they have sufficient background in statistics, mathematics, and computing. Undergraduate preparation in statistics, mathematics, and computing should include multivariate calculus (the equivalent of UCI courses MATH 2A-MATH 2B, MATH 2D-MATH 2E), linear algebra (MATH 121A), elementary analysis (MATH 140A-MATH 140B), introductory probability and statistics (STATS 120A-STATS 120B-STATS 120C), and basic computing (I&C SCI 21). For students with undergraduate majors outside of mathematics and statistics, it is possible to make up one or two missing courses during the first year in the program.

Students may be admitted to either the master's program or the doctoral program. For additional information about the Bren School of ICS's graduate programs and admissions information, click here (p. 989).

Master of Science in Statistics

Statistics Course Requirements: Intermediate Probability & Statistical Theory (STATS 200A-STATS 200B-STATS 200C); Statistical Methodology (STATS 202, STATS 203, STATS 210); STATS 205; three quarters of Seminar in Statistics (STATS 280); five other graduate courses in or related to statistics, at least two of which are offered by the Department of Statistics. STATS 211 and STATS 212 may be substituted for STATS 202 and STATS 203.

At most one of the five elective courses may be an Individual Study (STATS 299), and only with prior approval of the Department Graduate Committee.

The entire program of courses must be approved by the Statistics Department Graduate Committee. Students with previous graduate training in statistics may petition the Committee to substitute other courses for a subset of the required courses. Students are required to pass a written comprehensive examination ordinarily at the end of the first year, covering the material from STATS 200A-STATS 200B-STATS 200C, and either STATS 202, STATS 203, and STATS 210 *or* STATS 210, STATS 211, and STATS 212.

Doctor of Philosophy in Statistics

Statistics Course Requirements: Intermediate Probability and Statistics (STATS 200A-STATS 200B-STATS 200C); Statistical Methodology (STATS 210, STATS 211, STATS 212); Advanced Probability & Statistics Topics (STATS 220A-STATS 220B); Bayesian Statistical Analysis (STATS 225); Statistical Computing Methods (STATS 230); five other graduate courses in or related to statistics, at least two of which are offered by the Department of Statistics. These courses must be completed prior to candidacy.

In addition, continual enrollment in Seminar in Statistics (STATS 280) is required in all quarters.

Additional Ph.D. requirements:

Each Ph.D. student is required to take a written comprehensive examination, ordinarily at the end of the first year, covering the material from STATS 200A-STATS 200B-STATS 200C, STATS 210, STATS 211, and STATS 212. In addition, each student is required to take a written comprehensive examination after completion of the second year course work, covering material from STATS 220A-STATS 220B, STATS 225, and STATS 230.

Ph.D. students who have passed the written comprehensive examinations are required to give a post-comprehensive research presentation each year.

Ph.D. students are required to serve as teaching assistants for at least two quarters.

Ph.D. students are required to demonstrate substantive knowledge of an application area outside of statistics (e.g., computer science, economics, cognitive sciences, biology, or medicine). Such knowledge can be demonstrated by course work in the application area (three quarter courses), co-authorship of publishable research in the application area, or other evidence of supervised collaborative work that is substantiated by an expert in the field. In the case of a theoretically oriented student, the outside application area may be mathematics.

The normative time for advancement to candidacy is three years. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Master of Science in Statistics for Students Enrolled in a Doctoral Program at UCI

Students who are currently enrolled in a doctoral program at UCI and wish to pursue a Master of Science degree in Statistics at the same time should consult with the Director of Graduate Studies in Statistics to register their interest with the Department, to develop a program of study, and to establish a relationship with a faculty advisor in Statistics. The degree requirements including the comprehensive examination are the same as those listed under the Master of Science in Statistics. The Statistics Department Graduate Committee must be petitioned for permission to sit for the comprehensive examination. The petition should include the proposed plan of study and a current official UCI transcript. A petition for the degree must be filed with the Statistics Department Graduate Committee for approval two quarters before the degree is awarded.

Faculty

Brigitte Baldi, Ph.D. Massachusetts Institute of Technology, *Lecturer of Statistics*

Scott Bartell, Ph.D. University of California, Davis, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology; Social Ecology; Statistics*

Carter Butts, Ph.D. Carnegie Mellon University, *Professor of Sociology; Electrical Engineering and Computer Science; Statistics* (mathematical sociology, social networks, quantitative methodology, human judgment and decision making, economic sociology)

Daniel L. Gillen, Ph.D. University of Washington, *Associate Professor of Statistics; Epidemiology; Program in Public Health*

Stacey A. Hancock, Ph.D. Colorado State University, *Lecturer with Potential Security of Employment of Statistics*

Ivan G. Jeliazkov, Ph.D. Washington University, *Associate Professor of Economics; Statistics*

Wesley O. Johnson, Ph.D. University of Minnesota, *Professor of Statistics*

Hernando C. Ombao, Ph.D. University of Michigan, *Professor of Statistics*

Dale J. Poirier, Ph.D. University of Wisconsin-Madison, *Professor of Economics; Statistics*

Babak Shahbaba, Ph.D. University of Toronto, *Assistant Professor of Statistics; Computer Science*

Patrick J. Smyth, Ph.D. California Institute of Technology, *Professor of Computer Science; Statistics*

Hal S. Stern, Ph.D. Stanford University, *Dean of the Donald Bren School of Information and Computer Sciences, Ted and Janice Smith Family Foundation Endowed Chair in Information and Computer Science,* and *Professor of Statistics; Cognitive Sciences*

Jessica Utts, Ph.D. Pennsylvania State University, *Professor of Statistics*

Max Welling, Ph.D. Utrecht University, *Professor of Computer Science; Statistics*

Yaming Yu, Ph.D. Harvard University, *Associate Professor of Statistics*

Zhaoxia Yu, Ph.D. William Marsh Rice University, *Associate Professor of Statistics*

Courses

STATS 7. Basic Statistics. 4 Units.
Introduces basic inferential statistics including confidence intervals and hypothesis testing on means and proportions, t-distribution, Chi Square, regression and correlation. F-distribution and nonparametric statistics included if time permits. Course may be offered online.

Overlaps with STATS 8, MGMT 7.

Restriction: STATS 7 may not be taken for credit if taken after STATS 67.

(Va)

STATS 8. Introduction to Biological Statistics . 4 Units.
Introductory statistical techniques used to collect and analyze experimental and observational data from health sciences and biology. Includes exploration of data, probability and sampling distributions, basic statistical inference for means and proportions, linear regression, and analysis of variance. Course may be offered online.

Overlaps with SOCECOL 13, MGMT 7.

(Va)

STATS 67. Introduction to Probability and Statistics for Computer Science. 4 Units.
Introduction to the basic concepts of probability and statistics with discussion of applications to computer science.

Prerequisite: MATH 2B.

Overlaps with STATS 7, MGMT 7.

Restriction: STATS 7 and MGMT 7 may not be taken for credit if taken after STATS 67.

(Va)

STATS 110. Statistical Methods for Data Analysis I. 4 Units.
Introduction to statistical methods for analyzing data from experiments and surveys. Methods covered include two-sample procedures, analysis of variance, simple and multiple linear regression.

Prerequisite: STATS 7 or (STATS 120A and STATS 120B and STATS 120C).

Concurrent with STATS 201.

STATS 111. Statistical Methods for Data Analysis II. 4 Units.
Introduction to statistical methods for analyzing data from surveys or experiments. Emphasizes application and understanding of methods for categorical data including contingency tables, logistic and Poisson regression, loglinear models.

Prerequisite: STATS 110.

Concurrent with STATS 202.

STATS 112. Statistical Methods for Data Analysis III. 4 Units.
Introduction to statistical methods for analyzing longitudinal data from experiments and cohort studies. Topics covered include survival methods for censored time-to-event data, linear mixed models, non-linear mixed effects models, and generalized estimating equations.

Prerequisite: STATS 111.

Concurrent with STATS 203.

STATS 115. Introduction to Bayesian Data Analysis. 4 Units.
Basic Bayesian concepts and methods with emphasis on data analysis. Special emphasis on specification of prior distributions. Development for one-two samples and on to binary, Poisson, and linear regression. Analyses performed using free OpenBugs software.

Prerequisite: STATS 120C. Recommended: STATS 110 or STATS 202 or STATS 210 or STATS 211.

Concurrent with STATS 205.

STATS 120A. Introduction to Probability and Statistics. 4 Units.
Introduction to basic principles of probability and statistical inference. Axiomatic definition of probability, random variables, probability distributions, expectation.

Prerequisite: MATH 2A and MATH 2B and (MATH 2D or MATH 4).

Overlaps with MATH 130A.

STATS 120B. Introduction to Probability and Statistics. 4 Units.
Introduction to basic principles of probability and statistical inference. Point estimation, interval estimating, and testing hypotheses, Bayesian approaches to inference.

Prerequisite: STATS 120A.

STATS 120C. Introduction to Probability and Statistics. 4 Units.
Introduction to basic principles of probability and statistical inference. Linear regression, analysis or variance, model checking.

Prerequisite: STATS 120B.

STATS 121. Probability Models. 4 Units.
Advanced probability, discrete time Markov chains, Poisson processes, continuous time Markov chains. Queuing or simulation as time permits.

Prerequisite: STATS 120A.

Concurrent with COMPSCI 278.

STATS 140. Multivariate Statistical Methods. 4 Units.
Theory and application of multivariate statistical methods. Topics include: statistical inference for the multivariate normal model and its extensions to multiple samples and regression, use of statistical packages for data visualization and reduction, discriminant analysis, cluster analysis, and factor analysis.

Prerequisite: STATS 120C or MATH 121A.

Concurrent with STATS 240.

STATS 199. Individual Study. 2-5 Units.
Individual research or investigations under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

STATS 200A. Intermediate Probability and Statistical Theory. 4 Units.
Basics of probability theory, random variables and basic transformations, univariate distributions—discrete and continuous, multivariate distributions.

Prerequisite: STATS 120C.

STATS 200B. Intermediate Probability and Statistical Theory. 4 Units.
Random samples, transformations, limit laws, normal distribution theory, introduction to stochastic processes, data reduction, point estimation (maximum likelihood).

Prerequisite: STATS 200A.

STATS 200C. Intermediate Probability and Statistical Theory. 4 Units.
Interval estimation, hypothesis testing, decision theory and Bayesian inference, basic linear model theory.

Prerequisite: STATS 200B.

STATS 201. Statistical Methods for Data Analysis I. 4 Units.
Introduction to statistical methods for analyzing data from experiments and surveys. Methods covered include two-sample procedures, analysis of variance, simple and multiple linear regression.

Prerequisite: Knowledge of basic statistics.

Concurrent with STATS 110.

STATS 202. Statistical Methods for Data Analysis II. 4 Units.
Introduction to statistical methods for analyzing data from surveys or experiments. Emphasizes application and understanding of methods for categorical data including contingency tables, logistic and Poisson regression, loglinear models.

Prerequisite: STATS 201.

Concurrent with STATS 111.

STATS 203. Statistical Methods for Data Analysis III. 4 Units.
Introduction to statistical methods for analyzing longitudinal data from experiments and cohort studies. Topics covered include survival methods for censored time-to-event data, linear mixed models, non-linear mixed effects models, and generalized estimating equations.

Prerequisite: STATS 202.

Concurrent with STATS 112.

STATS 205. Introduction to Bayesian Data Analysis. 4 Units.
Basic Bayesian concepts and methods with emphasis on data analysis. Special emphasis on specification of prior distributions. Development for one-two samples and on to binary, Poisson and linear regression. Analyses performed using free OpenBugs software.

Prerequisite: STATS 120C. Recommended: STATS 110 or STATS 202 or STATS 210 or STATS 211.

Concurrent with STATS 115.

STATS 210. Statistical Methods I: Linear Models. 4 Units.
Statistical methods for analyzing data from surveys and experiments. Topics include randomization and model-based inference, two-sample methods, analysis of variance, linear regression and model diagnostics.

Prerequisite: Knowledge of basic statistics, calculus, linear algebra.

STATS 211. Statistical Methods II: Generalized Linear Models. 4 Units.
Development of the theory and application of generalized linear models. Topics include likelihood estimation and asymptotic distributional theory for exponential families, quasi-likelihood and mixed model development. Emphasizes methodological development and application to real scientific problems.

Corequisite: STATS 200B.
Prerequisite: STATS 210.

STATS 212. Statistical Methods III: Methods for Correlated Data. 4 Units.
Development and application of statistical methods for analyzing corrected data. Topics covered include repeated measures ANOVA, linear mixed models, non-linear mixed effects models, and generalized estimating equations. Emphasizes both theoretical development and application of the presented methodology.

Prerequisite: STATS 211.

STATS 220A. Advanced Probability and Statistics Topics. 4 Units.
Advanced topics in probability and statistical inference including measure theoretic probability, large sample theory, decision theory, resampling and Monte Carlo methods, nonparametric methods.

Prerequisite: STATS 200C.

STATS 220B. Advanced Probability and Statistics Topics. 4 Units.
Advanced topics in probability and statistical inference including measure theoretic probability, large sample theory, decision theory, resampling and Monte Carlo methods, nonparametric methods.

Prerequisite: STATS 220A.

STATS 225. Bayesian Statistical Analysis. 4 Units.
Introduction to the Bayesian approach to statistical inference. Topics include univariate and multivariate models, choice of prior distributions, hierarchical models, computation including Markov chain Monte Carlo, model checking, and model selection.

Prerequisite: Two quarters of upper-division or graduate training in probability and statistics.

STATS 226. Advanced Topics in Modern Bayesian Statistical Inference. 4 Units.
Modern Bayesian Statistics: selected topics from theory of Markov chains, application of theory to modern methods of Markov chain Monte Carlo sampling; Bayesian non-parametric and semiparametric modeling, including Dirichlet Process Mixtures; Mixtures of Polya Trees.

Prerequisite: STATS 200C.

STATS 230. Statistical Computing Methods. 4 Units.
Numerical computations and algorithms with applications in statistics. Topics include optimization methods including the EM algorithm, random number generation and simulation, Markov chain simulation tools, and numerical integration.

Prerequisite: Two quarters of upper-division or graduate training in probability and statistics.

Overlaps with COMPSCI 206.

STATS 235. Modern Data Analysis Methods . 4 Units.
Introduces selected modern tools for data analysis. Emphasizes use of computational and resampling techniques for data analyses when the data do not conform to standard toolbox of regression models and/or complexity of modeling problem threatens validity of standard methods.

Prerequisite: STATS 120C.

Restriction: Graduate students only.

STATS 240. Multivariate Statistical Methods. 4 Units.
Theory and application of multivariate statistical methods. Topics include: statistical inference for the multivariate normal model and its extensions to multiple samples and regression, use of statistical packages for data visualization and reduction, discriminant analysis, cluster analysis, and factor analysis.

Prerequisite: STATS 120C or MATH 121A.

Concurrent with STATS 140.

STATS 245. Time Series Analysis. 4 Units.
Statistical models for analysis of time series from time and frequency domain perspectives. Emphasizes theory and application of time series data analysis methods. Topics include ARMA/ARIMA models, model identification/estimation, linear operators, Fourier analysis, spectral estimation, state space models, Kalman filter.

Prerequisite: STATS 200C.

STATS 246. Spectral Analysis . 4 Units.
Spectral methods that are most commonly utilized for ,analyzing univariate and multivariate time series and signals. These methods include spectral and coherence estimation, transfer function modeling, classification and discrimination of time series, non-stationary time series, ,time-frequency analysis, and wavelets analysis.

Prerequisite: STATS 200A and STATS 200B and STATS 210.

STATS 250. Biostatistics. 4 Units.
Statistical methods commonly used to analyze data arising from clinical studies. Topics include analysis of observational studies and randomized clinical trials, techniques in the analysis of survival and longitudinal data, approaches to handling missing data, meta-analysis, nonparametric methods.

Prerequisite: STATS 210.

STATS 255. Statistical Methods for Survival Data. 4 Units.
Statistical methods for analyzing survival data from cohort studies. Topics include parametric and nonparametric methods, the Kaplan-Meier estimator, log-rank tests, regression models, the Cox proportional hazards model and accelerated failure time models, efficient sampling designs, discrete survival models.

Prerequisite: STATS 211.

STATS 257. Introduction to Statistical Genetics. 4 Units.
Provides students with knowledge of the basic principles, concepts, and methods used in statistical genetic research. Topics include principles of population genetics, and statistical methods for family- and population-based studies.

Prerequisite: Two quarters of upper-division or graduate training in statistical methods.

Same as EPIDEM 215.

STATS 260. Inference with Missing Data. 4 Units.
Statistical methods and theory useful for analysis of multivariate data with partially observed variables. Bayesian and likelihood-based methods developed. Topics include EM-type algorithms, MCMC samplers, multiple imputation, and general location model. Applications from economics, education, and medicine are discussed.

Prerequisite: STATS 200C and STATS 210.

STATS 262. Theory and Practice of Sample Surveys. 4 Units.
Basic techniques and statistical methods used in designing surveys and analyzing collected survey data. Topics include simple random sampling, ratio and regression estimates, stratified sampling, cluster sampling, sampling with unequal probabilities, multistage sampling, and methods to handle nonresponse.

Prerequisite: STATS 120C.

STATS 265. Causal Inference. 4 Units.
Various approaches to causal inference focusing on the Rubin causal model and propensity-score methods. Topics include randomized experiments, observational studies, non-compliance, ignorable and non-ignorable treatment assignment, instrumental variables, and sensitivity analysis. Applications from economics, politics, education, and medicine.

Prerequisite: STATS 200C and STATS 210.

STATS 270. Stochastic Processes. 4 Units.
Introduction to the theory and application of stochastic processes. Topics include Markov chains, continuous-time Markov processes, Poisson processes, and Brownian motion. Applications include Markov chain Monte Carlo methods and financial modeling (for example, option pricing).

Prerequisite: STATS 120C.

Overlaps with MATH 271A, MATH 271B, MATH 271C.

STATS 275. Statistical Consulting. 4 Units.
Training in collaborative research and practical application of statistics. Emphasis on effective communication as it relates to identifying scientific objectives, formulating a statistical analysis plan, choice of statistical methods, and interpretation of results and their limitations to non-statisticians.

Prerequisite: STATS 203 or STATS 212.

Repeatability: May be taken for credit 2 times.

STATS 280. Seminar in Statistics. 0.5 Units.
Periodic seminar series covering topics of current research in statistics and its application.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

STATS 281. Topics in Astrostatistics. 1-4 Units.
Topics in statistical methods for astronomy, astrophysics, particle physics, and solar physics, typically including spectral analysis, image processing and analysis, time series, classification, clustering, massive data, etc. Emphasizes computationally intensive methods, Bayesian and frequentist methods, machine learning, and signal processing.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

STATS 295. Special Topics in Statistics. 4 Units.
Studies in selected areas of statistics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

STATS 298. Thesis Supervision. 2-12 Units.
Individual research or investigation conducted in preparation for the M.S. thesis option or the dissertation requirements for the Ph.D. program.

Repeatability: May be repeated for credit unlimited times.

STATS 299. Individual Study. 2-12 Units.
Individual research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

Interdisciplinary Studies

UCI offers a variety of interdisciplinary programs of study which span the boundaries of traditional academic scholarship and provide students with opportunities to pursue subject areas deriving from the interaction of different disciplines. Faculty participation is determined by research and teaching interests and, as such, faculty may be drawn from various departments and schools across the campus.

This section presents information about the following:
Business Information Management (p. 1099) (major)
Computer Science and Engineering (p. 1102) (major)
Civic and Community Engagement (p. 1090) (minor)
Global Sustainability (p. 1095) (minor)
History and Philosophy of Science (p. 1098) (minor)
Native American Studies (p. 1098) (minor)
Pharmacological Sciences (p. 1083) (graduate program)
Networked Systems (p. 1081) (graduate program)
Transportation Science (p. 1086) (graduate program)

The School of Humanities (p. 623) section presents information about the following:
African American Studies (p. 767) (major, minor)
Archaeology (p. 791) (minor)
Asian American Studies (p. 781) (major, minor, graduate emphasis)
Asian Studies (p. 924) (minor)
Jewish Studies (p. 925) (minor)
Latin American Studies (p. 926) (minor)
Religious Studies (p. 951) (major, minor)
Gender and Sexuality Studies (p. 891) (major, minor, graduate emphasis)

The School of Law (p. 1110) section presents information about the following:
Program in Law and Graduate Studies (p. 1115)

The School of Social Sciences (p. 1555) section presents information about the following:
Chicano/Latino Studies (p. 1724) (major, minor, graduate emphasis)
Conflict Resolution (p. 1877) (minor)

Faculty

Zahra G. Ahmed, Ph.D. University of California, Irvine, *Senior Lecturer of Undergraduate Education*

Brittany M. Betancourt, B.A. University of California, Irvine, *Senior Lecturer of Undergraduate Education*

De Gallow, Ph.D. University of Southern California, *Senior Lecturer of Undergraduate Education*

Paula Garb, Ph.D. Russian Academy of Sciences, *Lecturer of Social Sciences; International Studies; Undergraduate Education*

Natalie B. Schonfeld, Ph.D. Claremont Graduate University, *Senior Lecturer of Undergraduate Education*

Tracie A. Welser, M.A. University of South Florida, *Senior Lecturer of Undergraduate Education*

Graduate Program in Networked Systems

949-824-0357
http://www.networkedsystems.uci.edu/
Athina Markopoulou, **Director**
Nalini Venkatasubramanian, **Co-Director**

The graduate program in Networked Systems is administered by faculty from two academic units: the Department of Computer Science (CS) in the Donald Bren School of Information and Computer Sciences, and the Department of Electrical Engineering and Computer Science (EECS) in The Henry Samueli School of Engineering. The program offers M.S. and Ph.D. degrees in Networked Systems.

The Networked Systems program provides education and research opportunities to graduate students in the areas of computer and telecommunication networks. Networked Systems include telephone, cable TV networks, wireless, mobile, ad hoc, and cellular phone networks, as well as the Internet. Networked Systems, as a field, is inherently interdisciplinary since it combines technology in software, hardware, and communications. As a result, it transcends traditional departmental boundaries. Networked Systems draws primarily from Computer Science, Computer Engineering, and Electrical

Engineering. At UCI, these areas are housed in two departments: CS and EECS. The Networked Systems program unites the respective strengths of these two departments and provides integrated M.S. and Ph.D. degrees in this area.

Program requirements include core, breadth, and concentration courses. **Core courses** are taken by all Networked Systems students and form a foundation for networking topics. **Breadth courses** may be selected from technical courses (including distributed systems, algorithms, data structures, operating systems, databases, random processes, and linear systems) and management and applications of technology (including educational technology, management of information technology, and social impact). **Concentration courses** may be selected from a long list including courses on networks, performance, middleware, communications, and operations research. Core, breadth, and concentration course lists are available on the Networked Systems (http://www.networkedsystems.uci.edu) website or from the Networked Systems Program Office.

Admission

Prospective graduate students apply directly to the Networked Systems program, specifying M.S. or Ph.D. degree goal. Applicants who do not hold a bachelor's degree in Computer Science, Computer Engineering, or Electrical Engineering may be required to take supplementary course work to obtain and demonstrate sufficient background in the field.

Applicants are evaluated on the basis of prior academic record and potential for creative research and teaching, as demonstrated in their application materials including official university transcripts, letters of recommendation, GRE test scores, and statement of purpose.

Master of Science Program

Students pursuing the M.S. degree may choose either Plan I (Thesis Plan) or Plan II (Comprehensive Examination Plan). Students following Plan I must complete the three core courses, two courses chosen from the breadth course list with at most one chosen from the Management and Applications of Technology list, three courses chosen from the concentration course lists with at least one course chosen from at least two different concentrations, two additional courses chosen with the approval of the advisor, and a thesis. In addition, students pursuing Plan I must enroll in two courses of thesis-related research: COMPSCI 298 or EECS 296.

Students following Plan II must complete the three core courses, three courses chosen from the breadth course list with at most two chosen from the Management and Applications of Technology list, four courses chosen from the concentration course lists with at least one course chosen from at least three different concentrations, and two additional courses chosen with the approval of the advisor. Students pursuing this option must also pass a comprehensive examination which will be administered through NET SYS 295 and will consist of a term paper on a topic relevant to the student's educational program and that term's speakers.

Doctor of Philosophy Program

The Ph.D. degree requires the following 13 courses: three core courses; three courses chosen from the breadth course list, with at most two chosen from the Management and Applications of Technology list; four courses chosen from the concentration course lists, with at least one course chosen from at least three different concentrations; and three additional courses, chosen with the approval of the research advisor. Students must also complete two teaching practicum courses (I&C SCI 399) and a dissertation.

Courses applied to the M.S. degree can also be applied to the Ph.D. degree. Students who have taken similar graduate-level courses at another university may petition to apply these courses to the Ph.D. requirements. Ph.D. students who have served as teaching assistants, readers, or tutors at another university may petition to apply this experience toward the teaching practicum requirement. Normative time for advancement to candidacy is three years (two for students who entered with a master's degree). Normative time for completion of the Ph.D. is six years (five for students who entered with a master's degree), and maximum time permitted is seven years.

Courses

NET SYS 201. Computer and Communication Networks. 4 Units.
Network architecture of the Internet, telephone networks, cable networks, and cell phone networks. Network performance models. Network performance models. Advanced concepts and implementations of flow and congestion control, addressing, internetworking, forwarding, routing, multiple access, streaming, and quality-of-service.

Prerequisite: EECS 148 or COMPSCI 132.

Same as COMPSCI 232, EECS 248A.

Restriction: Graduate students only.

NET SYS 202. Networking Laboratory. 4 Units.
A laboratory-based introduction to basic networking concepts such as addressing, sub-netting, bridging, ARP, and routing. Network simulation and design. Structured around weekly readings and laboratory assignments.

Prerequisite: EECS 148 or COMPSCI 132.

Same as COMPSCI 233.

NET SYS 210. Advanced Networks. 4 Units.
Design principles of networked systems, advanced routing and congestion control algorithms, network algorithms, network measurement, management, security, Internet economics, and emerging networks.

Prerequisite: NET SYS 201 or COMPSCI 232 OR EECS 248A.

Same as COMPSCI 234.

NET SYS 230. Wireless and Mobile Networking. 4 Units.
Introduction to wireless networking. The focus is on layers 2 and 3 of the OSI reference model, design, performance analysis, and protocols. Topics covered include: an introduction to wireless networking, digital cellular, next generation cellular, wireless LANs, and mobile IP.

Prerequisite: EECS 148 or COMPSCI 132.

Same as COMPSCI 236.

NET SYS 240. Network and Distributed Systems Security. 4 Units.
Modern computer and networks security: attacks and countermeasures, authentication, identification, data secrecy, data integrity, authorization, access control, computer viruses, network security. Group communication and multicast security techniques. Covers secure e-commerce and applications of public key methods, digital certificates, and credentials.

Prerequisite: EECS 148 or COMPSCI 132.

Same as COMPSCI 203.

NET SYS 256. Network Coding: Theory and Applications. 4 Units.
Theoretical frameworks for network coding: linear, algebraic and random network coding; linear programming and combinatorial frameworks. Network code design. Benefits and costs. Practical network coding. Applications to wireless networks, content distribution, security, and other areas.

Prerequisite: EECS 248A or NET SYS 201 or COMPSCI 232.

Same as EECS 246.

Restriction: Graduate students only.

NET SYS 260. Middleware for Networked and Distributed Systems. 4 Units.
Discusses concepts, techniques, and issues in developing distributed systems middleware that provides high performance and Quality of Service for emerging applications. Also covers existing standards (e.g., CORBA, DCOM, Jini, Espeak) and their relative advantages and shortcomings.

Prerequisite: An undergraduate-level course in operating systems and networks.

Same as COMPSCI 237.

NET SYS 270. Topics in Networked Systems. 4 Units.
Study of Networked concepts.

Repeatability: Unlimited as topics vary.

NET SYS 295. Networked Systems Seminar. 1 Unit.
Current research in networked systems. Includes talks by UCI faculty, visiting researchers, and Networked Systems graduate students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Graduate Program in Pharmacological Sciences

Graduate Student Affairs: (949) 824-7651 (Program administered by the Department of Pharmacology)
http://www.pharmacology.uci.edu and http://www.pharmsci.uci.edu

Frederick J. Ehlert, **Graduate Program Director/Advisor for the Interdisciplinary Program**

Overview

The Departments of Pharmacology and Pharmaceutical Sciences offers an interdisciplinary program leading to a Ph.D. degree in Pharmacological Sciences. The Ph.D. degree prepares students for careers in academic research institutions, in the biotechnology and pharmaceutical industry, in

federal and state agencies, and in private research institutions by providing a research-intensive approach to the study of pharmacology. Students applying to the Ph.D. program choose either a Concentration in Pharmacology or a Concentration in Pharmaceutical Sciences.

Faculty research programs in Pharmacological Sciences include molecular and cellular pharmacology, circadian rhythms, epigenetic modifications, neuropharmacology, psychopharmacology, cardiovascular pharmacology, the pharmacology of aging, structure-based drug design, screening-based drug discovery, medicinal chemistry, structural biology, natural product biosynthesis, and synthase engineering, cancer detection, prevention and therapy, gene regulation and intercellular signaling, computational biology and bioinformatics, and nanomedicine for targeted drug and gene delivery.

Program Requirements

Admission

A strong background in the physical and biological sciences is required for admission, including courses in mathematics, physics, chemistry, and biochemistry, with laboratory experience. The Graduate Record Examination (GRE) and Subject Test in Biology or Chemistry are required for direct admission into the Pharmacology Concentration. The Pharmaceutical Sciences Concentrations requires the GRE test and recommends a Subject Test in Biology, Chemistry, Biochemistry, or Cell & Molecular Biology. Students admitted into the one-year INP gateway program and who complete all of its requirements may transfer into the Pharmacology Concentration in the Pharmacological Sciences Ph.D. program at the end of their first academic year. Similarly, students completing all MCP gateway requirements may transfer into the Pharmacological Sciences Ph.D. program, either concentration, at the end of their first year of study. All gateway students must have chosen a Doctoral Advisor by mutual agreement no later than the end of the first year, prior to transferring into the Pharmacological Sciences program.

Course Requirements

The primary difference between the two concentrations are the first-year course requirements, which in the Pharmacology Concentration focuses on mainline pharmacology topics while the Pharmaceutical Sciences Concentration encompasses a broad range of allied fields. Courses are offered by faculty from both departments in the Pharmacological Sciences program.

Coursework Requirements - Pharmacology Concentration: New students admitted directly into the Pharmacology Concentration are subject to the coursework requirement as listed below.

Required Courses:	
PHARM 241	Advanced Topics in Pharmacology
PHARM 252	Neurotransmitter and Drug Receptors
PHARM 254	Introduction to Pharmacology
PHARM 255	Chemical Transmission
PHARM 256	Experimental Design for Pharmacologists
PHARM 257	Ethics in Research
PHARM 298	Seminar
PHARM 299	Research
PHYSIO 206A	Introduction to Medical Physiology
PHYSIO 206B	Introduction to Medical Physiology
BIOCHEM 210A	Medical Biochemistry and Molecular Biology (Requirement of this course is determined by the Graduate Program Advisor.)

Courses from in the Pharmaceutical Sciences Concentration required course list may be substituted for some of the Pharmacology Concentration required courses with the consent of the Concentration Advisor, according to the interests of the student.

Students who complete all requirements of the one-year INP or MCP gateway programs qualify to transfer into the Pharmacology Concentration at the end of their first academic year. These gateways have different first year requirements. Students entering the concentration from a gateway are required to pass the Comprehensive Exam.

Coursework Requirements - Pharmaceutical Sciences Concentration: New students admitted directly into the Pharmaceutical Sciences Concentration are required to take three courses chosen from the list below, and three electives chosen from 1) the same list, 2) from the Pharmacology Concentration required courses above, and/or 3) from the MCP electives list. Electives must be approved by the Pharmaceutical Sciences Concentration Advisor. Coursework must also include training in the ethical conduct of research (e.g., PHARM 257 or equivalent).

Required course list (must choose 3 from the following list, plus 3 electives):

Choose three of the following plus three electives:	
PHARM 254	Introduction to Pharmacology
PHARM 255	Chemical Transmission
PHRMSCI 223	Biological Macromolecules
PHRMSCI 270	Advanced Pharmacology

PHRMSCI 272	Special Topics in Pharmaceutical Sciences
PHRMSCI 274	Nanomedicine
PHRMSCI 277	Medicinal Chemistry
PHRMSCI 278	Stem Cell Therapy
PHRMSCI 280	Graduate Research
PHRMSCI 298	Researh Seminar

Students who complete all requirements of the one-year MCP gateway program qualify to transfer into the Pharmaceutical Sciences Concentration at the end of their first academic year. The MCP gateway has different first-year requirements. Students entering the concentration from a MCP gateway are required to pass the Pharmacological Sciences Comprehensive Exam. In addition, MCP students who have passed fewer than the six courses required for the concentration during the first-year must bring the total up to six by the end of the second year (the full year of PHRMSCI 250A-PHRMSCI 250B-PHRMSCI 250C may be counted as one course for this purpose).

Comprehensive Exam

After completion of first year courses (whether in the concentration itself or one of the gateways), each student must pass a Comprehensive Exam covering first year coursework subjects. It will be offered once per year during the summer and normally will taken prior to the second year. It may be deferred to the following year only under unusual circumstances and with the prior approval of the Graduate Advisor. There will be a single Comprehensive Exam offered, covering subjects appropriate for students in either concentration. Each candidate for the Ph.D. degree must pass the Comprehensive Exam or equivalent no later than the end of their second year.

Advancement to Candidacy

Upon completion of first-year course requirements, in order to be recommended for candidacy, each student will take a written qualifying examination set by the program faculty to determine competence in pharmacological sciences. After completing this requirement successfully, the student will complete an oral qualifying examination in accordance with Graduate Council procedures. Advancement normally will take place no earlier than the end of year two or later than the end of year 3; exceptions must be approved by the Pharmacological Sciences and Concentration Advisors.

Dissertation

A three member Doctoral Committee formed from the Advancement to Candidacy Committee will meet with the candidate annually to assess and guide the student's progress toward completion of the dissertation. When the student's research advisor and Doctoral Committee members determine that a sufficient body of original research has been completed, the student will prepare the dissertation for a public defense before the Doctoral Committee.

Final Examination

Upon completion of the dissertation the student will take a public oral examination on the content of his or her dissertation or related topics. The examination will be conducted by the student's Doctoral Committee.

Faculty

Claudia Benavente, Ph.D. University of Arizona, *Assistant Professor of Pharmaceutical Sciences*

Bruce Blumberg, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering; Environmental Health Sciences; Pharmaceutical Sciences* (gene regulation by nuclear hormone receptors in vertebrate development physiology, endocrine disruption)

A. Richard Chamberlin, Ph.D. University of California, San Diego, *Department Chair and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (chemical biology, organic and synthetic)

Olivier Civelli, Ph.D. Swiss Federal Institute of Technology in Zurich, *Department Chair and Eric L. and Lila D. Nelson Chair in Neuropharmacology* and *Professor of Pharmacology; Developmental and Cell Biology; Pharmaceutical Sciences* (novel neuroactive molecules)

Melanie Cocco, Ph.D. Pennsylvania State University, *Associate Professor of Molecular Biology and Biochemistry; Pharmaceutical Sciences*

John P. Fruehauf, M.D. Rush University, *Professor of Medicine; Biological Chemistry; Biomedical Engineering; Pharmaceutical Sciences* (in-vitro cancer models using 3-D tissue systems to predict drug response)

Daniel W. Gil, Ph.D. University of Pennsylvania, *Associate Adjunct Professor of Pharmaceutical Sciences*

Celia Goulding, Ph.D. King's College London, *Associate Professor of Molecular Biology and Biochemistry; Pharmaceutical Sciences*

Stephen Hanessian, Ph.D. Ohio State University, *Director of Medicinal Chemistry and Pharmacology Graduate Program and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (organic chemistry)

Mahtab F. Jafari, Ph.D. University of California, San Francisco, *Vice Chair of the Undergraduate Program in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Ecology and Evolutionary Biology; Pharmacology*

Young Jik Kwon, Ph.D. University of Southern California, *Associate Professor of Pharmaceutical Sciences; Biomedical Engineering; Chemical Engineering and Materials Science; Molecular Biology and Biochemistry* (gene therapy, drug delivery, cancer-targeted therapeutics, combined molecular imaging and therapy, cancer vaccine)

Anthony D. Long, Ph.D. McMaster University, *Professor of Ecology and Evolutionary Biology; Pharmaceutical Sciences*

Andrej Luptak, Ph.D. Yale University, *Vice Chair of Graduate Programs in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Chemistry; Molecular Biology and Biochemistry* (chemical biology)

David L. Mobley, Ph.D. University of California, Davis, *Associate Professor of Pharmaceutical Sciences; Chemistry* (chemical biology, physical chemistry and chemical physics, theoretical and computational)

Lawrence Plon, PHAR University of Southern California, *Assistant Adjunct Professor of Pharmaceutical Sciences*

Thomas L. Poulos, Ph.D. University of California, San Diego, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences; Physiology and Biophysics* (chemical biology)

Jennifer A. Prescher, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Molecular Biology and Biochemistry; Pharmaceutical Sciences* (chemical biology, organic and synthetic)

Paolo Sassone-Corsi, Ph.D. University of Naples Federico II, *Donald Bren Professor* and *Professor of Biological Chemistry; Microbiology and Molecular Genetics; Pharmaceutical Sciences*

Samuel E. Schriner, Ph.D. University of Washington, *Lecturer with Potential Security of Employment of Pharmaceutical Sciences*

Robert Spitale, Ph.D. University of Rochester, *Assistant Professor of Pharmaceutical Sciences*

Shiou-Chuan (Sheryl) Tsai, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences*

Sun (Coco) Yang, Pharm D. Chinese Academy of Medical Science & Peking Union Medical College, *Assistant Adjunct Professor of Pharmaceutical Sciences*

Weian Zhao, Ph.D. McMaster University, *Assistant Professor of Pharmaceutical Sciences; Biomedical Engineering* (stem cell therapy, diagnostics, biosensors, nano- and microtechnology, aptamers)

Graduate Program in Transportation Science

(949) 824-5989, -5906; Fax 949-824-8385
http://www.transci.uci.edu/
Jean-Daniel Saphores, **Director**

The graduate program in Transportation Science includes faculty from three academic units: the Department of Civil and Environmental Engineering in The Henry Samueli School of Engineering, the Department of Economics in the School of Social Sciences, and the Department of Planning, Policy, and Design in the School of Social Ecology. The program is designed to educate students in a broad set of competencies and perspectives that mirror the actual practice of current transportation research. The M.S. and Ph.D. degrees in Transportation Science are offered.

Admission

Admission is limited to a small number of exceptionally talented, independent, and self-disciplined students. The deadline for application for admission is March 1 for fall quarter. A second window for application for admission for winter or spring quarters is open from April 15 through June 1 but funding options for this second window may be very limited. All applicants must take the Graduate Record Exam (GRE) prior to the application deadline. Applicants whose first language is not English must also submit Test of English as a Foreign Language (TOEFL) scores.

Master of Science Degree

The M.S. degree program has two options: (1) thesis; and (2) comprehensive examination. Students will choose one of these two options. For both options, no more than 12 credit hours of non-transportation courses can count toward the required number of course-work units. Exceptions must be approved by the student’s advisor and the Director of the Transportation Science program. Opportunities are available for part-time study toward the M.S. degree. The normative time for completion of the M.S. is one year, and the maximum time permitted is four years, as part-time status is allowed.

Transportation courses must be chosen from lists in each of the three program areas. Each student must choose (1) at least three graduate courses from *Area 1 (Transportation Systems Engineering)*, and (2) at least one graduate course from each of *Area 2 (Urban and Transportation Economics)* and *Area 3 (Transportation Planning)*, and at least one additional graduate courses from either of these two areas.

Specific courses in each of these areas are shown below (transportation courses are indicated with an asterisk):

Area 1 (Transportation Systems Engineering)	
ENGRCEE 220A	Travel Demand Analysis I *
ENGRCEE 221A	Transportation Systems Analysis I *
ENGRCEE 224A	Transportation Data Analysis I *
ENGRCEE 225A	Transportation Planning Models I *
ENGRCEE 225B	Transportation Planning Models II *
ENGRCEE 226A	Traffic Flow Theory I *
ENGRCEE 228A	Urban Transportation Networks I *
ENGRCEE 229A	Traffic Systems Operations and Control I
Area 2 (Urban and Transportation Economics) [1]	
ECON 210A- 210B	Microeconomic Theory I and Microeconomic Theory II
ECON 281A- 281B	Urban Economics I and Urban Economics II *
ECON 282A- 282B	Transportation Economics I and Transportation Economics II *
Economics 289 A–Z*	
Area 3 (Transportation Planning)	
PP&D 202	History of Urban Planning
PP&D 207	Development Control Law and Policy
PP&D 212	Transportation Planning *
PP&D 223	Regional Analysis
PP&D 231	Transportation and Environmental Health *
PP&D 233	Transportation, Transit, and Land-Use Policy and Planning *
PP&D 235	Geographic Information Systems (GIS) Problem Solving in Planning
PP&D 237	Introduction to Geographic Information Systems
PP&D 238	Advanced Geographic Information Systems
PP&D 242	Regional Development Theory
PP&D 244	Land-Use Policy
PP&D 252	Issues in Environmental Law and Policy
Pre-approved upper-division undergraduate courses, independent study units, or seminars:	
A. Pre-approved upper-division undergraduate courses:	
ECON 105A- 105B	Intermediate Quantitative Economics I and Intermediate Quantitative Economics II
ECON 123A- 123B	Econometrics I and Econometrics II
ECON 149	Special Topics in Economics of Public and Private Organizations
ENGRCEE 121	Transportation Systems I: Analysis and Design
ENGRCEE 122	Transportation Systems II: Operations & Control
ENGRCEE 123	Transportation Systems III: Planning & Forecasting
ENGRCEE 124	Transportation Systems IV: Freeway Operations and Control
ENGRCEE 125	Transportation and the Environment
B. Independent study units:	
ECON 299	Independent Study
ENGRCEE 296	Master of Science Thesis Research
ENGRCEE 298	Special Topics in Civil Engineering
ENGRCEE 299	Individual Research
PP&D 298	Directed Studies in Urban Planning
PP&D 299	Independent Study in Urban Planning
C. Seminars:	

ECON 285A- 285B- 285C	Colloquium for Transportation Science I and Colloquium for Transportation Science II and Colloquium for Transportation Science III (At most two of these classes may count toward the required units.)
D. Students who choose the thesis option may also select up to eight units of the following:	
ENGRCEE 296	Master of Science Thesis Research (4 to 12 units)
PP&D 298	Directed Studies in Urban Planning (2 to 4 units)

[1] NOTE: ECON 281A-ECON 281B and ECON 282A-ECON 282B require ECON 210A or consent of the instructor. Students can only count one ECON 289 course toward the required number of units.

Substitutions must be approved by the Transportation Science executive committee. Alternatively, students may petition the Director of the Transportation Science program after approval by their advisor.

Plan I: Thesis Option

Students who select the thesis option must complete at least 36 units of study, up to eight of which can be taken in conjunction with the thesis research topic (thesis units should be taken in the home department of the faculty advisor); they must also complete at least 28 units of course work with no more than eight units of pre-approved upper-division undergraduate courses, independent study units, or seminars. The thesis should reflect an original research investigation and it must be approved by a thesis committee of at least three full-time faculty members (a majority of which must be Transportation Science faculty) with primary appointments in at least two of the following departments: Civil and Environmental Engineering, Economics, and Planning, Policy and Design. Thesis research findings must be presented in a public seminar.

Plan II: Comprehensive Examination Option

Students who select the comprehensive examination option must successfully complete 36 units of course work and pass a comprehensive examination. These units may include no more than six units of pre-approved upper-division undergraduate courses, independent study units, or seminars. The comprehensive examination requirements may be met with a 20-page paper dealing with a transportation topic; this paper must be approved by the student's advisor and the Director of the Transportation Science program.

Doctor of Philosophy Degree

The Ph.D. degree indicates attainment of an original and significant research contribution to the state-of-the-art in the candidate's field, and an ability to communicate advanced concepts to a non-specialized audience. All students must complete a core curriculum consisting of eight courses from Civil Engineering, Economics, and Social Ecology plus the graduate colloquium. Students may apply to the Director of Enrollment and Graduate Academic Affairs for exemption from specific courses based upon the evidence of prior course work. Students also must successfully complete at least six courses from among the four specialization areas: (1) Methods and Analysis; (2) Transportation Systems Economics; (3) Traffic Analysis; and (4) Planning and Policy Analysis.

At least four of these six courses must be from one specialization.

Students must complete the following general theory core courses:

Civil Engineering:	
ENGRCEE 220A	Travel Demand Analysis I
ENGRCEE 225A	Transportation Planning Models I
ENGRCEE 225B	Transportation Planning Models II
Urban Planning:	
PP&D 202	History of Urban Planning
or PP&D 212	Transportation Planning
PP&D 223	Regional Analysis
or PP&D 242	Regional Development Theory
Economics:	
ECON 123A- 123B	Econometrics I and Econometrics II
ECON 282A- 282B	Transportation Economics I and Transportation Economics II
Transportation Science:	
ECON 285A- 285B- 285C	Colloquium for Transportation Science I and Colloquium for Transportation Science II and Colloquium for Transportation Science III

It is expected that all students will have sufficient background in one of the core disciplines to be exempted from some of the courses. Substitutions may be approved by the program director.

In addition to the general theory core courses, students must take at least six additional courses chosen from among the four specialization areas below.

Methods and Analysis Specialization	
ECON 220A- 220B- 220C	Statistics & Econometrics I and Statistics & Econometrics II and Statistics & Econometrics III
ECON 223A	Discrete Choice Econometrics
ECON 224A	Time Series Econometrics
ENGRCEE 220B	Travel Demand Analysis II
ENGRCEE 224A	Transportation Data Analysis I
ENGRCEE 225A- 225B	Transportation Planning Models I and Transportation Planning Models II
ENGRCEE 228A	Urban Transportation Networks I
ENGRCEE 283	Mathematical Methods in Engineering Analysis
PP&D 206	Microeconomic Analysis for Urban Planning
PP&D 223	Regional Analysis
PP&D 237	Introduction to Geographic Information Systems
PP&D 238	Advanced Geographic Information Systems
PP&D 242	Regional Development Theory
SOCECOL 264A- 264B	Data Analysis and Data Analysis
SOCECOL 266B	Applied Logistic Regression
SOCECOL 272A	Structural Equation Modeling I
Transportation Systems Economics Specialization	
ECON 241A- 241B	Industrial Organization I and Industrial Organization II
ECON 281A- 281B	Urban Economics I and Urban Economics II
Traffic Analysis Specialization	
ENGRCEE 221A- 221B	Transportation Systems Analysis I and Transportation Systems Analysis II
ENGRCEE 226A- 226B	Traffic Flow Theory I and Traffic Flow Theory II
ENGRCEE 228A	Urban Transportation Networks I
ENGRCEE 229A- 229B	Traffic Systems Operations and Control I and Traffic Systems Operations and Control II
Transportation Planning and Policy Analysis Specialization	
ECON 282A	Transportation Economics I
ENGRCEE 225A- 225B	Transportation Planning Models I and Transportation Planning Models II
PP&D 202	History of Urban Planning
PP&D 207	Development Control Law and Policy
PP&D 212	Transportation Planning
PP&D 235	Geographic Information Systems (GIS) Problem Solving in Planning
PP&D 242	Regional Development Theory
PP&D 244	Land-Use Policy
PP&D 252	Issues in Environmental Law and Policy
PP&D 253	Site Planning
PP&D 275	Special Topics in Urban Planning

Other requirements include a replication project, in which students replicate the empirical work of a published paper from a major transportation journal; the qualifying examination, which consists of the oral defense of the student's dissertation proposal; and completion of the dissertation.

The normative time for advancement to candidacy is three years. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Replication Project

Prior to preparing a dissertation proposal, each student who has not completed a master's thesis (or otherwise independently published) must replicate the empirical work of a published paper from a major transportation journal, chosen by the student and approved by the advisor. This replication may involve the collection of new data, the use of better statistical techniques, additional simulations, or the identification and correction of theoretical errors. Through the replication project, students gain direct experience in reducing a general problem to a manageable research project, in using data, and in carrying out a research project.

Qualifying Examination

Upon completion of the general theory core courses, the specialization area courses, and the replication requirements, each student must develop a dissertation proposal defining the research problem, related literature, research methods, and data resources. The Ph.D. qualifying examination consists of an oral defense of that proposal before a candidacy committee chosen according to normal campus regulations, upon the recommendation of the Graduate Director. Typically, this is a committee of at least three members of the Transportation Science faculty and at least one faculty member who is not associated with Transportation Science.

Dissertation Requirement

Following advancement to candidacy, the dissertation is supervised by a doctoral committee ordinarily consisting of at least three members of the candidacy committee, a majority of which must be Transportation Science faculty. The dissertation must demonstrate the student's ability to originate interesting and significant research problems, to investigate such problems both broadly and deeply, and to write scholarly material of publishable quality. Certification of the dissertation will be by the student's doctoral committee. Dissertation research units should be earned in the department selected by the chair of the candidacy committee (e.g., ECON 290, ENGRCEE 297, or SOCECOL 296).

Research Facilities

UCI is a major research university and has an excellent library collection, as well as special interlibrary loan arrangements with other University of California libraries including the Transportation Library at Berkeley. Research is coordinated with the Irvine branch of the Institute of Transportation Studies (ITS). Approximately 30 to 40 graduate students are employed as research assistants each year in ITS. Research covers a broad spectrum of transportation issues. Current funded research projects focus upon intelligent transportation systems (ITS), particularly advanced transportation management systems; planning and analysis of transportation systems; transportation systems operation and control; transportation engineering; transportation safety; road and congestion pricing; environmental and energy issues and demand for alternative fuel vehicles; public transit operations, transportation-land use interactions, demand for autos, and travel demand.

ITS is part of the University of California Transportation Center, one of ten federally designated centers of excellence for transportation research. The transportation research program at UCI is also supported by the Advanced Transportation Management Systems (ATMS) Laboratories. The Institute maintains a regular publications series documenting research conducted within its programs and is the editorial headquarters of the *Journal of Regional Science.*

Minor in Civic and Community Engagement

The minor in Civic and Community Engagement is an interdisciplinary program that provides students with the knowledge, skills, attitudes, and values to engage as citizens and active community members in the twenty-first century. The minor is distinguished both by what students learn, and by *how* they learn it.

Teaching and learning. The minor introduces students from majors across the campus to the traditions and public movements of service and their historical and contemporary philosophical underpinnings. The minor provides a theoretical and empirical framework to increase students' understanding of public problems (environmental, social, and other) from multiple disciplinary perspectives. Students learn about strategies to address public problems, including through public policy; through the involvement of community-based and nonprofit organizations; and through the cultivation of leadership. The minor helps students build on their major programs of study to make connections between public problems and issues of equity and social justice.

Research. The minor increases students' knowledge of the epistemological and methodological underpinnings of community-based research as a strategy for understanding and addressing public problems.

Service. The minor helps students to ground their understanding of public problems by participating in service-learning opportunities and by reflecting critically on those experiences.

The minor is open to all UCI students. Course descriptions are available in the academic department sections of the *Catalogue*.

More information about the minor in Civic and Community Engagement is available from the Division of Undergraduate Education, at (949) 824-3291 or at cceminor@uci.edu, or view the Minor in Civic and Community Engagement (http://www.due.uci.edu/engagement_minor) website.

Requirements for the Minor

Completion of eight courses (28 units total). A maximum of two courses for the minor may overlap with courses required for a student's major or for another minor.

A. Complete:	
UNI STU 10	Introduction to Civic and Community Engagement
B. Complete:	
UNI STU 100	Doing Research in the Community
C. Select four upper-division elective courses related to public problems and civic and community engagement, from the following:	
Environmental Stewardship:	
BIO SCI E150	Conservation Biology
BIO SCI E181	Conservation in the American West
BIO SCI E189	Environmental Ethics
BIO SCI 191A- 191B	Senior Seminar on Global Sustainability I and Senior Seminar on Global Sustainability II
EARTHSS 180	Environmental Sustainability I
EARTHSS 182	Environmental Sustainability II
EARTHSS 190A- 190B	Senior Seminar on Global Sustainability I and Senior Seminar on Global Sustainability II
ECON 145E	Economics of the Environment
PP&D 131	Environmental Sustainability I
PP&D 132	Environmental Sustainability II
PP&D 139	Water Resource Policy
PUBHLTH 160	Environmental Pollution and Remediation
PUBHLTH 164	Toxic Chemicals in the Environment
SOCECOL 186A- 186B	Senior Seminar on Global Sustainability I and Senior Seminar on Global Sustainability II
SOCECOL 186CW	Writing/Senior Seminar on Global Sustainability III
Educational Equity:	
ASIANAM 139	Asian Americans and Education
CHC/LAT 182	Latina/Latino Access and Persistence in Higher Education
ECON 158	Economics of Education
EDUC 104E	Multimedia and the Arts in the Multicultural Classroom
EDUC 124	Multicultural Education in K-12 Schools
EDUC 128	Exceptional Learners
EDUC 132	Reading and Writing Enrichment for After-School Programs
EDUC 150	Changing the High School Experience
EDUC 160	Foundations of Out-of-School Learning
EDUC 182	Latina/Latino Access and Persistence in Higher Education
SOCECOL 181	Mentors in Higher Eduacation
Health and Communities:	
ANTHRO 128B	Race, Gender, and Science
ANTHRO 134G	HIV/AIDS in a Global Context
ASIANAM 134	Asian American Community Public Health
CHC/LAT 176	Race, Gender, and Science
IN4MATX 171	Introduction to Medical Informatics
INTL ST 122	Nuclear Environments
NUR SCI 170	Community-Based Health Care
PHILOS 131C	Medical Ethics
PP&D 112	Foundations of Community Health
PP&D 170	Health Policy
PUBHLTH 122	Health Policy
PUBHLTH 143	Social Ecology of Health Promotion

PUBHLTH 147	Drug Abuse and Its Prevention
PUBHLTH 167	Air Pollution, Climate, and Health
PUBHLTH 168	Nuclear Environments
PUBHLTH 173	Health and Global Environmental Change
SOCECOL E127	Nuclear Environments
SOCECOL 131	Social Ecology of Health Promotion
GEN&SEX 165B	Sexuality, Health and Medicine
Public History and Public Art:	
AFAM 111A	Modern African American Art
AFAM 111B	Contemporary African American Art
AFAM 138	Topics in African American History
ART 116	Feminist Issues in Art
ART 121	Issues in Race and Representation
ART 123A	Issues in the New Culture Wars
ART HIS 140A	History of Contemporary Art
ART HIS 140B	Topics in Contemporary Art
ART HIS 163	Asian American Art, Contemporary
ART HIS 164A	Modern African American Art
ART HIS 164B	Contemporary African American Art
ART HIS 164C	Topics in African American Art
ASIANAM 137	Asian American Labor
CHC/LAT 132A	Chicana/Chicano History: Pre-Colonial to 1900
CHC/LAT 132B	Chicana/Chicano History: Twentieth Century
CHC/LAT 134	U.S. Latino Literature and Cultures
CHC/LAT 135	Latinas in the Twentieth Century U.S.
COM LIT 100A	Nations, Regions, and Beyond
COM LIT 105	Comparative Multiculturalism
COM LIT 107	Colonialisms and Postcolonialisms
COM LIT 140	Critical Cultural Studies
DANCE 110	World Dance
DRAMA 103	Lectures in Dramatic Literature
DRAMA 122	Asian American Theatre
ENGLISH 105	Multicultural Topics in Literatures in English
HISTORY 130B	Modern Jewish History
HISTORY 142A	California in Modern America
HISTORY 148B	Topics in Multicultural U.S. History
HISTORY 150	Topics in African American History
HISTORY 151A	Chicana/Chicano History: Pre-Colonial to 1900
HISTORY 151B	Chicana/Chicano History: Twentieth Century
HISTORY 151C	Latinas in the Twentieth Century U.S.
HISTORY 152	Topics in Asian-American History
MUSIC 148	Studies in Ethnomusicology
REL STD 106	Topics in Gender and Religion
REL STD 120	Asian Religious Traditions
REL STD 130	Jewish, Islamic, and Middle Eastern Religious Traditions
SPANISH 110C	U.S. Latino Literature and Cultures
Global Citizenship:	
ANTHRO 125X	Transnational Migration
ANTHRO 136D	Conflict Resolution in Cross-Cultural Perspective
CHC/LAT 161	Transnational Migration
CHC/LAT 163	U.S. Immigration Policy
GLBLCLT 191	Global Cultures Senior Seminar

INTL ST 121	Social Ecology of Peace
PP&D 140	Ethics and International Relations
POL SCI 126C	U.S. Immigration Policy
POL SCI 146A	Ethics and International Relations
POL SCI 153E	Human Rights
POL SCI 154G	Conflict Resolution in Cross-Cultural Perspective
POL SCI 172A	International Law
SOCECOL E113	Social Ecology of Peace
Social Justice:	
AFAM 115	Race and Visual Representation
AFAM 117	Asian American and African American Relations
AFAM 124	Race and Gender
AFAM 128	Topics in Gender/Sexuality
ANTHRO 121D	Cross-Cultural Studies in Gender
ASIANAM 138	Race and Urban Space
ASIANAM 161	Ethnic and Racial Communities
ASIANAM 167	Asian American and African American Relations
CHC/LAT 148	Racial and Ethnic Relations in the United States
COM LIT 130	Gender, Sexuality, Race, Class
CRM/LAW C120	Law and Inequality
FLM&MDA 130	Multicultural Topics in the Media
HISTORY 146D	Sex in the U.S. to 1860
HISTORY 146E	Gender in Nineteenth-Century America
HISTORY 146H	Topics in Women and Gender Relations in the United States
HISTORY 152B	Asian American and African American Relations
PHILOS 131A	Applied Ethics
PP&D 102	Urban Inequality
PP&D 113	Poverty in Developing Countries
PSYCH 127G	Gerontology
PSY BEH 114D	Gerontology
SOC SCI 175B	Ethnic and Racial Communities
SOCIOL 167A	Racial and Ethnic Relations in the United States
GEN&SEX 110A	Gender, State, and Nation
GEN&SEX 110B	Money, Sex, and Power
GEN&SEX 157B	Topics in Queer Lives and Knowledge
Leadership and Public Policy:	
AFAM 151	Comparative Minority Politics
ANTHRO 136D	Conflict Resolution in Cross-Cultural Perspective
ASIANAM 132	Comparative Minority Politics
CHC/LAT 147	Comparative Minority Politics
CHC/LAT 152A	Race, Ethnicity, and Social Control
INTL ST 152A	Non-Government Organization (NGO) Fundamentals
PP&D 166	Urban Public Policy
PP&D 169	Public Policy Analysis
POL SCI 121E	Public Policy Analysis
POL SCI 124A	The Politics of Protest
POL SCI 124C	Comparative Minority Politics
POL SCI 126D	Urban Politics and Policy
POL SCI 154G	Conflict Resolution in Cross-Cultural Perspective
SOC SCI 184A	Sage Leader Research I
SOC SCI 184B	Sage Leader Research II
Additional elective courses may be substituted by petition.	

D. Select eight units of an approved internship related to civic and community engagement. Internships will typically be completed over one or more quarters. Internships must be approved for credit toward the minor. [1]

The internship can be completed through the following courses:	
ANTHRO 197	Field Study
ARTS 199	Independent Study
BIO SCI 14	California Teach 1: Introduction to Science and Mathematics Teaching
BIO SCI 101	California Teach 2: Middle School Science and Mathematics Teaching
BIO SCI 102	California Teach 3: High School Science and Mathematics Teaching
CHEM 191	Chemistry Outreach Program
CHC/LAT 191A- 191B- 191C	HABLA: Language Intervention for Disadvantaged Children and HABLA: Language Intervention for Disadvantaged Children and HABLA: Language Intervention for Disadvantaged Children
EDUC 100	Educational Strategies for Tutoring and Teacher Aiding
EDUC 141A- 141B- 141C	Jumpstart I: Early Language, Literacy, and Social Development and Jumpstart I: Early Language, Literacy, and Social Development and Jumpstart I: Early Language, Literacy, and Social Development
EDUC 160L	After-school Programs Fieldwork
ENGR 197A	Educational Strategies for Tutoring and Teacher Aiding
HUMAN 195	Humanities Out There (H.O.T.) Public Humanities Practicum
IN4MATX 117	Project in Software System Design
IN4MATX 132	Project in Human-Computer Interaction Requirements and Evaluation
IN4MATX 163	Project in the Social and Organizational Impacts of Computing
IN4MATX 191A- 191B- 191C	Senior Design Project and Senior Design Project and Senior Design Project
MATH 192	Studies in the Learning and Teaching of Secondary Mathematics
PHY SCI 5	California Teach 1: Introduction to Science and Mathematics Teaching
PHY SCI 105	California Teach 2: Middle School Science and Mathematics Teaching
PHY SCI 106	California Teach 3: High School Science and Mathematics Teaching
PHYSICS 191	Field Experience in Physics Education
PSYCH 141J- 141K- 141L	Jumpstart I: Early Language, Literacy, and Social Development and Jumpstart I: Early Language, Literacy, and Social Development and Jumpstart I: Early Language, Literacy, and Social Development
PSYCH 144A- 144B- 144C	HABLA: Language Intervention for Disadvantaged Children and HABLA: Language Intervention for Disadvantaged Children and HABLA: Language Intervention for Disadvantaged Children
PSYCH 145P- 145Q- 145R	Attention and Learning Deficits in Children I and Attention and Learning Deficits in Children II and Attention and Learning Deficits in Children III
SOCECOL 195	Field Study
SOC SCI 186A- 186B- 186C	HABLA: Language Intervention for Disadvantaged Children and HABLA: Language Intervention for Disadvantaged Children and HABLA: Language Intervention for Disadvantaged Children
SOC SCI 193B- 193C	Field Studies in Public and Community Service and Field Studies in Public and Community Service
SOC SCI 194A	Public Service Internship
SOC SCI 194B	Community Internship
SOC SCI 195A-195B-195C	
SOC SCI 196	Global Connect
SOC SCI 197	Professional Internship
UCDC 170	Washington DC Internship
UNI STU 181	Internship in Civic and Community Engagement

[1] See the Minor in Civic and Community Engagement (http://www.due.uci.edu/engagement_minor) website for a list of hours of community service-learning for internship options.

Residence Requirement for the Minor: Students must complete at least four of the required courses for the minor in residence at UCI.

Minor in Global Sustainability

321 Steinhaus Hall; (949) 824-6006; Fax 949-824-2181
http://www.sustainability.uci.edu/Education/ForStudents.html

Peter A. Bowler, Director of the UCI Arboretum and Herbarium, Faculty Manager of the UC Natural Reserve System Burns Piñon Ridge and San Joaquin Marsh Reserves, and Senior Lecturer with Security of Employment, Ecology and Evolutionary Biology

The interdisciplinary minor in Global Sustainability prepares students to consider the challenges of meeting the needs of the present without compromising the ability of future generations to meet their own needs, with emphasis upon addressing the extreme poverty that afflicts at least 20% of the world's current population. The Earth is a complex system comprised of interactions between its various physical, biological, social, and political components, and human populations have initiated many global trends that cannot be sustained indefinitely. Some of these trends are physiochemical or biological in nature (the depletion of fossil fuels, the accumulation of ozone-depleting chemicals, the destruction of wildlife habitat, and high rates of species extinction), while others are social and political (accelerating urbanization, population displacement, and regional economic imbalance).

As a result, the vitality of the Earth depends upon interdisciplinary and collaborative approaches that draw on the strengths of multiple fields. In this program, students will become aware of the main drivers of climate change, both natural and human-induced, the intrinsic as well as the resource values of species, ecosystems, and communities, and how the loss of cultural diversity and a growing income gap between nations leads to additional pressure for biological resource exploitation. Students will become familiar with foundational sustainability concepts in social practice, governance and allocation, the physical sciences, and the biological sciences to better understand and effectively deal with contemporary environmental and social equity crises.

The minor is open to all UCI students. Courses in addition to those already approved for the minor (below) may be petitioned to the Director, and the list of accepted courses is updated on an annual basis.

Requirements for the Minor

Students are required to complete three introductory courses (12 units), three electives (12 units), one methods course (4 units), and three quarters of a senior capstone sequence (8 units).

A. Introductory Course	
Select one of the following:	
EARTHSS 1	Introduction to Earth System Science
EARTHSS 3	Oceanography
EARTHSS 5	The Atmosphere
EARTHSS 15	Introduction to Global Climate Change
UNI STU 13A	Introduction to Global Sustainability I
B. Introductory Course B	
Select one of the following:	
BIO SCI 6	Tropical Biology: Race to Save the Tropics
BIO SCI 9K/EARTHSS 13	Global-Change Biology
BIO SCI 55	Introduction to Ecology
BIO SCI 65	Biodiversity & Conservation
UNI STU 13B	Introduction to Global Sustainability II
C. Introductory Course C	
Select one of the following:	
ANTHRO 20A	People, Cultures, and Environmental Sustainability
ANTHRO 30A	Global Issues in Anthropological Perspective
ANTHRO 41A	Global Cultures and Society
POL SCI 41A	Introduction to International Relations
PUBHLTH 30	Human Environments
PUBHLTH 60	Environmental Quality and Health
SOCECOL E8	Introduction to Environmental Analysis and Design
SOCIOL 44	Births, Deaths, and Migration
UNI STU 13C	Introduction to Global Sustainability III

D. Electives	
Select three courses from among a list of quarterly approved courses, with each elective course drawn from a different category. Two of the three courses must be upper-division and none of the three courses may overlap with selected introductory courses. As per university policy, students may overlap a maximum of two courses between their major and minor.	
Category 1 - Social Practice (Ethics, Identity, Culture, Wellness, Education Business):	
AFAM 128	Topics in Gender/Sexuality
ANTHRO 20A	People, Cultures, and Environmental Sustainability
ANTHRO 30A	Global Issues in Anthropological Perspective
ART 130C	World Building
HISTORY 12	Introductory Topics in History
HISTORY 100W	Writing About History
HISTORY 190	Colloquium
PHILOS 131A	Applied Ethics
PUBHLTH 60	Environmental Quality and Health
PUBHLTH 90	Natural Disasters
PUBHLTH 124	Environmental and Public Health Policy
PUBHLTH 125	Foundations of Community Health
PUBHLTH 160	Environmental Pollution and Remediation
PUBHLTH 167	Air Pollution, Climate, and Health
PUBHLTH 173	Health and Global Environmental Change
Category 2 - Governance and Allocation (Natural Resource Management, Economics, Development, Poverty Alleviation, Social Justice):	
ANTHRO 125A	Economic Anthropology
ECON 145E	Economics of the Environment
ECON 145FW	Economics of the Environment II
ECON 152A	Economic Anthropology
ECON 164A	The Industrial Revolution in Western Europe
PP&D 4	Introduction to Urban Studies
PP&D 40/SOCIOL 43	Urban Sociology
PP&D 113	Poverty in Developing Countries
PP&D 131/EARTHSS 180	Environmental Sustainability I
PP&D 132/EARTHSS 182	Environmental Sustainability II
PP&D 134	Human Ecology
PP&D 139	Water Resource Policy
PP&D 155	Urban Design Principles
SOC SCI 5D	US & World Geography
SOC SCI 118G	Regional Geography of California
SOC SCI 119	Special Topics in Geography
SOCECOL E8	Introduction to Environmental Analysis and Design
SOCIOL 44	Births, Deaths, and Migration
UNI STU 13C	Introduction to Global Sustainability III
Category 3- Physical Sciences (Earth System Science, Engineering, Computing):	
EARTHSS 1	Introduction to Earth System Science
EARTHSS 3	Oceanography
EARTHSS 5	The Atmosphere
EARTHSS 13/BIO SCI 9K	Global-Change Biology
EARTHSS 15	Introduction to Global Climate Change
EARTHSS 17	Hurricanes, Tsunamis, and other Catastrophes
EARTHSS 19	Introduction to Modeling the Earth System
EARTHSS 21	On Thin Ice: Climate Change and the Cryosphere
EARTHSS 23	Air Pollution: From Urban Smog to Global Change
EARTHSS 51	Land Interactions
EARTHSS 55	Earth's Atmosphere

EARTHSS 60B	Local and Regional Environmental Issues
EARTHSS 60C	Global Environmental Issues
EARTHSS 110	Environmental Controversies
EARTHSS 146	Consequences of Air Pollution
EARTHSS 164/BIO SCI E118	Ecosystem Ecology
EARTHSS 174	Ice in the Climate System
EARTHSS 178	Solving the Energy-Carbon-Climate Problem
EARTHSS 180/PP&D 131	Environmental Sustainability I
EARTHSS 182/PP&D 132	Environmental Sustainability II
ENGRCEE 60	Contemporary and Emerging Environmental Challenges
ENGRCEE 125	Transportation and the Environment
ENGRCEE 160	Environmental Processes
ENGRCEE 167	Ecology of Coastal Waters
ENGRCEE 171	Water Resources Engineering
ENGRMAE 118	Sustainable Energy Systems
ENGRMAE 164	Air Pollution and Control
I&C SCI 5	Global Disruption and Information Technology
IN4MATX 161	Social Analysis of Computerization
UNI STU 13A	Introduction to Global Sustainability I
Category 4 - Biological Sciences (Biology, Ecology, Evolutionary Sciences):	
BIO SCI 9E	Horticulture Science
BIO SCI 23	Sustainable Landscaping: Design and Practices
BIO SCI 55	Introduction to Ecology
BIO SCI 94	From Organisms to Ecosystems
BIO SCI E106	Processes in Ecology and Evolution
BIO SCI E118/EARTHSS 164	Ecosystem Ecology
BIO SCI E120	Marine Biology
BIO SCI E127/EARTHSS 168	Physiological Plant Ecology
BIO SCI E150	Conservation Biology
BIO SCI E172	Plant Diversity in a Changing World
BIO SCI E172L	Plant Systematics Laboratory
BIO SCI E175	Restoration Ecology
BIO SCI E179	Limnology and Freshwater Biology
BIO SCI E182	Mediterranean Ecosystems: Biodiversity and Conservation
BIO SCI E186	Population and Community Ecology
BIO SCI E189	Environmental Ethics
UNI STU 13B	Introduction to Global Sustainability II
E. Methods	
Select one of the following:	
ANTHRO 30B	Ethnography and Anthropological Methods
BIO SCI E166L	Field Biology
EARTHSS 19	Introduction to Modeling the Earth System
EARTHSS 114	Earth System Science Laboratory and Field Methods
EARTHSS 116	Data Analysis for Earth Sciences
ENGR 10	Computational Methods in Engineering
ENGRCEE 11	Methods II: Probability and Statistics
ENGRCEE 20	Introduction to Computational Engineering Problem Solving
PP&D 107	Urban and Regional Planning
PP&D 150	Experience Design
SOCECOL E8	Introduction to Environmental Analysis and Design
SOCECOL 10	Research Design
SOCECOL 13	Statistical Analysis in Social Ecology

SOCIOL 10A- 10B- 10C	Probability and Statistics and Probability and Statistics and Probability and Statistics
F. Senior Capstone Sequence	
BIO SCI 191A- 191B- 191CW	Senior Seminar on Global Sustainability I and Senior Seminar on Global Sustainability II and Writing/Senior Seminar on Global Sustainability III
or	
EARTHSS 190A- 190B- 190CW	Senior Seminar on Global Sustainability I and Senior Seminar on Global Sustainability II and Writing/Senior Seminar on Global Sustainability III
or	
SOCECOL 186A- 186B- 186CW	Senior Seminar on Global Sustainability I and Senior Seminar on Global Sustainability II and Writing/Senior Seminar on Global Sustainability III

Minor in Native American Studies

The minor in Native American Studies (http://faculty.humanities.uci.edu/tcthorne/idp) is an interdisciplinary, interschool program, hemispheric in scope. Focusing on North America and Mesoamerica, the three core courses provide an overview respectively of: pre-Columbian history, worldviews, social organization, religion, and the centrality of place; American Indian diplomacy, law and history since 1776; and a critical assessment of colonialism, evolutionary theory, and ethnography. Upper division offerings, drawing upon research and teaching specializations of faculty from different departments, further enrich the minor with analysis of Native American literature and histories of native Latin America.

The minor is open to all UCI students. Advising information is available from the undergraduate counseling offices in the Schools of Humanities and Social Sciences.

Requirements for the Minor

A. Core Courses:	
HISTORY 12	Introductory Topics in History
HISTORY 15A	Native American History
SOCIOL 65/ANTHRO 85A	Cultures in Collision: Indian-White Relations Since Columbus
B. Select four upper-division courses from the following:	
ANTHRO 121D	Cross-Cultural Studies in Gender
ANTHRO 135A	Religion and Social Order
ANTHRO 162A	Peoples and Cultures of Latin America
ART HIS 175	Studies in Native and Tribal Art
EDUC 124	Multicultural Education in K-12 Schools
HISTORY 161A	Indian and Colonial Societies in Mexico
SOC SCI 175B	Ethnic and Racial Communities
Students may also select from the following courses when the topics presented relate to Native American Studies:	
ANTHRO 149	Special Topics in Archaeology
ANTHRO 169	Special Topics in Area Studies
COM LIT 105	Comparative Multiculturalism
ENGLISH 105	Multicultural Topics in Literatures in English
HISTORY 169	Topics in Latin American History
SOCIOL 149	Special Topics: Structures
SOCIOL 169	Special Topics: Age, Gender, Race, and Ethnicity

Minor in the History and Philosophy of Science

(949) 824-6495
Brian Skyrms, **Director**

The minor in the History and Philosophy of Science is intended for students who wish to study the history of science, the philosophical foundations of scientific inquiry, and the relationship between science and other fields. The history of science explores how science is actually done and how it has influenced history. This may involve tracking down an idea's source or its influences, evaluating the cultural forces at work in the generation of

a scientific theory or the reaction of culture to science, or taking a detailed look at the work of a particular scientist or movement within science. The philosophy of science is concerned with determining what science and mathematics are, accounting for their apparent successes, and resolving problems of philosophical interest that arise in the sciences. Philosophy of science courses cover such topics as the role of logic and language in science and in mathematics, scientific explanation, evidence, and probability. These courses may also cover work that has been done on the philosophical problems in specific sciences—for example, the direction of time in physics, the model of mind in psychology, the structure of evolution theory in biology, and the implications of Gödel's incompleteness theorems for mathematics.

The minor is available to all UCI students.

Requirements for the Minor

A. Select two of the following:	
LPS 31	Introduction to Inductive Logic
LPS 40	The Nature of Scientific Inquiry
HISTORY 60	The Making of Modern Science
B. Select two of the following:	
HISTORY 135B	Crossing the World's Oceans: From Sail to Steam
HISTORY 135D	Maps from Prehistory to the Present
HISTORY 135E	Topics in the History of Science and Technology
PHILOS 110–115 (when topic is science)	
PSYCH 120H	History of Psychology
C. Select three of the following:	
LINGUIS 141	Topics in Philosophy of Language
LPS 106	Topics in Logic
LPS 108	Topics in Induction, Probability, and Decision Theory
LPS 140	Topics in Philosophy of Science
LPS 141A	Topics in Philosophy of Physics
LPS 141B	Geometry and Spacetime
LPS 141C	Philosophy of Quantum Mechanics
LPS 141D	Probability and Determinism
LPS 142W	Writing/Philosophy of Biology
LPS 143	Topics in Philosophy of Psychology
LPS 145	Topics in Philosophy of Language
LPS 146	Topics in Philosophy of Logic
LPS 147	Topics in Philosophy of Mathematics

Undergraduate Major in Business Information Management

As the business environment becomes increasingly global and information-centric, the need has increased for graduates who understand and can use technology that gathers and provides information, who are able to distill and recognize patterns in that information, and who can apply those analyses to achieve business objectives.

The undergraduate Business Information Management major administered by the Donald Bren School of Information and Computer Sciences is a collaborative, interdisciplinary degree program between the Bren School and The Paul Merage School of Business. The program seeks to educate students to understand and then apply the theories and concepts of a broad, integrated curriculum covering computing, informatics, business fundamentals, and analytical decision-making. The major prepares students for a wide variety of careers and life experiences. Business Information Management majors can pursue careers in the for-profit and not-for-profit sectors or can proceed to graduate school in several disciplines, including information systems, computing, economics, business, and law.

The curriculum is presented across three general academic areas: Computing (computer science, informatics, and software); Business Foundations (accounting, finance, marketing, strategy, and operations); and Analytical Methods (mathematics, statistics, economics, management science, and decision analysis). The fundamentals of information and computer science, including the rudiments of software design and construction with an emphasis on data management, provide the foundation for understanding, describing, and evaluating the technology through which most business information is gathered and presented. The business fundamentals, covering all the functional areas in the Merage School, provide a background and context in which information and its analysis will be applied.

Admissions

If the number of Business Information Management applicants exceeds the number of positions available, applicants may be subject to screening beyond minimum University of California admissions requirements.

Freshmen Applicants: See the Undergraduate Admissions (p. 52) section.

Transfer Applicants: Junior-level applicants who satisfactorily complete the following requirements will be given preference for admission:

1. Completion of one year of approved college-level math, preferably courses in calculus equivalent to UCI's MATH 2A-MATH 2B; if not available, two semester courses equivalent to other major-related math courses are acceptable.
2. Completion of one year of transferable computer science courses* with at least one course involving concepts such as those found in Java, Python, C++, or other object-oriented or high-level programming language.
3. Completion of one year of introductory accounting theory and practice equivalent to UCI's MGMT 30A-MGMT 30B.
4. Completion of one year of micro- and macro-economics theory equivalent to UCI's ECON 20A-ECON 20B.

*NOTE: The introductory sequence in ICS has moved to Python. The Bren School of ICS strongly encourages all participants to become familiar with this programming language prior to matriculation. Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major(s) of interest. Java is used extensively in the curriculum; therefore, transfer students should plan to learn it by studying on their own or by completing a Java-related programming course prior to their first quarter at UCI.

Additional courses beyond those required for admission must be taken to fulfill the lower-division degree requirements, as many are prerequisites for upper-division courses. For some transfer students, this may mean that it will take longer than two years to complete their degree.

More information is available at the Bren School of ICS Student Affairs Office (http://www.ics.uci.edu/ugrad) website; or at the Bren School of ICS Student Affairs Office; telephone (949) 824-5156; e-mail: ucounsel@uci.edu.

Requirements for the B.S. Degree in Business Information Management

All students must meet the University Requirements (p. 71)**.**

Major Requirements

A. Lower-Division: Select one of the following course groups:	
Group 1	
I&C SCI 31	Introduction to Programming
I&C SCI 32	Programming with Software Libraries
I&C SCI 33	Intermediate Programming
I&C SCI 45J	Programming in Java as a Second Language
Group 2	
IN4MATX 41	Informatics Core Course I
IN4MATX 42	Informatics Core Course II
and either	
IN4MATX 45	Patterns of Software Construction [1]
or I&C SCI 46	Data Structure Implementation and Analysis
Group 3	
I&C SCI 21	Introduction to Computer Science I
I&C SCI 22	Introduction to Computer Science II
and either	
IN4MATX 45	Patterns of Software Construction [1]
or I&C SCI 46	Data Structure Implementation and Analysis
B. Complete the following:	
IN4MATX 43	Introduction to Software Engineering
or I&C SCI 52	Introduction to Software Engineering
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
I&C SCI 6D	Discrete Mathematics for Computer Science
MATH 6G	Linear Algebra
or I&C SCI 6N	Computational Linear Algebra
C. Select one of the following:	

STATS 7	Basic Statistics [2]
or STATS 8	Introduction to Biological Statistics
or STATS 67	Introduction to Probability and Statistics for Computer Science
D. Complete the following:	
ECON 20A- 20B	Basic Economics I and Basic Economics II
MGMT 30A- 30B	Principles of Accounting I and Principles of Accounting II
E. Upper-Division Core:	
MGMT 101	Management Science
MGMT 102	Managing Organizational Behavior
MGMT 105	Introduction to Marketing
MGMT 107	Introduction to Management Information Systems
MGMT 109	Introduction to Managerial Finance
MGMT 110	Strategic Management
MGMT 173	Business Intelligence for Analytical Decisions
MGMT 178	Management of Information Technology
MGMT 189	Operations Management
COMPSCI 121/IN4MATX 141	Information Retrieval
COMPSCI 122A/EECS 116	Introduction to Data Management
IN4MATX 113	Requirements Analysis and Engineering
IN4MATX 143	Information Visualization
STATS 110	Statistical Methods for Data Analysis I
F. Electives:	

Select five upper-division courses, except independent study and internships, with at least three of the five courses to be taken within the Bren School. Upper-division courses completed via the UC Education Abroad Program may also be utilized toward this requirement upon prior approval by the Bren School of ICS Student Affairs Office.

1. The prerequisite for I&C SCI 46 is I&C SCI 45C. Students completing this sequence must meet course prerequisites as indicated in the UCI General Catalog.

2. MGMT 7or any other Statistics course will not be accepted as a substitute for the STATS 7, STATS 8, or STATS 67 requirement. Please check with the ICS Student Affairs Office if considering a course outside of these options.

NOTE: Students majoring in Business Information Management may not double major in Business Administration nor minor in Management, Informatics, or Information and Computer Science.

Sample Program of Study — Business Information Management

Freshman		
Fall	**Winter**	**Spring**
ECON 20A	ECON 20B	IN4MATX 43
MATH 2A	MATH 2B	WRITING 39C
WRITING 39A	WRITING 39B	STATS 7, 8, or 67
		GE VI
Sophomore		
Fall	**Winter**	**Spring**
I&C SCI 31	I&C SCI 32	I&C SCI 33
I&C SCI 6D	I&C SCI 6N or MATH 6G	MGMT 102
MGMT 30A	MGMT 30B	GE III
	GE IV	GE IV
Junior		
Fall	**Winter**	**Spring**
I&C SCI 45J	COMPSCI 122A	IN4MATX 143
MGMT 107	IN4MATX 113	MGMT 105
I&C SCI UD Elective	MGMT 101	GE VII
GE IV	MGMT 178	UD Writing

Senior		
Fall	**Winter**	**Spring**
MGMT 109	COMPSCI 121	I&C SCI UD Elective
MGMT 173	MGMT 110	UD Elective
STATS 110	MGMT 189	GE VIII
I&C SCI UD Elective	UD Elective	

NOTES:

1. Students are advised that this sample program lists the minimum requirements; it is possible that students may have to take additional courses to prepare for required courses.

2. The lower-division writing requirement must be completed by the end of the seventh quarter at UCI.

3. It is strongly recommended that students meet with an academic advisor to create an academic plan tailored to meet their specific areas of interest.

Undergraduate Major in Computer Science and Engineering

The undergraduate program in Computer Science and Engineering is administered by faculty from two academic units: the Department of Computer Science (CS) in the Donald Bren School of Information and Computer Sciences, and the Department of Electrical Engineering and Computer Sciences (EECS) in The Henry Samueli School of Engineering. For faculty listings click on the tab above. Successful completion of the program leads to a B.S. degree in Computer Science and Engineering.

Program Educational Objectives: Graduates of the program will: (1) establish a productive Computer Science and Engineering career in industry, government, or academia; (2) engage in professional practice of computer systems engineering and software systems engineering; (3) promote the development of innovative systems and solutions using hardware and software integration; (4) promote design, research, and implementation of products and services in the field of Computer Science and Engineering through strong communication, leadership, and entrepreneurial skills.

(Program educational objectives are those aspects of computer science and engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.)

This program is designed to provide students with the fundamentals of computer science, both hardware and software, and the application of engineering concepts, techniques, and methods to both computer systems engineering and software system design. The program gives students access to multidisciplinary problems in engineering with a focus on total systems engineering. Students learn the computer science principles that are critical to development of software, hardware, and networking of computer systems. From that background, engineering concepts and methods are added to give students exposure to circuit design, network design, and digital signal processing. Elements of engineering practice include systems view, manufacturing and economic issues, and multidisciplinary engineering applications.

Career Paths. Most likely careers will involve building the computer-based infrastructure—computers, networks, embedded devices, as well as operating systems, compilers, and networking software. The focus is on cooperation between hardware and software to yield the highest performance. Examples of such problem areas would be in traffic management, flight control, earthquake monitoring, automotive control, and smart homes.

Admissions

High School Students: Students must have completed four years of mathematics through pre-calculus or math analysis and are advised to have completed one year each of chemistry and physics. One semester of programming course work is also advised. That preparation, along with honors courses and advanced placement courses, is fundamental to success in the program.

The Henry Samueli School of Engineering recommends that freshmen applicants in Engineering majors take the SAT Subject Test, Math Level 2.

Transfer Students. Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer, including one year of approved calculus; one year of calculus-based physics with laboratories (mechanics, electricity and magnetism); one year of transferable computer science courses[1] involving concepts such as those found in Java, Python, C++, or other object-oriented, high-level programming language, and one additional approved transferable course for the major (an approved math, science, or CSE course).

1 Additional computer science courses beyond the two required are strongly recommended, particularly those that align with the major of interest. Java and C++ are used in the curriculum; therefore, transfer students should plan to learn these languages by studying on their own or by completing related programming courses prior to their first quarter at UCI.

Students who enroll at UCI in need of completing lower-division course work may find that it will take longer than two years to complete their degrees. For further information, contact the Donald Bren School of Information and Computer Sciences at 949-824-5156 or The Henry Samueli School of Engineering at 949-824-4334.

Change of Major

Students interested in changing their major to Computer Science and Engineering should contact the Student Affairs Office in the Bren School of ICS or The Henry Samueli School of Engineering for information about change-of-major requirements. Information is also available at UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Requirements for the B.S. Degree in Computer Science and Engineering

All students must meet the University Requirements (p. 71)**.**

Major Requirements

Mathematics and Basic Science Courses	
Mathematics Courses: Students must complete a minimum of 32 units of mathematics including:	
I&C SCI 6B	Boolean Algebra and Logic
I&C SCI 6D	Discrete Mathematics for Computer Science
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
STATS 67	Introduction to Probability and Statistics for Computer Science
Basic Science Courses: Students must complete a minimum of 18 units of basic science courses including:	
PHYSICS 7C- 7LC	Classical Physics and Classical Physics Laboratory
PHYSICS 7D- 7LD	Classical Physics and Classical Physics Laboratory
Students select, with the approval of a faculty advisor, two additional basic science courses needed to satisfy school and department requirements.	
Engineering and Computing Topics Courses	
Students must complete a minimum of 72 units of engineering topics, 24 units of engineering design, and 63 units of computing topics. All courses below qualify as engineering topics; those marked with an asterisk (*) qualify as computing topics also. The following courses must be completed:	
COMPSCI 132/EECS 148	Computer Networks *
COMPSCI 143A	Principles of Operating Systems *
or	
EECS 111	System Software *
CSE 31	Introduction to Digital Systems *
CSE 31L	Introduction to Digital Logic Laboratory *
CSE 41	Introduction to Programming *
CSE 42	Programming with Software Libraries *
CSE 43	Intermediate Programming *
CSE 45C	Programming in C/C++ as a Second Language *
CSE 46	Data Structure Implementation and Analysis *
CSE 50	Discrete-Time Signals and Systems
CSE 70A	Network Analysis I
CSE 90	Systems Engineering and Technical Communications
CSE 112	Electronic Devices and Circuits
CSE 132	Organization of Digital Computers *
CSE 132L	Organization of Digital Computers Laboratory *
CSE 135A	Digital Signal Processing
CSE 135B	Digital Signal Processing Design and Laboratory
CSE 141	Concepts in Programming Languages I *
CSE 142	Compilers and Interpreters *
CSE 145A	Embedded Computing Systems *
CSE 145B	Embedded Computing System Lab *

CSE 161	Design and Analysis of Algorithms *
CSE 181A- 181B- 181CW	Senior Design Project and Senior Design Project and Senior Design Project
IN4MATX 43	Introduction to Software Engineering *

Students select, with the approval of a faculty advisor, any additional engineering and computer topics courses needed to satisfy school and department requirements.

Technical Elective Courses:

Students must complete a minimum of two courses (with 3 or more units each) of technical electives. A technical elective may be any upper-division course from the Departments of Computer Science, Electrical Engineering and Computer Science, or Informatics, not otherwise used for the CSE degree, chosen from the following ranges:

Computer Science: 100–189

Electrical Engineering and Computing Science: 100–189

Informatics: 100–139

(The nominal Computer Science and Engineering program will require 188 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary).

NOTE: Students majoring in Computer Science and Engineering may not complete the major in Computer Engineering, the major in Computer Science, the major or minor in Information and Computer Science, or the minor in Informatics.

Sample Program of Study — Computer Science and Engineering

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
CSE 41	CSE 42	CSE 43
General Education	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
General Education	General Education	CSE 31
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	I&C SCI 6B
I&C SCI 6D	CSE 46	CSE 50
CSE 31L	CSE 70A	CSE 90
CSE 45C	Science Elective	General Education
Junior		
Fall	**Winter**	**Spring**
IN4MATX 43	STATS 67	COMPSCI 143A
CSE 112	CSE 132L	CSE 142
CSE 132	CSE 141	CSE 145A- 145B
CSE 161	General Education	
Senior		
Fall	**Winter**	**Spring**
CSE 181A	CSE 181B	CSE 181CW
CSE 135A	CSE 135B	Technical Elective
EECS 148	Technical Elective	Science Elective
General Education	General Education	General Education
	General Education	

Courses

CSE 21. Introduction to Computer Science I . 6 Units.
Introduces fundamental concepts related to computer software design and construction. Develops initial design and programming skills using a high-level language. Fundamental concepts of control structures, data structures, and object-oriented programming.

Same as I&C SCI 21.
Overlaps with I&C SCI H21, I&C SCI 31, EECS 10, EECS 12, ENGRMAE 10.

Restriction: CSE 21 or I&C SCI 21 may not be taken for credit if taken after IN4MATX 42.

(II, Vb)

CSE 22. Introduction to Computer Science II. 6 Units.
Abstract behavior of classic data structures (stacks, queues, sorted and unsorted maps), alternative implementations, analysis of time, and space efficiency.

Prerequisite: CSE 21 or I&C SCI 21 or I&C SCI H21. CSE 21 with a grade of C or better. I&C SCI 21 with a grade of C or better. I&C SCI H21 with a grade of C or better.

Same as I&C SCI 22.
Overlaps with I&C SCI H22, CSE 22, CSE 42, I&C SCI 32, CSE 43.

(II, Vb)

CSE 31. Introduction to Digital Systems. 4 Units.
Digital representation of information. Specification, analysis, design and optimization or combinational and sequential logic, register-transfer components and register-transfer systems with datapaths and controllers. Introduction to high-level and algorithmic state-machines and custom processors. Course may be offered online.

(Design units: 2)

Prerequisite: CSE 41 or I&C SCI 31 or EECS 10 or EECS 12 or ENGRMAE 10 or CSE 21 or I&C SCI 21 or I&C SCI H21.

Same as EECS 31.

Restriction: Computer Engineering, Computer Science and Engineering, Electrical Engineering majors have first consideration for enrollment.

CSE 31L. Introduction to Digital Logic Laboratory. 3 Units.
Introduction to common digital integrated circuits: gates, memory circuits, MSI components. Operating characteristics, specifications, applications. Design of simple combinational and sequential digital systems (arithmetic processors game-playing machines). Construction and debugging techniques using hardware description languages and CAD tools. Materials fee. Course may be offered online.

(Design units: 3)

Prerequisite: (EECS 31 or CSE 31) and (EECS 10 or EECS 12 or (CSE 22 or I&C SCI 22) or (CSE 42 or I&C SCI 32)).

Same as EECS 31L.

Restriction: Computer Engineering, Computer Science and Engineering, and Electrical Engineering majors have first consideration for enrollment.

CSE 41. Introduction to Programming. 4 Units.
Introduction to fundamental concepts and techniques for writing software in a high-level programming language. Covers the syntax and semantics of data types, expressions, exceptions, control structures, input/output, methods, classes, and pragmatics of programming.

Same as I&C SCI 31.
Overlaps with I&C SCI 21, CSE 21, I&C SCI H21, EECS 10, EECS 12.

(II, Vb)

CSE 42. Programming with Software Libraries. 4 Units.
Construction of programs for problems and computing environments more varied than in CSE41. Using library modules for applications such as graphics, sound, GUI, database, Web, and network programming. Language features beyond those in CSE41 are introduced as needed.

Prerequisite: I&C SCI 31 or CSE 41. I&C SCI 31 with a grade of C or better. CSE 41 with a grade of C or better.

Same as I&C SCI 32.
Overlaps with I&C SCI 22, CSE 22, I&C SCI H22, IN4MATX 42.

(II and (VA or VB)).

CSE 43. Intermediate Programming. 4 Units.
Intermediate-level language features and programming concepts for larger, more complex, higher-quality software. Functional programming, name spaces, modules, class protocols, inheritance, iterators, generators, operator overloading, reflection. Analysis of time and space efficiency.

Prerequisite: I&C SCI 32 or CSE 42. I&C SCI 32 with a grade of C or better. CSE 42 with a grade of C or better.

Same as I&C SCI 33.
Overlaps with I&C SCI 33, I&C SCI 22, CSE 22, I&C SCI H22, IN4MATX 42.

(II, Vb)

CSE 45C. Programming in C/C++ as a Second Language. 4 Units.
An introduction to the lexical, syntactic, semantic, and pragmatic characteristics of the C/C++ languages for experienced programmers. Emphasis on object-oriented programming, using standard libraries, and programming with manual garbage collection. Formerly ICS 65.

Prerequisite: I&C SCI 22 or CSE 22 or IN4MATX 42 or I&C SCI 33 or CSE 43. I&C SCI 22 with a grade of C or better. CSE 22 with a grade of C or better. IN4MATX 42 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Same as I&C SCI 45C.

CSE 46. Data Structure Implementation and Analysis. 4 Units.
Focuses on implementation and mathematical analysis of fundamental data structures and algorithms. Covers storage allocation and memory management techniques.

Prerequisite: CSE 45C or I&C SCI 45C. CSE 45C with a grade of C or better. I&C SCI 45C with a grade of C or better.

Same as I&C SCI 46.
Overlaps with I&C SCI H23.

(Vb)

CSE 50. Discrete-Time Signals and Systems. 4 Units.
Analysis of discrete-time linear-time-invariant (DTLTI) systems in the time domain and using z-transforms. Introduction to techniques based on Discrete-Time, Discrete, and Fast Fourier Transforms. Examples of their application to digital signal processing and digital communications.

(Design units: 0)

Prerequisite: EECS 70A or CSE 70A.

Same as EECS 50.

Restriction: Computer Engineering, Computer Science and Engineering, and Electrical Engineering majors have first consideration for enrollment.

CSE 70A. Network Analysis I. 4 Units.
Modeling and analysis of electrical networks. Basic network theorems. Sinusoidal steady state and transient analysis of RLC networks and the impedance concept.

(Design units: 1)

Corequisite: MATH 3D.
Prerequisite: PHYSICS 7D and (EECS 10 or EECS 12 or ENGRMAE 10 or CSE 41 or I&C SCI 31).

Same as EECS 70A.
Overlaps with ENGRMAE 60.

Restriction: Aerospace Engineering, Biomedical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Environmental Engineering, Materials Science Engineering, and Mechanical Engineering majors have first consideration for enrollment.

CSE 90. Systems Engineering and Technical Communications . 2 Units.
Introduces systems engineering concepts, including specifications and requirements, hardware and software design, integration, testing, and documentation. Emphasizes organization and writing of reports and effective presentations.

Restriction: Computer Science and Engineering majors have first consideration for enrollment.

CSE 112. Electronic Devices and Circuits. 4 Units.
A first course in the design of Very Large Scale Integrated (VLSI) systems. Introduction to CMOS technology; MOS transistors and CMOS circuits. Analysis and synthesis of CMOS gates. Layout design techniques for building blocks and systems. Introduction to CAD tools.

(Design units: 4)

Prerequisite: PHYSICS 7D and (CSE 70A or EECS 70A).

Overlaps with EECS 119, EECS 170D.

Restriction: Computer Science and Engineering majors have first consideration for enrollment.

CSE 132. Organization of Digital Computers. 4 Units.
Building blocks and organization of digital computers, the arithmetic, control, and memory units, and input/out devices and interfaces. Microprogramming and microprocessors.

(Design units: 4)

Prerequisite: EECS 31L or CSE 31L.

Same as EECS 112.
Overlaps with COMPSCI 152.

Restriction: Computer Engineering, Computer Science and Engineering, and Electrical Engineering majors have first consideration for enrollment.

CSE 132L. Organization of Digital Computers Laboratory. 3 Units.
Specification and implementation of a processor-based system using a hardware description language such as VHDL. Hands-on experience with design tools including simulation, synthesis, and evaluation using testbenches.

(Design units: 3)

Prerequisite: EECS 112 or CSE 132.

Same as EECS 112L.

Restriction: Computer Engineering and Computer Science and Engineering majors have first consideration for enrollment.

CSE 135A. Digital Signal Processing. 3 Units.
Nature of sampled data, sampling theorem, difference equations, data holds, z-transform, w-transform, digital filters, Butterworth and Chebychev filters, quantization effects.

(Design units: 2)

Prerequisite: EECS 50 or CSE 50.

Same as EECS 152A.

Restriction: Computer Engineering, Electrical Engineering, and Computer Science and Engineering majors have first consideration for enrollment.

CSE 135B. Digital Signal Processing Design and Laboratory. 3 Units.
Design and implementation of algorithms on a DSP processor and using computer simulation. Applications in signal and image processing, communications, radar, etc. Materials fee.

(Design units: 3)

Prerequisite: EECS 152A or CSE 135A.

Same as EECS 152B.

Restriction: Computer Engineering, Electrical Engineering, and Computer Science and Engineering majors have first consideration for enrollment.

CSE 141. Concepts in Programming Languages I. 4 Units.
In-depth study of several contemporary programming languages stressing variety in data structures, operations, notation, and control. Examination of different programming paradigms, such as logic programming, functional programming and object-oriented programming; implementation strategies, programming environments, and programming style. Course may be offered online.

Prerequisite: (IN4MATX 42 or I&C SCI 51 or CSE 31 or EECS 31) and (IN4MATX 45 or I&C SCI 46 or CSE 46 or I&C SCI 33 or CSE 43). IN4MATX 42 with a grade of C or better. I&C SCI 51 with a grade of C or better. CSE 31 with a grade of C or better. EECS 31 with a grade of C or better. IN4MATX 45 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better. I&C SCI 33 with a grade of C or better. CSE 43 with a grade of C or better.

Same as IN4MATX 101, COMPSCI 141.

CSE 142. Compilers and Interpreters. 4 Units.
Introduction to the theory of programming language processors covering lexical analysis, syntax analysis, semantic analysis, intermediate representations, code generation, optimization, interpretation, and run-time support.

Prerequisite: CSE 141 or COMPSCI 141 or IN4MATX 101.

Same as COMPSCI 142A.

CSE 145A. Embedded Computing Systems. 4 Units.
Principles of embedded computing systems: embedded systems architecture, hardware/software components, system software and interfacing, real-time operating systems, hardware/software co-development, and communication issues. Examples of embedded computing in real-world application domains. Simple programming using an embedded systems development environment.

Corequisite: COMPSCI 145B.
Prerequisite: (CSE 46 or I&C SCI 46 or CSE 23 or I&C SCI 23 or I&C SCI 51 or CSE 31 or EECS 31).

Same as COMPSCI 145A.

CSE 145B. Embedded Computing System Lab. 2 Units.
Laboratory section to accompany CSE 145A or COMPSCI 145A.

(Design units: 0)

Corequisite: CSE145A or COMPSCI 145A.

Same as COMPSCI 145B.

CSE 161. Design and Analysis of Algorithms. 4 Units.
Techniques for efficient algorithm design, including divide-and-conquer and dynamic programming, and time/space analysis. Fast algorithms for problems applicable to networks, computer games, and scientific computing, such as sorting, shortest paths, minimum spanning trees, network flow, and pattern matching.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and I&C SCI 6B and I&C SCI 6D and MATH 2B. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

Same as COMPSCI 161.

CSE 181A. Senior Design Project. 3 Units.
Teaches problem definition, detailed design, integration and testability with teams of students specifying, designing, building, and testing complex systems. Lectures include engineering values, discussions, and ethical ramifications of engineering decisions. Materials fee.

(Design units: 3)

Corequisite: CSE 135A or EECS 152A.
Prerequisite: (COMPSCI 143A or EECS 111) and (CSE 145A or COMPSCI 145A). CSE 181A-CSE 181B-CSE 181C must be taken in the same academic year.

Restriction: Computer Science and Engineering majors have first consideration for enrollment.

CSE 181B. Senior Design Project. 3 Units.
Teaches problem definition, detailed design, integration and testability with teams of students specifying, designing, building, and testing complex systems. Lectures include engineering values, discussions, and ethical ramifications of engineering decisions. Materials fee.

(Design units: 3)

Prerequisite: CSE 181A.

Restriction: Computer Science and Engineering majors have first consideration for enrollment. CSE 181A-B-C must be taken in the same academic year.

CSE 181CW. Senior Design Project. 3 Units.
Completion, documentation, and presentation of projects started in CSE 181A-CSE 181B. Teaches engineering documentation writing and presentation skills. Students write comprehensive project reports individually. Each student participates in a public presentation of the project's results.

Prerequisite: CSE 181A and CSE 181B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Computer Science and Engineering majors have first consideration for enrollment.

(Ib)

CSE 198. Group Study. 1-4 Units.
Group study of selected topics in computer science and engineering.

(Design units: 0-4)

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

Restriction: Computer Science and Engineering majors only.

CSE H198. Honors Research in CSE. 4 Units.
Directed independent research in computer science and engineering for honors students.

Repeatability: May be repeated for credit unlimited times.

Restriction: Computer Science and Engineering majors only. Upper-division students only. Bren School of ICS Honors Program or Campuswide Honors Program students only.

CSE 199. Individual Study. 1-4 Units.
Supervised independent reading, research, or design for undergraduate Engineering majors. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Repeatability: May be taken for credit for 8 units.

CSE 199P. Individual Study. 1-4 Units.
Supervised independent reading, research, or design for undergraduate Engineering majors. Students taking individual study for design credit are to submit a written paper to the instructor and to the Undergraduate Student Affairs Office in the School of Engineering.

(Design units: 1-4)

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

School of Law

Erwin Chemerinsky, **Dean**

General Information: law@uci.edu
http://www.law.uci.edu/

Overview

The School of Law offers the Juris Doctor (J.D.) degree through an innovative curriculum that includes in-depth study of legal doctrine, emphasizes experiential learning and clinical experience, and provides the professional training in lawyering skills necessary for the practice of law at the highest level of the profession. A hallmark of the School is that every student is required to have a clinical experience or equivalent in order to graduate.

Notably, the School of Law also participates in the UC Irvine Program in Law and Graduate Studies, a concurrent degree program that enables qualified students to pursue a doctoral or master's degree in a cognate field at the same time they are pursuing their law degree. Several current students, for example, are pursuing concurrent J.D./Ph.D. degrees, J.D./M.A. degrees, or J.D./M.B.A. degrees.

The School of Law builds on UCI's existing strengths in emerging technology, social policy, international business, environmental science and policy, health care, and other fields to produce leaders in law, government, and business for the twenty-first century. UCI Law graduates are encouraged to pursue careers in public service, including non-governmental organizations and philanthropic agencies. The School works aggressively to place students on their chosen career path whether that be with a private law firm, public interest or legal services office, government agency, and/or in a judicial clerkship. A wide array of employers from both the public and private sectors come to interview students on campus for summer positions and externships.

The School of Law has been granted provisional accreditation by the American Bar Association. A student at a provisionally approved law school and an individual who graduates while the school is provisionally approved are entitled to the same recognition given to students and graduates of fully approved law schools. The School was granted full accreditation by the American Bar Association (ABA) on June 6, 2014.

The School of Law seeks to enroll outstanding students who reflect a wide diversity of life experiences. Further information about admission requirements, application deadlines, tuition and fees, and curriculum is updated regularly on the School of Law (http://www.law.uci.edu) website.

Degree

Law	J.D.

In addition, concurrent degree study (J.D./Ph.D. and J.D./Master's) is available under the auspices of UC Irvine's Program in Law and Graduate Studies, which is described later in the School of Law section.

Juris Doctor (J.D.) Requirements

Graduation Requirements

To earn the Juris Doctor, students must complete six semesters of study, earn 86 law semester credits, pass all required classes, complete the upper-level writing requirement, and have a minimum 2.0 (C) grade point average.

All students must complete at least 68 credits in regularly scheduled Law School classes.

"Regularly scheduled Law School classes" include

- Law School courses and seminars, including courses cross-listed at the Law School but originating in another school or department at the University;
- Law School clinics and clinical placements approved by the Associate Dean for Clinical Education and Service Learning;
- credits from another ABA-approved law school or from approved study in a foreign exchange program.

"Regularly scheduled Law School classes" do not include

- independent study work;
- non-law classes;
- research tutorials;
- externships (other than those deemed to meet the Law School's clinical requirement).

No more than 8 units of *optional* credit/no credit course work will count toward the 86-unit degree requirement.

First-Year Course Work Requirements

Students must pass all UCI Law School first-year courses, or their substantial equivalents, with grades of 1.0 (D) or higher. The Assistant Dean for Student Services will determine whether classes taken at another law school are sufficient for transfer students to meet the UCI Law first-year course work requirement. If not, the student will be notified which courses are needed to complete the requirement.

Upper-Level Academic Requirements

1. **Writing Requirement**
   Students must complete at least one course where they are required to produce a major writing project with frequent feedback from a faculty member. This might include seminars, independent studies, or other work, so long as it involves substantial original analysis and research, multiple drafts, and is certified by the faculty members as meeting this requirement.
   a. At the completion of the first-year lawyering skills course, students will have a meeting with their professor and receive advice on the type of writing assistance they need and approaches they should consider in meeting the upper-level writing requirement.
   b. Students are strongly encouraged to develop a portfolio over the course of law school that will include all of their major written work and other forms of presentation.
2. **Clinical Requirement**
   All students are required to complete at least one semester of clinical education, either in a Law School clinic or at a clinical placement that is approved by the Associate Dean of Clinical Education and Service Learning. This shall involve a live client or other real-life practical experience, appropriately supervised and designed to encourage reflection by students on their experiences and on the values and responsibilities of the legal profession, and the development of one's ability to assess his or her performance and level of competence.

First-Year Curriculum

UCI School of Law has an innovative curriculum designed to prepare students for the practice of law at the highest levels of the profession. Traditional areas of legal doctrine are covered in the first year, but in a novel way that focuses on training students in five methods of legal analysis: statutory, common law, procedural, constitutional, and international. The course on Statutory Analysis, for example, uses criminal law as the vehicle for teaching students to read and interpret statutes.

One of UCI's signature first-year courses, Legal Profession, exposes students to the economics, sociology, and psychology of a legal career. The course also emphasizes professional ethics. Panels of attorneys from a wide range of practice areas speak to students throughout the year about ethical dilemmas they confront as well as their work and careers.

Throughout both the first-year and upper-level curriculum there is great emphasis on incorporating skills training into traditional classes. The first-year Legal Skills class teaches fact investigation, interviewing, legal writing and analysis, extensive legal research, negotiation and oral advocacy. In addition, all first-year students are assigned a lawyer mentor and are required to spend a specified number of hours observing that lawyer at work.

UCI has an active pro bono program in which students engage in volunteer legal work on behalf of underserved populations as early as their first year.

All first-year students enroll in the courses below. Additional information is available at the School of Law Curriculum (http://www.law.uci.edu/academics/curriculum.html) website.

Common Law Analysis: Contracts (4). This course will focus primarily on the common law of contracts to teach this method of analysis, in which the law is derived from judicial decisions rather than statutes or the Constitution.

Statutory Analysis (3). This course will use criminal law as a basis for teaching students the methods employed in all areas of law for analyzing statutes.

Procedural Analysis (4). This course will use civil procedure as the foundation for teaching students about areas of law in which there are procedural rules, and how analysis and arguments are made in such contexts.

Lawyering Skills I (3). This course, which will be part of both semesters, will focus on teaching skills that all lawyers use, such as fact investigation, interviewing, legal writing and analysis, legal research, negotiation and oral advocacy.

Legal Profession I (2). This course, which will be part of both semesters, is designed to prepare students to chart rewarding and responsible careers in law. Drawing from various disciplines, including economics, history, sociology, and psychology, we will teach students about the variety of practice settings in which lawyers work and the professional opportunities and challenges of each.

Common Law Analysis: Torts (4). This course will use torts as a way of further examining the common law, and how lawyers reason and develop arguments in this area.

Constitutional Analysis (4). This course will teach students basic areas of constitutional law such as separation of powers, federalism, and individual liberties. It will focus on how constitutional arguments are made, and how courts and lawyers analyze constitutional issues.

International Legal Analysis (3). This course will introduce students to international law and the ways that analyses in this area are similar to and different from analysis in other areas of law.

Lawyering Skills II (3). In the spring semester of this two-semester course, all students will gain experience in a legal clinic setting, where they will conduct intake interviews of actual clients at one or more legal services organization such as: The Learning Rights Center of Los Angeles, the Legal Aid Foundation of Los Angeles, the Legal Aid Society of Orange County, the Public Law Center, the United States Marines Corp Base at Camp Pendleton, and the UCI Consumer Protection Clinic.

Legal Profession II (2). Continuation of fall semester course.

Legal Research (1). This course prepares students to take on varied and challenging research assignemnts typically encountered at school and in the workplace.

Upper-Level Courses

Below is an overview of the upper-level courses taught at UC Irvine School of Law. Not every course will be offered each year, and additional courses not listed may be offered. Additional information is available at School of Law Curriculum (http://www.law.uci.edu/academics/curriculum.html) website. Course descriptions, content, and requirements are subject to change.

General Courses

Administrative Law
Business Associations
Constitutional Law: First Amendment
Criminal Procedure
Evidence
Federal Courts
Federal Criminal Law
Federal Income Taxation
Property
Remedies
The Federal Judge

Business Law

Accounting and Finance for Lawyers
Advanced Legal Writing: Business Drafting
Antitrust
Antitrust Law & IP Rights
Bankruptcy Law
Business and Economics of Law Firm Practice
Business and Regulation of Fund Investors
Business Torts
Commercial Transactions
Corporate Finance
Insurance Law and Policy
Investment Management Regulation
Law and Theory Relating to the 2008 Financial Crisis
Mergers and Acquisitions
Organizations, Operations, and Tax Aspects of Public Charities and Private Foundations
Public Companies
Representing Business Clients
SEC Enforcement Process
Secured Credit
Securities Regulation
Statistics for Lawyers

Colloquium

Writing for Publication in the Law Review
Advanced Writing for Publication in the Law Review

Criminal Law

Advanced Criminal Law, Practice, & Procedure
Memory & The Law

Documents and Artifacts in Socio-Legal Research
Topics in White Collar Crime

Employment Law

Employment Discrimination Law
Employment Law
Labor Law

Entertainment Law

Entertainment Law
Sports Law

Family Law

Children and the Law
Community Property
Family Law
Gifts, Wills, and Trusts
Advocating for Vulnerable Children: From Foster Care to Juvenile Justice

Intellectual Property

Copyright Law
Digital Copyright Law
Cross-Border Trade in IP
Intellectual Property Law
Patent Law
Technical Protection of Author's Rights
Trademark and Unfair Competition Law

International and Comparative Law

China Law
Comparative Law
International Business Transactions
International Contracts
International Environmental Law
International Human Rights Law
International Trade Law
Islamic Law
Japanese Law
Jewish Law
Korean Law

Law and Medicine

Biomedical Ethics
Drug Discovery, Development & Commercialization
Health Care Law
Reproductive Technologies

Perspective Courses

American Legal History
Cause Lawyering
Spanish for Lawyers
Conflict of Laws
Critical Race Theory
Feminist Jurisprudence and the Law
Human Rights & Protest in 20th and 21st Century China
Jurisprudence
Law and Economics
Law and Literature
Law and Social Movements
Race and the Law

Sexual Orientation and the Law

Procedural Courses

Arbitration
Civil Rights Litigation
Complex Litigation
Conflicts of Law
Dispute Resolution
Negotiations and Mediation

Public Law

Animal Law
Civil Rights Law
Education Law
Election Law
Federal Public Land and Natural Resources Law
Race and the Law
Environmental Law
Immigration Law
Land Use and Development Control Law
Legislation
Local Government Law
Organizations, Operations and Tax Aspects of Public Charities and Private Foundations
Media Law
National Security Law
Natural Resources Law
Poverty Law
Regulatory Design and Innovation
White Collar Crime

Real Estate Law

Land Use Law
Real Estate Transactions

Skills Courses

Advanced Legal Research
Advanced Legal Writing
Global Justice Summit
Appellate Litigation
Appellate Advocacy
Negotiations
Spanish for Lawyers
Trial Advocacy

Tax Law

Basic Tax
Corporate Tax
Estate and Gift Taxation
Partnership & LLC Taxation
Taxation of Business Enterprises

Clinical/Externships

Appellate Litigation Clinic
Advanced Community & Economic Development Clinic
Advanced Environmental Law Clinic
Advanced International Human Rights Clinic
Advanced Immigration Rights Clinic
Advanced Consumer Protection Clinic
Community & Economic Development Clinic
Consumer Protection Clinic
Family Violence Clinic

Environmental Law Clinic
Fair Employment & Housing Clinic
International Human Rights Clinic
Immigrant Rights Clinic
International Justice Clinic
Externships

Program in Law and Graduate Studies (J.D./Ph.D.; J.D./Master's)

949-824-9214
stalesh@law.uci.edu (ctomlins@law.uci.edu); http://www.law.uci.edu/plgs/
Shauhin Talesh, **Director**

Highly qualified students interested in combining the study of law with graduate research and/or professional qualifications in cognate disciplines are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students in this program pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Master's or Ph.D. degree from any of the graduate professional or research degree programs at UCI that have been approved for this concurrent degree program. The objective of the program is to promote interdisciplinary study of law while also enabling students to obtain both a J.D. and a graduate degree in less time than would be required to acquire both degrees separately. The normative time for completion of the program is four years for J.D./Master's combinations and seven years for J.D./Ph.D. combinations. Additional information is available from the PLGS Program Director's Office, (949) 824-4158, or by e-mail to plgs@law.uci.edu. A full description of the program, with links to all relevant application information, can be found at the School of Law Concurrent Degree Program (http://www.law.uci.edu/plgs) website.

UC Irvine's PLGS program is well suited to students interested in professional or academic careers focused on the interdisciplinary or multidisciplinary study of law and legal institutions, policy analysis, and/or applied research in law-related fields (for example, criminal justice and criminology, urban planning and environmental issues, discrimination, human rights, urban planning, environmental protection, and intellectual property). UC Irvine is nationally known for its graduate programs in such fields as Criminology, Law and Society; Psychology and Social Behavior; Anthropology; Management and Business; Literature; History; Performing Arts; and others.

Applicants must submit separate applications for admission to the School of Law and to the graduate program of their choice. Once admitted for study into both components of their program, concurrent degree students will work with the PLGS director and the director of their graduate program to develop a program of study that will permit efficient pursuit of both degrees. Ordinarily, students will commence their studies in their chosen graduate program and begin their first year of law instruction after one or more years of graduate program study. Upon completion of the first year of law instruction, students will pursue a coordinated curriculum of upper-level law study and graduate program study and research. Concurrent degree students' law enrollments will include a required "Graduate Legal Studies" colloquium and a 3-unit "Interdisciplinary Perspectives on Law" course or its equivalent. Concurrent degree students will be eligible for financial support through their chosen graduate program while pursuing graduate degree studies, and through the law school while pursuing law studies.

Required Colloquium

University Studies 296 Graduate Legal Studies (.3). Monthly faculty/student colloquium to present and discuss socio-legal related research/issues. Course convened by Law School faculty with other faculty participation. Open to graduate students and Law students; required for PLGS students enrolled in Law portion of degree. Satisfactory/Unsatisfactory only. May be repeated for credit as topics vary.

Law 5655 Interdisciplinary Perspectives on Law. This course is a reading and discussion seminar. Students will read a book each week. For the first class, students will read the book and come to class prepared to discuss it. For the second class each student will write a 750-word critique (analytic precis) of the book; discussion of the book will continue in that class. The seminar will be organized into four roughly equal segments. The first will present four quite distinct accounts of law—law as education, as ideology, as politics, and as organized activism. The second will consider several distinct scholarly perspectives on law—cultural, rhetorical, sociological. The third will examine applications of interdisciplinarity to legal studies—of property, recording media, citizenship, and emergency politics. The fourth will continue "applications" and conclude the course by comparing two rather different studies of law and death.

Faculty

L. Song Richardson, J.D. Yale Law School, *Professor of School of Law*

Peter Afrasiabi, J.D. University of Southern California, *Lecturer of School of Law*

Daniel Alexander, J.D. University of California, Los Angeles, *Lecturer of School of Law*

Olufunmilayo B. Arewa, J.D. Harvard University, *Professor of School of Law; Anthropology*

Sameer M. Ashar, J.D. Harvard University, *Senior Lecturer of School of Law*

Jessica Karp Bansal, J.D. Columbia University, *Lecturer of School of Law*

Mario Barnes, LL.M. University of Wisconsin-Madison, *Professor of School of Law; Criminology, Law and Society* (criminal law, constitutional law, critical race theory)

William W. Bedsworth, J.D. University of California, Berkeley, *Lecturer of School of Law*

Avery R. Brown, J.D. University of California, Los Angeles, *Lecturer of School of Law*

Dan L. Burk, J.D. Arizona State University, *UCI Chancellor's Professor of School of Law*

Kevin Calcagnie, J.D. Western State University, *Lecturer of School of Law*

Alejandro E. Camacho, LL.M. Georgetown University, *Professor of School of Law; Political Science*

Catherine Carlisle, J.D. Northwestern University, *Lecturer of School of Law*

Cormac J. Carney, J.D. Harvard University, *Lecturer of School of Law*

Elizabeth E. Cauffman, Ph.D. Temple University, *UCI Chancellor's Fellow* and *Professor of Psychology and Social Behavior; Education; Psychology and Social Behavior; School of Law* (adolescent development, mental health, juvenile justice, legal and social policy)

Richard Ceballos, J.D. Loyola Marymount University, *Lecturer of School of Law*

Jennifer M. Chacon, J.D. Yale University, *Professor of School of Law*

Erwin Chemerinsky, J.D. Harvard University, *Dean of the School of Law, Raymond Pryke Endowed Chair in First Amendment Law* and *Professor of School of Law; Political Science*

Stephen D. Cooke, J.D. University of California, Los Angeles, *Lecturer of Paul Merage School of Business; School of Law*

Rachel E. Croskery-Roberts, J.D. University of Michigan, *Senior Lecturer of School of Law*

Patricia Cyr, J.D. Georgetown University, *Lecturer of School of Law*

Kathryn Davis, J.D. Hastings College of Law, *Lecturer of School of Law*

R. Seth Davis, J.D. Columbia Law School, *Acting Professor of School of Law*

Joseph Di Mento, Ph.D. University of Michigan, *Professor of School of Law; Criminology, Law and Society; Paul Merage School of Business; Planning, Policy, and Design* (planning, land use and environmental law, use of social science in policy making, legal control of corporate behavior)

David Fischer, J.D. University of California, Los Angeles, *Lecturer of School of Law*

Catherine Fisk, J.D. University of California, Berkeley, *UCI Chancellor's Professor of School of Law; Criminology, Law and Society; History* (labor and employment law, civil rights)

Douglas K. Freeman, J.D. University of California, Los Angeles, *Lecturer of School of Law*

Laura C. Fry, J.D. University of Southern California, *Lecturer of School of Law*

Bryant G. Garth, J.D. Stanford University, *UCI Chancellor's Professor of School of Law*

Howard A. Gillman, Ph.D. University of California, Los Angeles, *Provost and Interim Chancellor* and *Professor of Political Science; Criminology, Law and Society; History; School of Law*

Jonathan D. Glater, J.D. Yale University, *Acting Professor of School of Law*

Karlene Goller, J.D. Suffolk University, *Lecturer of School of Law*

Michele B. Goodwin, J.D. Boston College, *Professor of School of Law*

Daniel A. Green, J.D. , *Lecturer of School of Law*

Andrew J. Guilford, J.D. University of California, Los Angeles, *Lecturer of School of Law*

Kaaryn Gustafson, Ph.D. University of California, Berkeley, *Professor of School of Law*

Richard L. Hasen, J.D. University of California, Los Angeles, *UCI Chancellor's Professor of School of Law; Political Science*

Jeffrey S. Helmreich, Ph.D. University of California, Los Angeles, *Assistant Professor of Philosophy; School of Law*

Carrie Hempel, J.D. Yale University, *Senior Lecturer of School of Law*

Paul L. Hoffman, J.D. New York University, *Adjunct Professor of School of Law*

Robert Holmen, J.D. University of California, Berkeley, *Lecturer of School of Law*

Lon Hurwitz, J.D. Southwestern University, *Lecturer of School of Law*

Jon M. Ichinaga, J.D. Southwestern Law School, *Senior Lecturer of School of Law*

Jean-Paul Jassy, J.D. University of Southern California, *Lecturer of School of Law*

Linda Cohen Jennings, Ph.D. California Institute of Technology, *Professor of Economics; School of Law*

David A. Kaye, J.D. University of California, Berkeley, *Senior Lecturer with Potential Security of Employment of School of Law*

Christopher M. Klein, J.D. University of Chicago, *Lecturer of School of Law*

Gerald Klein, J.D. University of California, Los Angeles, *Lecturer of School of Law*

Nicholas La Terza, J.D. University of Toledo, *Lecturer of School of Law*

Anne Lai, J.D. New York University, *Lecturer with Potential Security of Employment of School of Law*

Ellen Lawsky, M.S. University of California, Davis, *Lecturer of School of Law*

Sarah B. Lawsky, J.D. Yale University, *Professor of School of Law*

Thong Le, J.D. University of California, Berkeley, *Lecturer of School of Law*

Stephen Lee, J.D. University of California, Berkeley, *Professor of School of Law; Asian American Studies*

Jack I. Lerner, J.D. Harvard University, *Senior Lecturer with Potential Security of Employment of School of Law*

Christopher R. Leslie, J.D. University of California, Berkeley, *Dean of Graduate Division* and *Professor of School of Law*

Elizabeth F. Loftus, Ph.D. Stanford University, *UCI Distinguished Professor of Psychology and Social Behavior; Cognitive Sciences; Criminology, Law and Society; School of Law* (cognitive psychology, human memory, psychology and law)

Mona Lynch, Ph.D. University of California, Santa Cruz, *Professor of Criminology, Law and Society; School of Law* (law and society, psychology and law, punishment and society, race and criminal justice)

Thomas R. Malcolm, LLB University of California, Berkeley, *Lecturer of School of Law*

William M. Marticorena, J.D. Harvard University, *Lecturer of School of Law*

William M. Maurer, Ph.D. Stanford University, *Dean of the School of Social Sciences* and *Professor of Anthropology; Criminology, Law and Society; Culture and Theory; School of Law* (anthropology of law, globalization, Caribbean, anthropology of money and finance, gender and kinship)

Carrie Menkel-Meadow, J.D. University of Pennsylvania, *UCI Chancellor's Professor of Political Science; School of Law*

Judith Meyer, J.D. Pepperdine University School of Law, *Lecturer of School of Law*

David K. Min, J.D. Harvard University, *Acting Professor of School of Law*

Douglas G. Nejaime, J.D. Harvard University, *Professor of School of Law*

Grace A. Nguyen, J.D. Loyola Marymount University, *Lecturer of School of Law*

Ramin Pejan, LL.M. McGill University, *Lecturer of School of Law*

Katherine M. Porter, J.D. Harvard University, *Professor of School of Law*

R. Anthony Reese, J.D. Stanford University, *UCI Chancellor's Professor of School of Law*

Keramet A. Reiter, Ph.D. University of California, Berkeley, *Assistant Professor of Criminology, Law and Society; School of Law* (prisons, legal history, criminal justice policy, criminal and civil rights law, law and society)

Mark Robinson, J.D. Loyola School of Law, *Lecturer of School of Law*

Michael J. Robinson-Dorn, J.D. Cornell University, *Senior Lecturer of School of Law*

Trilby Robinson-Dorn, J.D. Tulane University, *Senior Lecturer with Potential Security of Employment of School of Law*

Ezra A. Ross, J.D. Harvard University, *Senior Lecturer with Potential Security of Employment of School of Law*

Peter Schneider, J.D. University of San Diego, *Senior Lecturer of School of Law*

Tam Nomoto Schumann, J.D. University of California, Berkeley, *Lecturer of Criminology, Law and Society; School of Law*

Michael D. Seplow, J.D. University of California, Los Angeles, *Lecturer of School of Law*

Carroll S. Seron, Ph.D. New York University, *Professor of Criminology, Law and Society; School of Law; Sociology* (sociology of law, sociology of professions, law and society, sociology of legal profession, methods and police misconduct)

Gregory Shaffer, J.D. Stanford University, *Professor of School of Law*

Darryl C. Sheetz, J.D. Villanova University School of Law, *Lecturer of School of Law*

Crystal Sims, J.D. University of San Diego, *Lecturer of School of Law*

Robert A. Solomon, J.D. George Washington University, *Senior Lecturer of School of Law*

Ann Southworth, J.D. Stanford University, *Professor of School of Law; Criminology, Law and Society*

Jane K. Stoever, J.D. Harvard University, *Senior Lecturer with Potential Security of Employment of School of Law*

Mary-Christine Sungaila, J.D. University of California, Los Angeles, *Lecturer of School of Law*

Catherine Sweetser, J.D. New York University, *Lecturer of School of Law*

Shauhin A. Talesh, J.D. University of Connecticut, *Acting Professor of School of Law; Criminology, Law and Society; Sociology* (civil procedure, consumer law, insurance, business organizations, empirical legal studies, law and society)

William B. Tate, J.D. Stanford University, *Lecturer of School of Law*

William C. Thompson, Ph.D. Stanford University, *Professor of Criminology, Law and Society; Psychology and Social Behavior; School of Law* (psychology and law, criminal justice, forensic science, expert evidence, human judgment and decision making, use of social science in appellate litigation)

Beatrice Tice, J.D. Stanford University, *Senior Lecturer of School of Law*

Christopher L. Tomlins, Ph.D. Johns Hopkins University, *UCI Chancellor's Professor of School of Law; Criminology, Law and Society* (law and humanities, law and society, legal history)

Grace Tonner, J.D. Loyola Marymount University, *Senior Lecturer of School of Law*

Benjamin van Rooij, Ph.D. , *John S. and Marilyn Long Chair in U.S.-China Business and Law* and *Professor of Criminology, Law and Society; School of Law*

Kerry Vandell, Ph.D. Massachusetts Institute of Technology, *Professor of Paul Merage School of Business; Planning, Policy, and Design; School of Law*

James C. Wald, J.D. University of Southern California, *Lecturer of School of Law*

Jeffrey N. Wasserstrom, Ph.D. University of California, Berkeley, *UCI Chancellor's Professor of History; History; School of Law*

Henry Weinstein, J.D. University of California, Berkeley, *Senior Lecturer of School of Law; English*

Ray Weston, J.D. University of Oklahoma, *Lecturer of School of Law*

Christopher A. Whytock, J.D. Georgetown University, *Professor of School of Law; Political Science*

Jessica L. Wimer, J.D. Indiana University, *Associate Librarian, Public Services of School of Law*

Marc Winthrop, J.D. University of California, Los Angeles, *Lecturer of School of Law*

Ralph Zarefsky, J.D. Stanford Law School, *Lecturer of School of Law*

School of Medicine

Ralph V. Clayman, M.D., Dean
Irvine Hall
Admissions and Outreach: 949-824-5388
http://www.som.uci.edu/

School of Medicine Overview

The UCI School of Medicine became part of the University of California in 1965. Prior to this time it was known as the California College of Medicine which traces its roots to a private institution founded in 1896.

Mission Statement

The mission of the University of California, Irvine, School of Medicine is to promote biomedical sciences and medicine in Orange County, California, and beyond, through excellence in research, patient care, education, and community service. This mission is achieved through programs of excellence in the following:

Education: The School of Medicine is committed to provide educational programs of the highest quality to medical students, M.D./Ph.D. and M.D./M.B.A. students, residents, fellows, allied health, graduate academic students, practicing physicians and other health care professionals. Educational programs are offered along the continuum of medical education with programs in undergraduate, graduate, and continuing medical education. These programs emphasize the most current knowledge in the health sciences and reflect the changing practice of medicine. Further, the School of Medicine's educational programs are designed to stimulate life-long self-learning and critical inquiry and to exemplify those human values necessary to fulfill the professional commitments of a career in the health sciences.

Research: Excellence in research is an essential feature of the School of Medicine. Therefore, the School is committed to develop and maintain research programs in the health sciences which seek to advance basic scientific knowledge and the prevention, diagnosis, and treatment of human illness.

Clinical Care: Recognizing its responsibility to meet the educational needs of students and the diverse needs of the patient community, the School of Medicine is committed to programs of clinical excellence across the spectrum of patient care disciplines.

Service to the Public: As a publicly assisted institution, the School of Medicine is committed to serve the community as a vital resource of expertise and knowledge. The School further serves the public through the training of health professionals whose backgrounds reflect California's ethnic and cultural diversity and whose professional careers address California's health care needs.

Degrees

Biomedical and Translational Science	M.S.
Biomedical Sciences[1]	M.S., Ph.D.
Environmental Health Sciences	M.S., Ph.D.
Epidemiology	M.S., Ph.D.
Genetic Counseling	M.S.
Medicine	M.D.
Pharmacological Sciences[2]	M.S., Ph.D.

1 The School of Medicine's basic medical science departments of Anatomy and Neurobiology, Biological Chemistry, Microbiology and Molecular Genetics, Pathology and Laboratory Medicine, and Physiology and Biophysics offer graduate instruction leading to the M.S. and Ph.D. degrees in Biomedical Sciences.

2 Offered in conjunction with the Department of Pharmaceutical Sciences.

The School of Medicine also offers the Medical Scientist Training Program (M.D./Ph.D.), the Program in Medical Education for the Latino Community (PRIME-LC), an M.D./M.B.A. program in cooperation with The Paul Merage School of Business, medical residency programs, and continuing medical education for physicians and other health care professionals.

Vision Statement

The University of California, Irvine, School of Medicine will achieve preeminence through the creation, application, and dissemination of new knowledge in the biomedical sciences and medicine. This will be accomplished through international leadership in biomedical research, development of new therapies, delivery of state-of-the-art medical care, and innovative biomedical education.

Health Sciences Complex

The Health Sciences Complex is a 121-acre site that houses UCI's medical school facilities. Twenty-nine acres have been developed to provide space for teaching, research, and patient care as well as offices for departmental administration.

The School's basic science instructional programs are located in modern, well-equipped, medical sciences buildings. These units provide space for first- and second-year classes, lecture halls (including the Dr. S. Jerome and Judith D. Tamkin Student Lecture Hall), offices and laboratories for various basic and clinical departments. Other buildings house the School's administration and laboratories.

The Medical Education building symbolizes the University's ongoing commitment to high-quality medical education and innovation. The $40-million, 65,000-square-foot building serves as the hub for nearly all non-hospital related educational activities for UC Irvine medical students, and incorporates the latest technology to help prepare tomorrow's doctors for healthcare in the digital age. The School of Medicine Educational Affairs Office is located in the Medical Education building, as well as the innovative Program in Medical Education for the Latino Community (PRIME-LC), an acclaimed program to improve healthcare for the Latino community by training medical students to care for this underserved population in a linguistically competent, culturally sensitive way.

The Medical Education building's telemedicine center includes a 60-seat interactive televideo auditorium where students watch UC Irvine physicians provide expert care over the Internet to patients in rural or other remote locations. Located on the second floor, the Clinical Skills Center is a cutting-edge facility for teaching and assessment of clinical skills, communication, and professionalism. The Center includes 17 fully equipped patient exam rooms, a central control room for exam administration and recording of all activities, and a computer software system that focuses on the capture, debriefing, and assessment of medical training. The building also features an advanced simulation learning center. The Simulation Lab is a four-suite lab that utilizes high-fidelity human patient simulators with physiologically accurate responses to stimuli to enhance learning and assess competency. The lab is equipped with a fully operational anesthesia suite, a trauma suite, and a general ward environment. The Simulation Lab has two debriefing rooms for immediate feedback on performance as well as a large central control room for all simulation activities.

In addition, the 40,000-square-foot Plumwood House is devoted to basic research in the fields of neurological disorders, diagnostic systems and reagents, and industrial bioreactors. In this facility, faculty from the Department of Biological Chemistry share laboratory space with corporate researchers.

Outpatient services are available on campus through the Louis A. and Helen C. Gottschalk Medical Plaza and the Beckman Laser Institute. The Plaza capitalizes upon the broad range of diagnostic and therapeutic programs of the School as well as the extensive clinical expertise of the faculty. The facility offers primary care and specialty services. Special programs in diabetes, multiple sclerosis, Alzheimer's disease, and inflammatory bowel diseases also are offered. The Plaza also houses UC Irvine Corporate Health Services and the Gavin Herbert Eye Institute, which offers the latest in diagnostic health care for eye diseases, including computerized refraction analysis, glaucoma diagnosis, and ultrasound analysis of eye disorders.

Housing one of the world's leading programs in medical laser technology, the Beckman Laser Institute offers state-of-the-art treatment for cancer and dermatological conditions. The Institute specializes in the development and application of laser and other optical technologies for the diagnosis and treatment of disease.

Biomedical Research Center

UCI's Biomedical Research Center (BRC) is a landmark public-private collaboration between UCI and businesses involved in biomedical, biotechnological, and healthcare services. The Center enables UCI researchers and participating companies to work alongside one another, combining basic science, clinical study, and product development to find new approaches to the diagnosis and treatment of disease. The William J. Gillespie Neuroscience Research Facility, the first of several BRC buildings, is the home of a core group of prominent scientists investigating the causes and cures for neurological disorders, including Alzheimer's disease, Parkinson's disease, schizophrenia, and spinal cord injury. The second building is the Robert R. Sprague Family Foundation Hall, where scientists work to reveal the role of genetics in cancer treatment and prevention. The third building, the Dottie and George Hewitt Research Hall, is home to a state-of-the-art General Clinical Research Center and internationally recognized investigators studying infectious diseases, molecular medicine, immunology, and complementary and alternative medicine. The Sue and Bill Gross Stem Cell Research Center is the fourth building in UCI's Biomedical Research Center. Opened in 2010, this state-of-the art research and clinical building fosters a multi-pronged approach to neurodegenerative repair and basic stem cell biology by supporting basic research, regenerative medicine, and drug-development programs.

Chao Family Comprehensive Cancer Center

The Chao Family Comprehensive Cancer Center is the only National Cancer Institute-designated facility in Orange County and one of only 40 such centers in the country. Overall, more than 100 faculty members at the Cancer Center are involved in several major research programs, encompassing everything from basic research that looks at how cancer cells grow to bone marrow transplantation. Located at the UC Irvine Medical Center in Orange, the 56,000-square-foot facility provides an ideal setting for the practice of all the basic and clinical subspecialties involved in adult and pediatric oncology, including the application of the latest techniques for diagnosis and management of patients with cancer.

University of California, Irvine Health

UC Irvine Health is committed to providing the highest quality healthcare to Orange County and surrounding communities through UC Irvine Medical Center, Orange County's only university hospital.

UC Irvine Medical Center, located in the City of Orange, is a 415-bed, comprehensive medical care center. It is the principal clinical facility of the UC Irvine School of Medicine. The medical faculty of the School of Medicine together with the medical resident-physician staff, provide the professional care. A full scope of acute- and general-care services offered at UC Irvine Medical Center include cancer, cardiology, digestive disease, dermatology, obstetrics and gynecology, neonatology, psychiatry, family medicine, pathology, radiology, physical medicine and rehabilitation, ophthalmology, neurology, anesthesiology, orthopaedics, geriatrics, oncology, neurosurgery, otolaryngology, and urology.

UC Irvine Medical Center also has cardiac, neonatal, burn, medical, surgery, and neurosciences intensive care units, and more than 90 specialty outpatient services. It is Orange County's only Level I trauma center—the most comprehensive designation for the treatment of life-threatening injuries. In March 2009, the seven-story UC Irvine Douglas Hospital opened at UC Irvine Medical Center and includes 236 beds, 19 operating rooms, and interventional procedure rooms. Private patient rooms offer patients optimal comfort and healing and accommodate family members who wish to stay overnight. More information is available at the UC Irvine Health (http://www.ucirvinehealth.org) website.

UCI Family Health Center-Santa Ana

The UCI Family Health Center-Santa Ana is a state-of-the-art primary care facility, conveniently located near the Santa Ana Civic Center. The Center has two missions—healthcare delivery and medical education.

As a community clinic, the Family Health Center's multilingual physicians and staff are committed to providing quality health care to patients, including the medically under-served. It provides primary care services to people of all ages including family medicine, preventive care for children and adults, and specialty care in pediatrics and obstetrics and gynecology.

As an integral part of the UCI School of Medicine, the Family Health Center provides educational and training opportunities for medical and nurse practitioner students, including the UCI Family Medicine and Obstetrics and Gynecology residency training programs.

UCI Family Health Center-Anaheim

The UCI Family Health Center-Anaheim provides care for more than 20,000 outpatient visits annually and training programs for resident physicians in primary care, general internal medicine, and general and adolescent pediatrics. There are additional programs in gynecology, dermatology, general surgery, podiatry, neurology, ophthalmology, optometry, orthopedics, psychiatry, and multispecialty faculty practice. The Center provides training for medical students in their primary care, general pediatric, adolescent medicine, and geriatric medicine rotations and electives.

Affiliated Hospitals and Clinics

Additional major teaching and research programs of the School of Medicine are conducted at the Veterans Affairs Long Beach Healthcare System, Children's Hospital of Orange County (CHOC), Long Beach Memorial Medical Center, and Miller Children's Hospital (Long Beach). Other academic programs are conducted in affiliation with Kaiser Foundation Hospital (Anaheim, Bellflower, Irvine, and Riverside), Children's Hospital of Los Angeles, Western Medical Center (Tustin/Santa Ana), and St. Jude's Hospital (Fullterton).

School of Medicine Alumni Relations

The UCI School of Medicine is an outgrowth of what began in 1896 as the Pacific College of Osteopathy (PSO). Some years later it became the College of Osteopathic Physicians and Surgeons, which then evolved into the California College of Medicine in 1962 and subsequently joined the UC system in 1965. The Office of Alumni Relations provides programs and services for nearly 4,000 alumni of the School as well as for students. From financial support to Honor's Night awards, mentorship to reunions, the Office of Alumni Relations seeks to provide a cornerstone from which students and alumni can benefit from their relationships to one another and in so doing, strengthen the School of Medicine.

The M.D. Program

Admissions

All inquiries regarding the UCI School of Medicine's admission programs and procedures should be directed to:

University of California, Irvine
School of Medicine
Office of Admissions and Outreach
Medical Education Building
Irvine, CA 92697-4089

949-824-5388 or 800-UCI-5388
http://www.meded.uci.edu/admissions/

The UCI School of Medicine is a member of the American Medical College Application Service (AMCAS). All students who seek entrance to the UCI School of Medicine must complete the AMCAS application (http://www.aamc.org/students/amcas/start.htm). Applications must be submitted between June 1 and November 1 of the year preceding anticipated admission.

Additional information for the following programs is included below: Medical Scientist Training Program (M.D./Ph.D.) (p. 1123), the M.D./M.B.A Program (p. 1123), and the Program in Medical Education for the Latino Community (PRIME-LC) (p. 1124).

Selection Factors

The UCI School of Medicine seeks to admit students who are highly qualified to be trained in the practice of medicine and whose backgrounds, talents, and experiences contribute to a diverse student body. The Admissions Committee carefully reviews all applicants whose academic record and MCAT scores indicate that they will be able to handle the rigorous medical school curriculum. In addition to scholastic achievement, attributes deemed desirable in prospective students include leadership ability and participation in extracurricular activities such as clinical and/or medically related research experience, as well as community service. Careful consideration is given to applicants from disadvantaged backgrounds.

After receipt of the AMCAS application, applicants will be invited to complete a secondary application and will be required to submit a nonrefundable application fee of $80. Upon further review by the Admissions Committee, approximately 600 will be invited to interview. Regional interviews are not available. UC Irvine School of Medicine does not give preference to California residents. UC Irvine School of Medicine does not accept transfer students.

Requirements for Admission

Students can be considered for admission to the School of Medicine if they meet the following requirements:

1. All applicants must complete the American Medical Colleges Application Service (AMCAS) (https://www.aamc.org/students/applying/amcas) application between June 1-November 1, of the application year for the following year's entering class. A minimum of three years (90 semester units) of undergraduate coursework, including a minimum of one full-time year at an accredited U.S. college or university. For purposes of evaluation, letter or numerical grades are preferred for course work, particularly for the required subjects listed below. All prerequisite courses listed as "in progress" on the AMCAS application and UC Irvine School of Medicine Secondary Application must be successfully completed by matriculation. Failure to meet the requirements or falsification of information are grounds for rejection or dismissal.
2. Completion of the following college course requirements prior to matriculation:

Subject	Requirement	Comments
Biology	1.5 Years: 3 semesters or 5 quarters. 1 Year Labs: 2 semesters or 3 quarters.	Must include one upper-division Biology course.
Chemistry	2 Years: 4 semesters or 6 quarters. 1 Year Labs: 2 semesters or 3 quarters.	Must include biochemistry course and inorganic and organic chemistry courses.
Physics	1 Year: 2 semesters or 3 quarters.	
Math	1 semester/quarter of calculus. 1 semester/quarter of statistics.	
English	1 semester/quarter.	English or writing composition.

3. Applicants are strongly encouraged to have completed their basic science requirements at the time of application. No specific major is required, however, demonstrated ability in the sciences is of great importance. In addition, applicants are advised to take advantage of the intellectual maturation afforded by a well-rounded liberal arts education. English, the humanities, and the social and behavioral sciences are considered particularly important. The following courses are also recommended but not required: molecular biology, cell biology, genetics, vertebrate embryology, psychology, and Spanish.
4. Medical College Admissions Test (MCAT) (https://www.aamc.org/students/applying/mcat) must have been taken within the three years preceding June 1 of the application year and no later than September 1 of the application year.
5. Three to six letters are suggested. We recommend that at least two of the letters be from senior professors who can evaluate your academic abilities. If you have been involved in research, clinical, community service, or other significant extracurricular activities, it is recommended that you submit a letter from your mentor, supervisor or advisor. The Admissions Committee will only be reviewing letters of recommendation from those applicants who received a secondary application.
6. A criminal background check is conducted on all accepted applicants.
7. All students matriculating to the UCI School of Medicine must be able to meet the Technical Standards available at the School of Medicine Admissions (http://www.meded.uci.edu/admissions) website.

Outreach

Outreach efforts coordinated by this office are designed to introduce students to the medical profession during their high school and undergraduate education. An additional goal of this office is to build a pipeline of potential candidates for medical school and recruit students from socioeconomically disadvantaged groups who have a desire to serve in the medically under-served communities in California. To reach these goals, programs are developed and implemented for students in high school, community colleges, and four-year undergraduate institutions. Examples of these activities include a Post baccalaureate Program, Premedical Conferences, and Summer Outreach Programs. Outreach staff conduct academic advising related to the medical school admissions process and develop liaisons with UCI undergraduate academic programs and pre-health advisors.

Medical Student Advisor System

The School of Medicine provides a comprehensive academic advising and assistance program that spans the full duration of the students' educational program.

Academic Skills Assessment

All entering students undergo an academic skills assessment during the new student orientation. Students then meet individually with the associate dean for student affairs, the academic skills coordinator, and the School of Medicine psychologist to discuss study skills, early performance, and overall adjustment to medical school. Additional services are provided on an as-needed basis by the academic skills coordinator and the SOM psychologist.

Academic Advisors

Michael Prislin, M.D., Associate Dean Student Affairs; 949-824-8358

Student academic performance during the first two years is monitored on a monthly basis by the Educational Support Committee. The committee develops specific action plans for each student experiencing academic difficulty. All students are also assigned a faculty advisor beginning early in their first year. This faculty advisor serves as the student's Clinical Foundations course small-group leader during years one and two. For years three and four, academic advisement occurs primarily via continuing interactions with the student's faculty advisor and the associate dean for student affairs. Also during years three and four, the Educational Support Committee consisting of the Clinical Clerkship Directors periodically reviews student performance. The faculty advisor provides semi-annual reviews and formative feedback regarding student performance as well as general counseling relating to emerging career preferences and year-four scheduling. Students also have access to a group of faculty from various departments who have agreed to provide specialty-specific academic advice in their disciplines. Several workshops are conducted during the second half of year three and early in year four to prepare students for the residency application process. All students also meet individually with the associate dean for student affairs to review their Medical Student Performance Evaluation (dean's letter) and discuss individual residency application strategies. Additional resources are involved on an as-needed basis by the associate dean for student affairs.

Peer Review and Peer Counseling Program

Michael Prislin, M.D., Associate Dean Student Affairs; 949-824-8358

The School of Medicine has an informal peer review process, aimed at early detection and assistance for medical students who are experiencing difficulty such as professional conduct problems, suspected impairment, violation of the honor code, or violation of any University policy, regulation, or rule. The Peer Review Committee is comprised of two representatives from each class, the student body co-presidents, and two advisory faculty members. The committee operates within guidelines set jointly by the School of Medicine administration and the student body. Cases involving serious professional misconduct are referred to the Dean's Office. The Peer Review Committee conducts hearings and may impose sanctions or provide assistance to the student.

Medical Scientist Training Program (M.D./Ph.D.)

Alan Goldin, M.D., Ph.D., Chair; 949-824-5264

Exceptionally well-qualified students interested in careers in academic medicine and with demonstrated research accomplishments may be considered for admission to the Medical Scientist Training Program (MSTP). Students in this program pursue a combined curriculum for an M.D. degree from the School of Medicine and a Ph.D. degree from any of the graduate programs at UCI. The normative time for completion of the program is eight years, and students holding either degree are not eligible for MSTP. The maximum time for completion of the program is 10 years. Additional information is available from the MSTP Coordinator's Office, (949) 824-5264; mstp@uci.edu; or visit the Medical Scientist Training Program (http://www.mstp.uci.edu) website.

Applicants must submit a supplementary application (available from the School of Medicine Office of Admissions) to the Medical Scientist Training Program when they are submitting their secondary application information to the School of Medicine. Students accepted into the program have the option of pursuing graduate study in any of the graduate programs at UCI. Although a specific graduate department need not be chosen at the time of admission, students are expected to have selected a field for their graduate studies. Financial support in the form of a fellowship, which includes a stipend as well as tuition and fees, is provided. Applicants not accepted into MSTP may be considered separately for admission to the School of Medicine.

M.D./M.B.A. Degree Program

Maria Chandler, M.D./M.B.A., Faculty Advisor; 949-824-7133

The M.D./M.B.A. program requires five or six years for completion. It is aimed at individuals who are exceptional in ability and motivation and who seek a career as physicians with major responsibility for administration and management in health care organizations and institutions. Students in this program pursue a combined curriculum for an M.D. degree from the School of Medicine and an M.B.A. degree from The Paul Merage School of Business.

Students must be currently enrolled in the M.D. program in order to apply to the combined M.D./M.B.A. program. During their second or third year of medical school, interested students submit an application to The Paul Merage School of Business Admissions Committee, after review by the School of Medicine. Final acceptance to the program is granted by The Paul Merage School of Business, and M.B.A. course work begins following completion of the student's third year of medical school. Students should be aware that enrollment in the M.D. program does not guarantee acceptance into the M.B.A. program.

The MCAT, along with the completion of three years of medical school training in good standing and passage of USMLE Step 1, currently serve as a waiver for the GMAT entrance examination usually required for application to the M.B.A. program. The total number of units required to graduate from each program separately are satisfied in the M.D./M.B.A. program.

Program in Medical Education for the Latino Community (PRIME-LC)

Charles Vega, M.D., Director; 949-824-7136

A carefully selected group of students from diverse backgrounds and with superior academic credentials, proven commitment to service, and solid conversational Spanish will be considered for acceptance to the Program in Medical Education for the Latino Community (PRIME-LC) at the UCI School of Medicine. PRIME-LC responds to the increasing demand for physician-leaders who are culturally and linguistically competent to address the health care delivery, research, and policy needs of underserved Latino communities in California. The program spans all three components of medical training: undergraduate (medical school), graduate (residency program), and continuing medical education (post-residency). Students in PRIME-LC complete additional value- added curriculum in addition to their medical training in order to reach their goals of leading communities, and they also complete a Master's degree program of their choice. The first residency positions in any UC PRIME opened in the UCI Family Medicine program in 2010.

The PRIME-LC supplemental application is part of the UCI School of Medicine secondary application and must be completed to be considered for acceptance. Applicants selected for faculty and student interviews are required to undertake a third interview in Spanish to evaluate conversational skills and commitment to service. All interested applicants, including those who are not currently California residents, are encouraged to complete the PRIME-LC application. Financial support is available in the form of scholarships, loans, and loan repayment programs. Applicants not accepted into PRIME-LC may be considered separately for admission to the regular School of Medicine M.D. program. For more information contact (949) 824-7136; primelc@uci.edu; or visit the PRIME-LC (http://www.meded.uci.edu/primelc) website.

The M.D. Curriculum

The UCI medical curriculum continues to meet the changing needs of medical education within all four years of instruction. Indeed, the School of Medicine faculty views curriculum development as a continual process and feels that medical education and teaching innovations must be encouraged and supported. The curriculum is designed to encourage medical students to become participants in their education process, to be active rather than passive learners, to become lifelong learners, and to use cooperative and team-learning principles.

UCI is dedicated to the nurturing of humanistic, caring physicians with top-notch clinical expertise and skills. The School strives for this through a curriculum that is not only anchored in the science of medicine but also provides meaningful experiences in the humanistic dimensions of medicine. In this context, the faculty endeavors to provide students with experiences in areas such as communications and empathy, ethics and professionalism; diversity awareness; and cultural sensitivity and medical humanities. The faculty also feels that the curriculum should strive to integrate basic and clinical sciences by bringing substantial clinical material into the early phases of medical education.

The School has achieved vertical integration of the curriculum with the development of a series of "Clinical Foundations" courses. The courses are longitudinal multidisciplinary experiences broadly designed to prepare students for their future careers in medicine through the application of experiential and self-directed learning principles. First-and second-year students begin to prepare for their clerkships through clinical exposures featuring standardized patients and clinical tag-along experiences. These courses also utilize small group learning sessions to reinforce core concepts of patient-physician interactions and introductory clinical reasoning skill development. During the Clinical Foundations IV course (years three and four) students explore many of the crucial issues first presented during the introductory courses. During this segment greater emphasis is placed on advanced skill acquisition and more mature professional role development.

To satisfy the requirement for the M.D. degree, each medical student must successfully complete the full curriculum. Students must also pass both Step 1 and Step 2 of the United States Medical Licensing Examination (USMLE) and successfully pass a Clinical Practice Examination (CPX) prior to graduation.

An ongoing academic monitoring program is coordinated by the Office of Student Affairs, which identifies students early who might be experiencing academic difficulty and provides them with resources to successfully complete their course work. Faculty advisors are assigned to students during their first and second years. Students have advisory sessions with M.D. faculty prior to the scheduling of their fourth-year course work. A Learning Resources Program is available to provide tutorial assistance and study skills training. USMLE reviews are also provided.

Curricular Policies

The curricular policies of the School of Medicine are the responsibility of the faculty committees on Curriculum and Educational Policy and on Promotions and Honors. A listing of these policies, as well as information regarding registration, rules and regulations, grading procedures, and requirements for academic advancement, are contained in the *School of Medicine Handbook,* which is available at the School of Medicine Office of Educational Affairs (http://www.meded.uci.edu/Students) website.

First and Second Years:

Basic Science and Preclinical Course Work

First Year
Clinical Foundations I

Anatomy and Embryology
Neuroscience
Histology
Medical Genetics
Medical Biochemistry and Molecular Biology
Physiology/Pathophysiology
Immunology

Second Year

Clinical Foundations II
Medical Microbiology
General and Systemic Pathology
Clinical Pathology
Medical Pharmacology

Third- and Fourth-Year Requirements [1]

Third Year

Clinical Foundations III
Family Medicine
Inpatient Medicine
Ambulatory Medicine
Obstetrics and Gynecology
Pediatrics
Psychiatry
Surgery

Fourth Year

Clinical Foundations IV
Emergency Medicine
Intensive Care Unit
Neuroscience
Radiology
Senior Subinternship[2]
Electives

1 The sequence of third and fourth years varies.

2 Prerequisite: Inpatient and Ambulatory Medicine.

Curricular Description

First-Year Curriculum

Clinical Foundations I

Clinical Foundations I, first of the four-part Clinical Foundations series, serves as the introductory clinical medicine course for first-year medical students. Participating students learn core skills in physician-patient communication, medical interviewing, physical examination, and health promotion. The course is horizontally integrated with the basic science curriculum. The series includes a variety of small and large group sessions taught by three types of faculty: core teachers, content theme coordinators, and community preceptors. Students complete multiple medical interviews, physical examinations, and patient write-ups for which they receive feedback designed to improve proficiency. *(Med Ed 554A-B-C)*

Anatomy and Embryology

The structure of the human body is taught in Anatomy and Embryology. Emphasis is placed on normal structure as it relates to function, with consideration of abnormal structures that may be revealed in a clinical setting. Anatomy is taught through a regional approach, with an emphasis on laboratory dissections and demonstrations, augmented by lectures, radiographic films, discussions, and clinical correlate material. The course includes a detailed consideration of the embryologic aspects of human development. *(Med Ed 500A-B))*

Neuroscience

The objective of this course is to provide students with the fundamental concepts, vocabulary, and learning strategies to attain a level of proficiency in basic integrative neurosciences so that they will develop an understanding in the clinical neurosciences throughout their careers as physicians. The course is integrative in the sense that the underlying knowledge of molecular, cellular, physiological, developmental, and neuroanatomical organization

of the nervous system is brought together in each lecture block with clinical themes and examples in lectures, and which is further reinforced by clinical correlates given by clinicians. The course emphasizes knowledge of the nervous system using lessons from clinical neuroanatomy, systems neurosciences, and regional and developmental neuroanatomy. The course uses the Blumenfeld text, Haines atlas, wet lab handouts, and the Neurosyllabus CD, which are all geared toward mastering this multiple strategy to the study of the human nervous system. *(Med Ed 502A)*

Histology

Histology is designed to provide students with knowledge of the major features of the structural organization of cells, tissues and organs, and how that organization is related to function. Course material consists of lectures, clinical correlate discussions, and group/independent study of images. Emphasis is placed on normal structure and function, with consideration of abnormalities in clinical cases. *(Med Ed 503A-B)*

Medical Genetics

Medical Genetics reviews the basic principles of human genetics related to disease. Assessment of patterns of genetic risk, screening for genetics diseases, and cytogenetics and biochemical diagnosis are presented. Utilization of the human gene map and DNA sequence information for molecular genetic diagnosis are discussed. Students are introduced to the use of genetic databases and bioinformatics. Approaches to treatment of genetic diseases are presented. Legal, ethical,and social aspects of diagnosis and management of genetic disease are discussed. *(Med Ed 511)*

Medical Biochemistry and Molecular Biology

Covers the following topics from a biomedical perspective: protein and nucleic acid biochemistry, carbohydrates, lipids, amino acids, purines and pyrimidines, genome structure, molecular mechanisms of development, and signal transduction. *(Med Ed 522)*

Physiology/Pathophysiology

This course consists of lectures, clinical correlates, hands-on workshops, small group discussions, and exercises in the simulation center covering the classical concepts of medical physiology. Specific topics include hemostasis, blood, neurophysiology, cardiovascular, respiratory, renal, gastrointestinal, endocrine, exercise, temperature regulation, and sexual physiology. Prerequisite: Medical Biochemistry and Molecular Biology. *(Med Ed 543A-B)*

Immunology

Immunology covers the cellular and molecular basis of immune responsiveness and the roles of the immune system in both health and disease. The material is presented in lectures and clinical correlates, as well as in a set of printed core notes. Also included are a number of Patient-Oriented Problem Solving (POPS) sessions in which participation is required. *(Med Ed 544)*

Behavioral Science & Ethics

This clinically oriented course will cover foundational topics in behavioral science and medical ethics, and will introduce clinically relevant social issues such as dealing with domestic violence as it presents clinically, treating minority or underserved populations (cultural competence). (Med Ed 505A)

Second-Year Curriculum

Clinical Foundations II

Clinical Foundations II, second of the Clinical Foundations series, builds second-year medical students' clinical skills. Students learn advanced skills in history-taking, physical diagnosis, and clinical reasoning. Clinical didactics sessions synthesize learning in the clinical and basic sciences. The course is comprised mostly of small-group sessions taught primarily by three types of faculty: core clinical teachers, community clinical teachers, and content theme coordinators. With these faculty, students work on focused, guided practice of clinical skills that integrates basic science course work. About a third of the course is in the form of large group clinical didactic and interactive sessions to synthesize clinical and basic sciences. *(Med Ed 555A-B)*

Medical Microbiology

This course covers the biology of infectious agents, including viruses, bacteria, fungi, and parasites, to provide the foundation in microbiology for the subsequent study of infectious diseases. Lectures, small group sessions with clinicians, and laboratory sessions are used to teach the molecular bases of microbial pathogenesis, diagnostic testing, antimicrobial therapy, and prevention strategies. Prerequisite: first-year curriculum. Graduate students must have approval of the course director and enroll through the Department of Microbiology and Molecular Genetics. *(Med Ed 507A, B)*

General and Systemic Pathology

This course deals with basic causes, mechanisms, and consequences of disease processes and with some applications of these considerations to clinical medicine. After an introduction to general types of disease processes, these processes are studied further as they affect specific organs and organ systems. Prerequisite: first-year curriculum. *(Med Ed 508A-B-C)*

Clinical Pathology

This course consists of lectures and laboratories covering the areas of hematology, blood bank, clinical chemistry, and microbiology. It provides students with a foundation for understanding the pathogenesis of a variety of disease states, as well as a foundation for the proper use of the laboratory for diagnosis and optimum patient management. Prerequisite: first-year curriculum. *(Med Ed 509A-B)*

Medical Pharmacology

This course covers the various classes of drugs that are used in medicine, particularly those used in specific or symptomatic treatment of disease states. Drugs of abuse are also covered. Emphasis is on the mechanisms of action of drugs at the organ and system level and on their use in medicine. The

course includes lectures that illustrate pharmacologic principles, supplemented by small group problem-solving sessions. Prerequisites: Biochemistry and Physiology.*(Med Ed 517A-B-C)*

Behavioral Science & Ethics

This clinically oriented course will cover foundational topics in behavioral science and medical ethics, and will introduce clinically relevant social issues such as dealing with domestic violence as it presents clinically, treating minority or underserved populations (cultural competence). (Med Ed 505B)

Third- and Fourth-Year Curriculum

Clinical Foundations III

The final part of the Clinical Foundations series is a one-month, full-time block rotation at the beginning of the third year in which all students participate five days per week. Taught by the Clinical Foundations core teachers and selected full-time faculty volunteers, Clinical Foundations III provides comprehensive preparation for third-year clinical rotations. Every morning and afternoon, students participate in hands-on exercises and labs addressing (1) course overview, medical professionalism (large-group session); (2) advanced clinical skills (small groups); and (3) hands-on technical skills (small groups). *(Med Ed 550)*

Obstetrics and Gynecology Clerkship

During this eight-week clerkship, students are taught an introduction to reproductive physiology and clinical obstetrics and gynecology. Practical experience is obtained throughout the rotations of labor and delivery, gynecology, and the outpatient clinic. In addition, students have an elective choice between gynecologic oncology, high-risk obstetrics, and gynecologic surgery. Required third-year rotation. *(Med Ed 524)*

General Surgery Clerkship

The General Surgery clerkship provides students, as members of the surgical team, with an opportunity to study surgical patients in outpatient and hospital settings. Students acquire surgical knowledge, as well as develop skills in taking surgical histories and conducting physical examinations. Emphasis is placed on the clinical evaluation, pathogenesis, diagnosis, and treatment of surgical diseases. Students spend six weeks on general surgery (three weeks each at UC Irvine Medical Center and Veterans Affairs Long Beach Healthcare System) and one week on one of the sub-specialties (urology, ENT, orthopedics, or plastic surgery). *(Med Ed 526)*

Inpatient and Ambulatory Medicine Clerkship

The clerkship occurs in a highly structured clinical environment in both in-patient and ambulatory settings. Students gradually assume responsibility for the care of patients, thereby enhancing their clinical, diagnostic, and procedural skills. Clinical vignettes and bedside teaching serve to round out the experience. Required third-year rotation. *(Med Ed 527A, 527B)*

Pediatrics Clerkship

The pediatrics clerkship serves as an introduction to general pediatrics. Students rotate on the pediatric inpatient service, pediatric ambulatory settings, and the newborn nursery. During the clerkship, students develop their knowledge and skills in conducting age-appropriate patient histories and physical examinations and developing differential diagnoses and management plans. *(Med Ed 528)*

Psychiatry Clerkship

This six-week clinical clerkship provides an opportunity for hands-on experience in the process of recognizing, diagnosing, and treating mental illness using the latest neuropharmacological advances in brain research as well as more traditional psychotherapeutic approaches. Each student participates fully in patient care, clinical teaching, and conferences. There are several choices of clinical settings for the rotation, including adult inpatient psychiatry, adolescent inpatient psychiatry, consultation and emergency psychiatry, adolescent partial hospitalization program, and a variety of substance abuse and ambulatory experiences. The sites include UC Irvine Medical Center and Veterans Affairs Long Beach Healthcare System. A required lecture series is presented on Wednesday afternoons at UC Irvine Medical Center, as well as problem-based learning cases on Friday afternoons. *(Med Ed 529)*

Neuroscience Clerkship

UCI students are required to take a four-week neuroscience clerkship during either their third or fourth year. Students are encouraged to do this in the third year as it will be useful for the USMLE Step 2 examination. Extramural students may take the course as an elective if a slot is available. This clerkship emphasizes the development of skills in taking a neurological history and performing a neurological examination, formulating a differential diagnosis, and proposing a course of management for neurological disorders. *(Med Ed 532)*

Radiology Clerkship

This core clerkship consists of daily clinical film conferences, didactic lectures, and Web-based laboratory. Radiology conferences inter-relate general medicine, surgery, and radiology. Emphasis is given to correlate clinical findings and use the imaging modalities for problem-solving and diagnosis and treatment, including an understanding of risk/cost/benefit ratio involved in daily clinical practice. *(Med Ed 533)*

Clinical Foundations IV

This is a two-week required course that all fourth-year students take during the month of March. The students prepare presentations for their peers and faculty that integrate basic science and clinical science. The course also prepares the students for residency and provides them with an opportunity to obtain ACLS certification. *(Med Ed 535)*

Senior Subinternship

Students spend four weeks as subinterns during which time they carry the full ward responsibility of an intern on one-half the number of patients usually carried by an intern. The subinternship is designed to improve clinical competence and to prepare the students for the challenges and demands of the internship. Students may choose between subinternships in medicine, surgery, or pediatrics. *(Med Ed 536, 537, 538, or 539)*

Family Medicine Clerkship

This clerkship matches students with a family physician for a four-week block. Students are assigned to a UCI-affiliated clinic where the principles of family medicine and primary care are taught. Emphasis is placed upon exposing students to the 25 most common health care problems seen in family medicine. Students are exposed to the principles of community health and epidemiology, as practically applied in an ambulatory care setting. Students develop an awareness of the current health care delivery environment, including issues such as health care costs and the lifestyle of a family physician. Special tracks are available for interested students in geriatrics, integrative medicine, and under-served care. Special teaching sessions on family centered maternity care, health maintenance and nutrition, and musculoskeletal joint exams are part of the experience. A curriculum in ophthalmology is also part of the clerkship. Prerequisites: successful completion of the first- and second-year curriculum. *(Med Ed 597)*

Intensive Care Unit

This is a four-week rotation offered at UC Irvine Medical Center and Veterans Affairs Long Beach Healthcare System. ICU is offered in medicine, surgery, and anesthesiology. Students function as subinterns, becoming integral members of the ICU team, and serve as primary caregivers under supervision. *(Med Ed 605B, 630K, 633M, or 685U)*

Emergency Medicine

The objectives of the Emergency Medicine clerkship are to introduce students to principles of acute care medicine while caring for acutely ill and injured patients. Students have the opportunity to evaluate patients, expand their directed history and physical making skills, create a broad differential diagnosis, and formulate effective testing and treatment strategies. Active participation in patient care through refinement of procedural skills is largely emphasized and encouraged. The course consists of experiences in direct patient care, assigned readings from emergency medicine references, weekly conferences, and an end-of-rotation final examination. *(Med Ed 630D)*

Electives

Depending upon their particular interests, needs, and goals, students may take a variety of elective courses consisting of at least 30 contact-hours per week during the third and fourth years. Electives must be approved by the clinical faculty advisor. Students may take up to 20 weeks of their fourth-year course work (core/electives) at institutions other than UCI.

A listing of elective courses and descriptions can be found online at http://www.meded.uci.edu/elective.

All questions regarding the curriculum, electives, or matters of records should be directed to:

University of California, Irvine
School of Medicine
Office of Educational Affairs
Medical Education Building
Irvine, CA 92697-4089

General information/records: (949) 824-6138; scheduling: (714) 456-8462; curriculum: (949) 824-4609.

Office of Medical Education

Gerald A. Maguire, M.D., **Senior Associate Dean**; 949-824-5798

The Senior Associate Dean for Medical Education, in cooperation with the Academic Senate faculty, has responsibility for administrative oversight of the educational program leading to the M.D. degree, the postgraduate residency programs, and continuing medical education programs provided for practicing physicians and allied health personnel. The Senior Associate Dean also has administrative oversight responsibility for the Office of Admissions and Outreach. Medical Education provides services for the M.D. program which include curriculum development, implementation, management, and evaluation. The Office of Student Affairs provides student support services which include academic advisement, learning skills counseling, psychological counseling, career counseling, and student records, and coordinates additional services offered through general University offices which include housing, student health, and disabled student services.

Student Affairs

Michael Prislin, M.D., Associate Dean; 949-824-8358
Barbara Lutz, Registrar, Director; 949-824-5283
David Franklin, Ph.D., Counseling Psychologist; 949-824-4621
Geraldine Codd, Academic Skills Coordinator; 949-824-3415

The mission of the Office of Student Affairs is to create an environment within the School of Medicine community that fosters student attainment of the School of Medicine educational objectives. This is accomplished through assuring that student participation in the educational program occurs in a manner consistent with School of Medicine policies and regulations, and through the provision of support services that facilitate optimal student

participation in the educational program. To accomplish the educational assurance mission, the Office of Student Affairs disseminates information regarding academic policies and regulations, provides administrative and executive support for the faculty Committee on Promotions and Honors, and facilitates the institutional recognition of student achievement through the conduct of various School of Medicine events. To accomplish the educational support mission, the Office of Student Affairs provides academic, personal, psychological, career, and financial counseling; academic skills assessment and learning resources support, student wellness programs, student facilities support, initiatives to enhance the learning environment, and support for a variety of student organizations and informal activities.

Financial Aid

Luis Medina, Director; 949-824-6476

The UCI School of Medicine Financial Aid Office provides financial assistance and financial counseling services to entering and continuing medical students. The office secures, manages, and provides funds in the form of scholarships, grants, and loans to assist in meeting students' educational expenses.

The office coordinates financial aid application materials; tracks documents needed to complete an application; reviews and evaluates information provided by applicants; awards financial aid programs; and conducts research to determine basic educational expense budgets. It also provides students with information on policies and procedures, cost of attendance, and eligibility criteria.

In providing counseling services, the office advises students, reviews their individual circumstances, and provides financial assistance within financial aid program guidelines. It presents financial aid workshops for prospective and enrolled students to enhance their knowledge about financial aid programs and the application process, provides debt management counseling, and conducts entrance and exit interviews.

Curricular Affairs

Shahram Lotfipour, M.D., M.P.H., Associate Dean, Clinical Science Education; 949-824-6138
Jeffrey Suchard,M.D., Associate Dean, Basic Science Education; 949-824-6304

This office provides support related to curricular issues for the School of Medicine, departments, faculty, and students; initiates curriculum review and innovation to meet the challenges of contemporary medical education; establishes and reviews the objectives of the School of Medicine and ensures individual courses are teaching to meet the objectives; serves as facilitators of new programs and curriculum and supports working committees during curriculum development; facilitates and monitors curriculum content theme integration; and maintains records on course materials and grading policies. This office is responsible for curriculum documentation for review by the Curriculum and Educational Policies committee; the collection of course evaluations by students; maintaining accurate information on core and elective curriculum; and assessing the success of the current programs.

Instructional Technology Group

Warren Wiechmann, M.D., Faculty Director; 949-824-6138

The Instructional Technologies Group (ITG) is tasked with providing top-quality technology, innovation and support for UC Irvine School of Medicine faculty, students, and staff. We work closely with Medical Education to develop novel uses of technology within the medical school setting that will enhance the overall educational experience for our students.

Continuing Medical Education

Ellen Seaback, Director; (949) 824-1150

The Office of Continuing Medical Education provides educational activities to physicians and other health care professionals to reinforce basic medical knowledge, improve competency, and enhance performance-in-practice and outcomes of patient care. Additionally, these activities impart updated information on clinical practice and health care delivery; introduce new ideas, skills, and technology; and disseminate pertinent research findings. The program encompasses a broad and comprehensive range of topics based on identified gaps in the needs of the communities served. As an academic center of excellence that includes the UC Irvine Medical Center, emphasis is placed on the identification of areas for improvement through the system's Quality Improvement Department for which CME is a change-agent.

Graduate Medical Education

Khanh-Van Le-Bucklin, M.D., Associate Dean; 714-456-3526
Courtney Strayer, Director, Graduate Medical Education; 714-456-3526

The UCI School of Medicine Graduate Medical Education Training Programs attract medical students from prestigious medical schools nationwide. UCI offers 54 ACGME-approved residency and fellowship training programs. There are approximately 650 residents and fellows in these training programs. UC Irvine Medical Center, Veterans Affairs Long Beach Healthcare System, Long Beach Memorial Medical Center and Miller Children's Hospital are the integrated training sites for the residency programs. Other affiliations such as Kaiser (Anaheim, Bellflower, Irvine, and Riverside), Western Medical Center, Children's Hospital of Orange County, St. Jude's Hospital, and Children's Hospital Los Angeles offer additional residents training in specialized fields.

Postgraduate Educational Programs

Residency Programs

The School of Medicine and its affiliated hospitals offer approximately 650 residency positions in almost all areas of medicine. Training levels range from first-year residencies through seventh-year-level subspecialty fellowships. Inquiries about specific programs should be directed to the Program Director as listed in the *Directory of Residency Training Programs,* published each year by the American Medical Association, or to the chair of the appropriate School of Medicine department.

All residency programs meet the formal standards of the Accreditation Council for Graduate Medical Education and the appropriate specialty boards. UCI adheres to the Health Professions Educational Assistance Act of 1976, P.L. 94-484, Section 709, regarding shared-schedule residency training positions.

Residents in all programs rotate to UC Irvine Medical Center at some time. Residents in anesthesiology, dermatology, diagnostic radiology, medicine, neurology, ophthalmology, pathology, surgery, physical medicine and rehabilitation, radiation oncology, family medicine, subspecialties of medicine, orthopaedics, otolaryngology, urology, and psychiatry also rotate to the Veterans Affairs Long Beach Healthcare System. Residents in medicine, medicine subspecialities, anesthesiology, radiation oncology, psychiatry, obstetrics and gynecology, pathology, pediatrics, physical medicine and rehabilitation, plastic surgery, and surgery also rotate to the Memorial Hospital Medical Center/Miller Children's Hospital in Long Beach. In 2009, UCI established an affiliation with the Children's Hospital of Orange County (CHOC), which will be a major training site for the combined program in pediatrics and other specialities. Residents may also spend periods of time at other affiliated hospitals and clinics.

Anesthesiology

The Anesthesiology Residency Program is a five-year accredited categorical program. It offers training for residents at the postgraduate PG-1 to PG-4 levels. The residents spend a PGY-1/Clinical Base Year in intensive medical/surgical training at Long Beach Memorial Medical Center, Veterans Affairs Long Beach Healthcare System, and UC Irvine Medical Center. The PGY-2 through PGY-4 years involve broad clinical training at the UC Irvine Medical Center as well as rotations in affiliates at Children's Hospital of Los Angeles (two months), Cedars-Sinai Medical Center (two months), Long Beach Memorial (two months) and the Veterans Affairs Long Beach Healthcare System (two months). Training is offered in general anesthesia, regional anesthesia, cardiac anesthesia, pediatric anesthesia, trauma anesthesia, neurosurgical anesthesia, ambulatory anesthesia, obstetric anesthesia, intensive care, and pain management. Electives in subspecialty training in obstetrical anesthesia, critical care medicine, pediatric anesthesia, pain management, cardiac anesthesia, or research are offered as part of the PGY-4 year.

Dermatology

The Department of Dermatology offers a three-year accredited residency which has fifteen residents, five for each of three postgraduate years. Residents rotate through clinics at UC Irvine, the Veteran Affairs Long Beach Healthcare System, and Kaiser Permanente and receive extensive training in medical and surgical dermatology and are active in research projects. Residents rotate through specialty clinics which see patients with immunobullous disease, pigmentary disorders, venous disease, vascular birthmarks, pediatric disorders, and melanoma. Residents receive extensive training in Mohs surgery, laser techniques, excisional surgery, performance of flaps and grafts, and administration of cosmetic agents. Residents present at local, national, and international meetings.

Emergency Medicine

The Emergency Medicine residency was established in 1988 and has full accreditation by the Residency Review Committee. The program has 18 residents, six for each of three postgraduate years. The UC Irvine Medical Center Emergency Department is a high-acuity, Level I Trauma Center, treating over 50,000 patients annually. Thirteen board-certified emergency medicine faculty provide 24-hour patient care and supervision of residents and medical students. The Department of Emergency Medicine is active in disaster preparedness and response, emergency uses of ultrasound imaging, public affairs, community service, and research in the areas of prehospital care, instructional methods, trauma, health policy, and infectious disease, among others.

Family Medicine

The mission of the Family Medicine Residency Program is to train family physicians to succeed in a contemporary practice environment and to deliver high-quality medical care to a culturally and socioeconomically diverse patient population. This fully accredited program boasts 27 residents and offers training in a variety of settings. The residents' continuity clinic is located in the largest community clinic in Orange County, and residents participate in a number of community outreach activities. The world-class faculty act as teachers and mentors to the residents and teach them important principles to help them succeed as professionals. The residency program is a leader in a variety of curricular endeavors including school outreach, training residents how to teach, the business of medicine, sports medicine, and much more. The hundreds of successful residency graduates in the local area are a testament to the program's ongoing efforts to train outstanding family doctors.

Geriatrics

The Geriatrics Fellowship is a comprehensive one-year training program that has been accredited since 1991, providing eligibility for Geriatric Medicine specialization for Internal Medicine and Family Medicine physicians. Fellows receive training at UC Irvine Medical Center as well as affiliated sites, including Veterans Affairs Long Beach Healthcare System, and alternative community care environments for seniors. Fellows have longitudinal

experiences in high-quality skilled nursing facilities, assisted living facilities, a comprehensive, multidisciplinary assessment program, and primary care practices.

Internal Medicine

The internal medicine residency program is a traditional three-year training program and also sponsors a one-year preliminary program. The program focuses on core educational skills of the internist and offers pathways for primary care, hospitalist medicine, and research. Residents rotate through UC Irvine Medical Center, the Veterans Affairs Long Beach Healthcare System, and Long Beach Memorial Medical Center. Core program faculty have a special interest in academic internal medicine and education. Subspecialty fellowships are offered in basic and clinical immunology, cardiology, endocrinology and metabolic diseases, gastroenterology, hematology/oncology, infectious diseases, nephrology, pulmonary/critical care diseases, and rheumatology.

Interventional Radiology

The Department of Radiological Sciences offers a one-year, clinically oriented fellowship in Interventional Radiology. Training in this discipline involves a broad range of vascular and interventional radiology procedures including interventional CT and Ultrasound. The fellow will also have the opportunity and option to participate in neuroradiological procedures including neurovascular intervention. The fellow is encouraged to participate in ongoing research projects and publications. The Vascular and Interventional Fellowship Program at UCI is ACGME accredited.

Medical Genetics

UCI offers two Medical Genetics residency training programs. The first is a two-year categorical Medical Genetics residency that is straight Medical Genetics and requires prior satisfactory completion of 24 months of the ACGME-accredited residency training in a specialty other than Medical Genetics. At the end of the program a trainee should be eligible to take the American Board of Medical Genetics (ABMG) examinations. The second program is a five-year combined Pediatrics/Medical Genetics training program that devotes two and one-half years each to Pediatrics and to Medical Genetics. Usually, the first year is all Pediatrics, the last year is all Medical Genetics, and the middle three years alternate between Pediatrics and Medical Genetics for periods of three-six months each. After successful completion of the program the trainee will be eligible to take both the Pediatrics boards and the Medical Genetics boards. The number and content of genetics rotations that the combined Pediatrics/Genetics residents do are identical to those of the categorical genetics residents except that there is an additional six months of genetics time that is expected to be devoted to research or to training in a specialized area of genetics in which the resident intends to devote his or her career. This extra is flexible but must be spent in academic pursuit. Training utilizes three teaching hospitals: UC Irvine Medical Center, Children's Hospital of Orange County, and Long Beach Memorial Medical Center/Miller Children's Hospital. Research offices and laboratories are on the UCI main campus.

Neonatal-Perinatal Medicine

UCI offers a three-year fellowship in Neonatal-Perinatal Medicine, accredited by the Accreditation Council for Graduate Medical Education (ACGME). The program provides a well-rounded curriculum that balances between clinical experiences, teaching opportunities, and academic and scientific activities. The program offers variety and depth due to the diversity of the two major training sites—UC Irvine Medical Center and Long Beach Memorial Medical Center/Miller Children's Hospital. The care of newborns seen through the two hospitals represents a cross-section of racial, cultural, and socioeconomic groups from a local population of more than 2.5 million. These two sites represent a broad-spectrum of neonatal practice and offer excellent opportunities to learn and teach. Clinical and basic science research conducted by the faculty in the section gives the fellow the ability to gain skills in scientific investigation. The program's superb physical environment, extraordinary clinical services, and varied research interests permit the faculty to carry out the mission of preparing neonatal fellows for a career in clinical or academic neonatology. In addition, the program collaborates clinically and through research with a superb fellowship training in Maternal-Fetal Medicine that is also based at the two institutions. The Neonatal-Perinatal Medicine Fellowship training consists of 14 months of direct patient care responsibilities, 19 months of research training, and three months of vacation.

Neurology

Neurology residency training focuses on the development of strong clinical skills to competently evaluate and treat the large number of disorders that afflict the nervous system. During three years of training at UCI, residents have the opportunity to see a wide variety of neurological conditions and receive progressively more responsibility. The program provides a rich, intellectually stimulating environment in which to learn. UCI Neurology faculty all have broad experience caring for neurological disorders and have special expertise in different neurological disciplines. Residents have opportunities to work in many different subspecialty areas with the faculty. The neurology residency program is big enough to provide a rich environment to learn about neurological disorders, yet remains small enough for residents to work closely with each faculty member. Residents are encouraged to learn at every opportunity: from patients, peers, the faculty, and visiting experts. There are many formats in which to learn, from bedside discussions, tutorials, to specially prepared lectures. To further stimulate intellectual growth, residents are actively encouraged to pursue research in any topic of their choosing, with the guidance of the faculty.

Neurosurgery

The UCI Residency Program in Neurosurgery is a rigorous training program designed to develop academic neurosurgeons. There are ample opportunities for both clinical and basic research within the Department and in collaboration with other laboratories or departments at UCI. Applicants are expected to have a strong academic record with a strong commitment to neurosurgery. One candidate is selected for each program year. Exact order of clinical rotations may vary slightly subject to the trainee's previous experience and needs as well as the training program circumstances, however, the rotation generally proceeds as follows: the PGY-1 year is a nine-month general surgery rotation with three-months of neurology; PGY-2 is one year of

training at UC Irvine Medical Center; PGY-3 is a six-month rotation at Kaiser Permanente, Anaheim, followed by three-months of neuropathology and three-months of neuroradiology at UC Irvine Medical Center; PGY-4 is a six-month rotation at Children's Hospital of Orange County (CHOC) and a six-month rotation at Kaiser Permanente, Anaheim; PGY-5 is a research year; PGY-6 is a three-month rotation at Hoag Memorial Presbyterian Gamma Knife Center for stereotactic radiosurgery and a three-month elective (Interventional Radiology or Spine) at UC Irvine Medical Center and a six-month rotation at CHOC; PGY-7 is the chief resident year and will be at UC Irvine Medical Center. Invitations to interview for these positions are based on the candidate's academic record, National Board scores, publications, letters of recommendation, and a personal statement.

Obstetrics and Gynecology

This four-year program provides a solid foundation in Obstetrics and Gynecology with emphasis in the reproductive pathophysiology in the many different areas of women's health care. Based on this foundation, training continues with progressive resident responsibility for operative and medical management and surgical techniques. While predominantly clinical in scope, the program is strongly flavored by academic and research exposure. Training is provided in general obstetrics and gynecology with rotations in the subspecialties of perinatology, urogynecology, family planning, gynecologic oncology, and reproductive endocrinology. There are seven resident positions available each year in this four-year training program.

Ophthalmology

The three-year Ophthalmology Residency Program provides extensive clinical and surgical experience coupled to an excellent weekly didactic curriculum. The program provides a broad spectrum of ophthalmic disease management with extensive exposure and surgical experience in the full range of ophthalmology subspecialties. Residents have rotations in cornea and refractive surgery, vitreoretinal surgery, oculoplastic and orbital surgery, glaucoma, pediatric ophthalmology and strabismus, ophthalmic pathology, and neuro-ophthalmology, in addition to comprehensive ophthalmology clinics. Residents also receive instruction and practical application in the newest laser surgical techniques as well as the use of state-of-the-art diagnostic equipment.

Orthopaedic Surgery

The program is designed to provide intense exposure and experience in all areas of orthopaedics including trauma, reconstructive and joint replacement surgeries, pediatric orthopaedics, spine surgery, sports medicine, foot surgery, and rehabilitation. It is structured for maximum resident participation with an emphasis on personalized mentorship. The program's teaching hospitals include UC Irvine Medical Center, Veterans Affairs Long Beach Healthcare System, Children's Hospital of Orange County, and Kaiser Permanente Medical Center in Anaheim. There are four resident positions available each year.

Otolaryngology—Head and Neck Surgery

The Department of Otolaryngology—Head and Neck Surgery offers a five-year residency program providing comprehensive training in otolaryngology to prepare trainees to sit for the American Board of Otolaryngology Examinations. The five-year program provides a breadth of training in otological surgery, head and neck surgery, facial plastic surgery, pediatric otolaryngology, and nasal and paranasal sinus surgery. Residents receive an extensive clinical experience at UC Irvine Medical Center, Children's Hospital of Orange County, Veterans Affairs Long Beach Healthcare System, and Kaiser Foundation Hospital-Anaheim. Acceptance is through application and successful matching through the National Residency Matching Program. The program follows requirements set by the Accreditation Council for Graduate Medical Education.

Pain Medicine

The Fellowship Training Program in Pain Medicine at the UC Irvine Medical Center is an intensive one-year ACGME-accredited multidisciplinary training program sponsored by the Department of Anesthesiology and Perioperative Care. The fellowship boasts a multidisciplinary faculty with both Anesthesiology and Physical Medicine and Rehabilitation leadership. The program trains fellows who have completed a residency training program in Anesthesiology, Physical Medicine and Rehabilitation, Neurology or Psychiatry, although applicants from other fields may also apply. Truly interdisciplinary, the fellowship teaches interventional pain management, opioid and adjunctive medication management, as well as non-interventional pain management. Personalized physical and occupational therapy, off-loading therapy, electroacupuncture, electrodiagnostics, psychologic and cognitive therapies, and regional anesthesia are common treatment modalities at UCI that are also taught during the fellowship. The fellows also rotate through rehabilitation medicine, anesthesiology, neuroradiology, palliative care, neurology, and psychiatry.

Pathology

The Department of Pathology and Laboratory Medicine offers a residency training program covering all areas of anatomic and clinical pathology. The program is affiliated with Long Beach Memorial Medical Center and Veterans Affairs Long Beach Healthcare System. The training for the combined anatomic and clinical pathology program consists of four years of training in both anatomic and clinical pathology. The first three years consist of a core program providing exposure to each of the subspecialty areas of clinical pathology as well as surgical pathology, autopsy pathology, and cytopathology. Ample opportunities for research and teaching exist for individuals planning on an academic career. Excellent preparation is also provided for individuals planning on a career in forensic pathology or private practice in a community hospital.

Pediatrics

The Pediatric Residency Program emphasizes the interrelationship of patient care, didactic teaching, and research in the training of the pediatric resident physician. The focus is on the total care of the child from birth through young adulthood. A strong clinical and educational foundation is provided

through experiences in a broad spectrum of disease and/or injury as well as training in biosocial pediatrics, preventive health care, and community resources.

The program offers variety and depth due to the diversity of the Department's major teaching hospitals—Children's Hospital of Orange County, Miller Children's Hospital (located at Long Beach Memorial Medical Center), and UC Irvine Medical Center. The faculty at these institutions provides a comprehensive teaching program in general pediatrics and cover the full range of pediatric subspecialties. The care of children seen through the two hospitals represents a cross-section of racial, cultural, and socioeconomic groups from a local population of more than 2.5 million. Thus, pediatric residents are exposed to a wide range of problems presented in settings ranging from intensive care to supervised office-based practice.

Physical Medicine and Rehabilitation

The Department of Physical Medicine and Rehabilitation offers a three-year residency for applicants who have completed a one year internship. The focus is on the diagnosis and comprehensive treatment and care of patients with neuromusculoskeletal or cardiopulmonary disabilities, from newborns to the elderly. Residents are also involved in research and medical student teaching.

Plastic Surgery

The Aesthetic and Plastic Surgery Institute of UCI has a fully integrated residency program. The program currently accepts three residents for a six-year educational training experience in Plastic Surgery. The goals and objectives of this program are to educate plastic surgeons who are analytical and scholarly in their approach to surgical problem solving, broadly experienced in all fields of the specialty, safe in their application of judgment and technique, and ultimately self-educating in a lifelong continuing medical education process. The goals and teaching philosophy are based on the graduate school model, which emphasizes analytic problem solving, scholarly use of the knowledge base and scientific resources of the field, development of judgment skills, and identification of educational tools that produce the ability to self-direct one's lifelong professional education in a scholarly manner. At the successful completion of this program, candidates will be able to sit for their boards in Plastic Surgery.

Preventive Medicine

This residency program is offered by the Division of Occupational Medicine, Department of Medicine. It is intended for physicians who are seeking certification by the Board of Preventive Medicine. A prerequisite to participation is a minimum of one year of postgraduate clinical training in a primary care discipline. The objective of the program is the training of physicians in the fields of occupational medicine and industrial medical care. The resident is provided an academic foundation in occupational medicine, industrial hygiene, environmental toxicology, and epidemiology, in addition to practical experience in preventive medicine as it is applied to employed persons. This two-year program includes didactic training and clinical and field experience in occupational health and safety. Upon completion of training, the resident is qualified to enter the specialty practice of occupational medicine in an industrial setting, in private practice, in a government agency, or in an academic institution.

Psychiatry

The Psychiatry Residency Training Program is a four-year program that fosters academic excellence and broad clinical experience in general psychiatry. Residents receive extensive supervised training in both psychotherapy and psychopharmacology. The core curriculum includes didactic seminars and supervised clinical experiences in the following areas: adult inpatient and outpatient psychiatry, child psychiatry, geriatric psychiatry, primary care, neurology, emergency psychiatry, consultation and liaison psychiatry, forensic psychiatry, and substance abuse. Residents rotate at the UC Irvine Medical Center, the Veterans Affairs Long Beach Healthcare System, and Orange County Behavioral Health. Elective rotations are also available at the UC Irvine Outreach Clinics, Kaiser Permanente, and Long Beach Memorial Medical Center. The flexible curriculum allows residents to pursue elective interests in research, teaching, and administrative psychiatry. The program includes a broad array of full-time, part-time, and volunteer clinical and research faculty, and maintains a teaching affiliation with the New Center for Psychoanalysis.

Radiological Sciences (Diagnostic Radiology)

The Department of Radiological Sciences has an ACGME-approved four-year residency program based at UC Irvine Medical Center and integrated with Veterans Affairs Long Beach Healthcare System. There is also a month-long Pediatric Radiology rotation at Children's Hospital of Orange County. The objectives of the program are (1) to train competent radiologists with a solid background in all modalities of imaging and interventional procedures, (2) to provide a conducive atmosphere and to encourage opportunities for residents to participate in translational and basic science research, and (3) to provide elective periods in which residents have the opportunity to increase their clinical radiology expertise or to work on research projects during their residency training. The residency program includes sub-specialized training in interventional, cardiothoracic, abdominal, pediatric, musculoskeletal radiology, as well as breast imaging, neuroradiology, and molecular imaging. Residents are exposed to a variety of modalities including radiography, fluoroscopy, computed tomography (CT), magnetic resonance imaging (MRI), ultrasonography, mammography, nuclear medicine, and spectroscopy. All residents participate in scholarly activities and are encouraged to complete at least one major research project during the program. The program provides a month-long research time. Candidates are accepted for six positions at the PGY-2 level for the four-year program. Fellowships are available for an additional year in specialized areas following the successful completion of the residency. The newest technologies in the field of radiological sciences are available at UC Irvine Medical Center and affiliated institutions.

Radiation Oncology

The Residency Training Program in Radiation Oncology is designed to prepare suitably qualified applicants for academic and clinical practice careers in radiation oncology. Candidates enter a four-year program which includes clinical experience, didactic lectures and integrated research experience. Unique opportunities exist for training in the use of interstitial and intracavitary treatment using radionuclides and specially designed applicators as

well as a variety of high-dose external beam technologies such as IMRT, radiosurgery, and VMAT/IMAT. The program includes rotations at three participating hospitals: UC Irvine Medical Center, Veterans Affairs Long Beach Healthcare System, and Long Beach Memorial Medical Center.

Surgery

The philosophy underlying all aspects of surgical training is that surgery is best learned, taught, and practiced as applied clinical physiology. Operative techniques and applied anatomy receive appropriate attention. Major portions of clinical experience, teaching, conferences, research, and patient care are oriented toward understanding and correcting disordered human biology. The surgical specialty involves more years of training than other medical disciplines due to the breadth of diseases and complexity of pathophysiology involved in surgery.

Urology

The Department of Urology Residency Program is a six-year training program that includes a one-year internship in the Department of Surgery and five years of Urology training. The residency program provides training in all aspects of adult and pediatric urologic diseases. The residents receive extensive training in open and endoscopic procedures, laparoscopy and other minimally invasive techniques, urologic pathology, uroradiology, and management of non-operative urologic conditions. The program's training hospitals include UC Irvine Medical Center, Veterans Affairs Long Beach Healthcare System, Kaiser Permanente Anaheim, and Children's Hospital of Orange County. The Urology Department encourages and supports both clinical and basic science research.

Graduate Academic Programs

The School of Medicine offers graduate study in a wide variety of fields in both basic science and clinical departments. The basic medical science departments of Anatomy and Neurobiology (p. 1163), Biological Chemistry (p. 1167), Microbiology and Molecular Genetics (p. 1186), Pathology and Laboratory Medicine (p. 1179), and Physiology and Biophysics (p. 1193) offer graduate instruction leading to the M.S. and Ph.D. degrees in Biomedical Sciences. The Department of Pharmacology (p. 1191), in conjunction with the Department of Pharmaceutical Sciences, offers graduate instruction leading to the M.S. and Ph.D. degrees in Pharmaceutical Sciences (p. 1083). The Department of Epidemiology (p. 1175) offers graduate instruction leading to the M.S. and Ph.D. degrees in Epidemiology. The Department of Medicine offers graduate instruction leading to the M.S. and Ph.D. degrees in Environmental Health Sciences (p. 1172). Most graduate students in these programs are admitted for the Doctor of Philosophy (Ph.D.) degree. The Department of Pediatrics offers an M.S. degree in Genetic Counseling (p. 1183). The School of Medicine also offers an M.S. degree in Biomedical and Translational Science (p. 1170). Each department or program has a graduate advisor whom students may consult for additional details of the individual programs.

The departments evaluate applications for admission to graduate study or program based on letters of recommendation, Graduate Record Examination scores, grades, research experience, and other relevant qualifications of the applicant. Candidates for graduate admission are urged to consult the particular department or program whose faculty and expertise best fit their interests and background.

Application materials may be obtained by contacting the individual graduate programs or:

University of California, Irvine
Graduate Division
120 Aldrich Hall
Irvine, CA 92697-4611
949-824-6761
http://www.grad.uci.edu

Master or Science and Doctor of Philosophy in the School of Medicine

The School of Medicine offers both the Master of Science and Doctor of Philosophy degrees, although emphasis at the graduate level is placed on the Ph.D. programs. Most training takes place within one of the departments, although full facilities and curricular offerings are available to all graduate students in all departments of the School of Medicine. Interdisciplinary study and research are encouraged. Students are expected to maintain a B average at all times. The normative time to degree is two years for the master's degree, and five years for the doctoral degree. A master's degree is not a prerequisite for the Ph.D. degree.

Students plan their academic program in consultation with the graduate advisor or a faculty committee. Faculty advisors may be changed to meet the needs and interests of the student. In addition, it is possible for students to transfer to another program in the School, subject to the approval of the Dean of Graduate Studies, and acceptance into that program. Students are encouraged to consult with faculty members with regard to their research and academic interests.

Master of Science in Biomedical Sciences

The Master of Science degree in Biomedical Sciences may be completed by submission of a research thesis (plan I) or by course-work and a comprehensive exam (plan II).

Plan I: Thesis Plan. The student is required to complete at least four didactic graduate courses (16 units) offered by the department, and elective course work with an additional 8 units of graduate or upper-division undergraduate course work. In addition, the student will typically take additional seminar courses during the graduate study. Students in the M.S. program may be employed as teaching assistants, but units earned through enrollment

in University Teaching (399) may not be counted toward degree completion. The student engages in thesis research with a faculty thesis advisor, and will prepare and submit a dissertation to the thesis committee. The final examination is an oral presentation of the thesis to the committee. The normative time to degree is two years for the thesis M.S. degree.

Plan II: Comprehensive Examination Plan. The plan II M.S. degree is awarded based on completion of at least 36 units of course work and a satisfactory completion of a comprehensive exam. The student is required to complete at least 16 units (four courses) of didactic graduate course work offered by the department. In addition, the student will take up to 12 units of research. An additional 8 units or more of elective course work will be completed from other graduate courses offered by the department. A maximum of 4 units of upper-division undergraduate courses may be included in the program with the approval of the Associate Dean for Graduate Studies. Students in the M.S. program may be employed as teaching assistants, but units earned through enrollment in University Teaching (399) may not be counted toward degree completion. The comprehensive exam will be administered by a committee of at least three departmental faculty, and may include written and oral sections. The comprehensive exam format will include a research presentation and may include additional portions such as a research proposal, presentation of a project, or other components. The normative time to degree is one year for the M.S. degree by comprehensive exam.

Doctor of Philosophy

Comprehensive Examination-First Year. The student must pass comprehensive oral or written examinations at the discretion of the department. The examination is generally taken at the end of the first year of graduate study.

Advancement to Candidacy. The advancement to candidacy examination is taken before the end of the third year of graduate study. The student is expected to have identified an important and tractable dissertation research topic. A faculty committee for the advancement to candidacy examination is proposed by the faculty mentor in consultation with the student, and approved by the Department Graduate Advisor. A majority of the committee must hold primary or joint appointments in the student's department.

Once this examination is completed, the student is advanced to candidacy for the doctoral degree and is expected to complete the degree within three years. The student must submit a dissertation on this research and defend the thesis in an oral examination during the final year of graduate study. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Graduate-student status or consent of instructor is a prerequisite for all 200–299 courses.

Faculty

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Anthony A. James, Ph.D. University of California, Irvine, *UCI Distinguished Professor of Microbiology and Molecular Genetics; Molecular Biology and Biochemistry*

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Edward W. Jeffes, M.D. University of California, Los Angeles, *Health Sciences Clinical Professor of Dermatology*

Brenda L. Jensen, M.D. University of California, Irvine, *Health Sciences Clinical Professor of Psychiatry and Human Behavior*

James V. Jester, Ph.D. University of Southern California, *Jack H. Skirball Endowed Chair* and *Professor of Ophthalmology; Biomedical Engineering* (mechanics of wound healing and the inter-relationship of mechanical force, cell-matrix interaction, and gene expression, cellular basis of corneal transparency and the role of water-soluble proteins in isolated cell light scattering, three-dimensional and temporal imaging of cells in intact living tissue)

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Deepa Jeyakumar, M.D. Temple University, *Health Sciences Assistant Clinical Professor of Medicine*

Anna Jin, M.D. Tulane University, *Health Sciences Clinical Professor of Medicine*

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Hartmut Luecke, Ph.D. William Marsh Rice University, *Professor of Molecular Biology and Biochemistry; Molecular Biology and Biochemistry; Physiology and Biophysics*

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Gerald A. Maguire, M.D. Saint Louis University, *Kirkup Chair in Psychiatry and Human Behavior for the Medical Treatment of Stuttering* and *Professor of Psychiatry and Human Behavior*

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G. Robert Mason, M.D. University of Chicago, *Professor Emeritus of Surgery*

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Irene M. McAleer, M.D. Ohio State University, *Health Sciences Associate Clinical Professor of Urology*

Michael McClelland, Ph.D. University of Georgia, *Professor of Microbiology and Molecular Genetics*

Christopher McCoy, M.D. University of California, San Francisco, *Health Sciences Assistant Clinical Professor of Emergency Medicine*

Jerry L. McCullough, Ph.D. Yale University, *Professor Emeritus of Dermatology*

Elspeth M. McDougall, M.D. University of Calgary, *Professor Emerita of Urology*

Christine E. McLaren, Ph.D. Case Western Reserve University, *Professor of Epidemiology*

Gordon McLaren, M.D. Stanford University, *Adjunct Profoessor of Medicine*

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Xiangmin Xu, Ph.D. Vanderbilt University, *Assistant Professor of Anatomy and Neurobiology; Biomedical Engineering; Electrical Engineering and Computer Science; Microbiology and Molecular Genetics* (local cortical circuits)

Aparche B. Yang, M.D. University of California, Irvine, *Health Sciences Assistant Clinical Professor of Dermatology*

Jing Yang, M.D. , *Assistant Professor in Residence of Ophthalmology*

Qin Yang, M.D. , *Assistant Professor of Medicine; Physiology and Biophysics*

Daniel S. Yanni, M.D. University of California, San Diego, *Assistant Professor of Neurological Surgery*

Leman Yel, M.D. Hacettepe University, *Senate Emeritus of Medicine*

Douglas B. Yim, M.D. University of Southern California, *Health Sciences Associate Clinical Professor of Radiological Sciences; Surgery*

Hong Zhen Yin, M.D. , *Specialist of Neurology*

Kyoko Yokomori, Ph.D. University of Tokyo, *Professor of Biological Chemistry; Biological Chemistry*

Hiroshi Yoshioka, Ph.D. University of Tsukuba, *Professor in Residence of Radiological Sciences*

Julie H. Youm, Ph.D. Teachers College, Columbia University, *Assistant Adjunct Professor of Emergency Medicine*

Bassam Younes, M.D. , *Health Sciences Associate Clinical Professor of Pediatrics*

Christopher Young, M.D. Duke University, *Health Sciences Clinical Instructor of Obstetrics and Gynecology*

Robert R. Young, M.D. Harvard University, *Senate Emeritus of Neurology*

Ronald F. Young, Ph.D. State University of New York Downstate Medical Center, *Professor Emeritus of Neurological Surgery*

Julie N. Youssef, D.O. New York Institute of Technology College of Osteopathic Medicine, *Health Sciences Assistant Clinical Professor of Pediatrics*

Christopher B. Zachary, M.D. University of London, *Health Sciences Professor of Dermatology*

David Zamorano, M.D. University of Southern California, *Health Sciences Associate Clinical Professor of Orthopaedic Surgery*

Nicole M. Zanin, M.D. Wright State University, *Health Sciences Clinical Instructor of Medicine*

Michael V. Zaragoza, M.D. Case Western Reserve University, *Assistant Professor of Pediatrics; Biological Chemistry*

Sohila Zarandy, M.D. University of Tehran, *Health Sciences Associate Clinical Professor of Medicine*

Jason Zell, D.O. Nova Southeastern University, *Assistant Professor of Medicine*

Fan-Gang Zeng, Ph.D. Syracuse University, *Director of Hearing Research and Professor of Otolaryngology; Anatomy and Neurobiology; Biomedical Engineering; Cognitive Sciences* (cochlear implants and auditory neuroscience)

Xiaohui Zhao, Ph.D. University of Illinois at Urbana–Champaign, *Health Sciences Associate Clinical Professor of Pathology and Laboratory Medicine*

Xiaolin Zi, Ph.D. Shanghai University, *Associate Professor of Urology; Pharmacology*

Argyrios Ziogas, Ph.D. University of Southern California, *Associate Adjunct Professor of Epidemiology*

Albert Zlotnik, Ph.D. University of Colorado Boulder, *Professor of Physiology and Biophysics*

Mary L. Zupanc, M.D. University of California, Los Angeles, *Health Sciences Clinical Professor of Pediatrics*

Anatomy and Neurobiology

364 Medical Surge II; 949-824-6050
anatomy@uci.edu; http://www.anatomy.uci.edu/
Ivan Soltesz, **Department Chair**
Martin A. Smith, **Department Vice Chair**
David C. Lyon, **Departmental Graduate Advisor**

Research programs in the Department of Anatomy and Neurobiology in the School of Medicine focus on the neurosciences. Faculty interests range across all areas of basic and clinical research including cellular and molecular neurobiology, mechanisms of development, ion channel physiology, experimental neuroanatomy, structure and function of sensory and motor systems, response to injury and regeneration. The Department maintains facilities for electron microscopy, laser confocal microscopy, and computer-based imaging and informatics. Students performing graduate work in the Department are encouraged to become proficient in multiple areas of study using interdisciplinary techniques.

The Department offers graduate training under the auspices of the School of Medicine in conjunction with the Interdepartmental Neuroscience Program (INP). Students are eligible to enter the Department program after meeting the specific requirements of the INP gateway curriculum or by direct application to the Department. The Department program leads to the M.S. or Ph.D. degree in Biomedical Sciences, awarded after successful completion of all requirements.

In concert with other departments, a combined neuroscience core curriculum has been developed which includes offerings in systems neurobiology, neurophysiology, and cellular, molecular, and developmental neurobiology that may be taken as complete or partial fulfillment of the requirements of the INP. Students admitted into the INP who subsequently select a research advisor in the Department begin following the departmental requirements for the Ph.D. at the beginning of their second year. Students may take additional elective courses at their own option, but they are required to attend departmental seminars and participate in the Journal Club and an annual “Grad Day” symposium. The research topic for a student’s dissertation is chosen by the student in consultation with the research advisor. Students are expected to advance to candidacy by the end of the third year by

presenting and defending a proposal for their research dissertation. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Faculty

Tallie Z. Baram, M.D. University of Miami, *Danette Dee Dee Shepard Chair in Neurological Studies* and *Professor of Pediatrics; Anatomy and Neurobiology; Neurology; Physiology and Biophysics*

Robert H. Blanks, Ph.D. University of California, Los Angeles, *Professor Emeritus of Anatomy and Neurobiology*

Anne L. Calof, Ph.D. University of California, San Francisco, *Professor of Anatomy and Neurobiology; Developmental and Cell Biology* (neurogenesis and neuronal differentiation)

Steven C. Cramer, M.D. University of Southern California, *Professor of Neurology; Anatomy and Neurobiology; Physical Medicine and Rehabilitation*

Brian J. Cummings, Ph.D. University of California, Irvine, *Associate Professor of Physical Medicine and Rehabilitation; Anatomy and Neurobiology*

James H. Fallon, Ph.D. Ubiversity of Illinois Medical Center, *Professor Emeritus of Anatomy and Neurobiology*

Mark J. Fisher, M.D. University of Cincinnati, *Professor of Neurology; Anatomy and Neurobiology; Political Science*

Christine M. Gall, Ph.D. University of California, Irvine, *Professor of Anatomy and Neurobiology; Neurobiology and Behavior*

Roland A. Giolli, Ph.D. University of California, Berkeley, *Professor Emeritus of Anatomy and Neurobiology*

Alan L. Goldin, M.D. University of Michigan, *Professor of Microbiology and Molecular Genetics; Anatomy and Neurobiology; Physiology and Biophysics*

Frances L. Gonzalez, Ph.D. University of Aberdeen, *Professor of Pharmacology; Anatomy and Neurobiology*

Ranjan Gupta, M.D. Albany Medical College, *Professor of Orthopaedic Surgery; Anatomy and Neurobiology; Biomedical Engineering* (hand and upper extremity surgery)

Leif Havton, Ph.D. Umea University, *Professor of Anesthesiology and Perioperative Care; Anatomy and Neurobiology; Neurology*

Kwang M. Jung, Ph.D. Chung-Ang University, *Assistant Adjunct Professor of Anatomy and Neurobiology*

Hans Stegmann Keirstead, Ph.D. University of British Columbia, *Professor of Anatomy and Neurobiology*

Leonard M. Kitzes, Ph.D. University of California, Irvine, *Professor Emeritus of Anatomy and Neurobiology*

Gary S. Lynch, Ph.D. Princeton University, *Professor of Psychiatry and Human Behavior; Anatomy and Neurobiology; Cognitive Sciences*

David Christian Lyon, Ph.D. Vanderbilt University, *Assistant Professor of Anatomy and Neurobiology; Cognitive Sciences*

Diane K. O'Dowd, Ph.D. University of California, San Diego, *Professor of Developmental and Cell Biology; Anatomy and Neurobiology* (regulation of activity in developing and adult nervous systems)

Daniele Piomelli, Ph.D. Columbia University, *Louise Turner Arnold Chair in the Neurosciences* and *Professor of Anatomy and Neurobiology; Biological Chemistry; Pharmacology*

David J. Reinkensmeyer, Ph.D. University of California, Berkeley, *Professor of Anatomy and Neurobiology; Biomedical Engineering; Mechanical and Aerospace Engineering; Physical Medicine and Rehabilitation* (robotics, mechatronics, biomedical engineering, rehabilitation, biomechanics, neural control of movement)

Charles E. Ribak, Ph.D. Boston University, *Professor Emeritus of Anatomy and Neurobiology*

Richard T. Robertson, Ph.D. University of California, Irvine, *Professor of Anatomy and Neurobiology*

Justin Schaefer, Ph.D. University of California, Irvine, *Assistant Adjunct Professor of Anatomy and Neurobiology*

Steven S. Schreiber, M.D. Albany Medical College, *Professor in Residence of Neurology; Anatomy and Neurobiology; Psychiatry and Human Behavior*

Martin A. Smith, Ph.D. University of Newcastle, *Professor of Anatomy and Neurobiology*

Ana Solodkin, Ph.D. National Polytechnic Inst of Mexico, *Associate Professor of Anatomy and Neurobiology; Neurology*

Ivan Soltesz, Ph.D. Eötvös Loránd University, *UCI Chancellor's Professor of Anatomy and Neurobiology; Neurobiology and Behavior; Physiology and Biophysics*

Oswald Steward, Ph.D. University of California, Irvine, *Reeve-Irvine Chair in Spinal Cord Injury Research* and *Professor of Anatomy and Neurobiology; Neurobiology and Behavior*

John E. Swett, Ph.D. University of California, Los Angeles, *Professor Emeritus of Anatomy and Neurobiology*

Jamie Wikenheiser, Ph.D. Case Western Reserve University, *Assistant Adjunct Professor of Anatomy and Neurobiology*

Xiangmin Xu, Ph.D. Vanderbilt University, *Assistant Professor of Anatomy and Neurobiology; Biomedical Engineering; Electrical Engineering and Computer Science; Microbiology and Molecular Genetics* (local cortical circuits)

Fan-Gang Zeng, Ph.D. Syracuse University, *Director of Hearing Research and Professor of Otolaryngology; Anatomy and Neurobiology; Biomedical Engineering; Cognitive Sciences* (cochlear implants and auditory neuroscience)

Courses

ANATOMY 200. Research in Anatomy. 2-12 Units.
Individual research supervised by a particular faculty member.

Repeatability: May be repeated for credit unlimited times.

ANATOMY 200R. Research in Anatomy and Neurobiology for First-Year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in the Department of Anatomy and Neurobiology for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

ANATOMY 201. Human Gross Anatomy. 8 Units.
Study and dissection of the human body, including muscular, skeletal, nervous, and cardiovascular systems. Emphasis on both normal and abnormal structure and function.

Restriction: Graduate students only.

ANATOMY 202B. Human Neuroscience. 4 Units.
Study of the human nervous system at the systems level including the physiology and anatomy of sensory, motor, and integrative functions.

Prerequisite: ANATOMY 202A.

ANATOMY 203A. Human Microscopoic Anatomy. 3 Units.
Lecture and laboratory course on human microscopic anatomy. Emphasis is on functional implications of structure of cells and tissues.

Restriction: Graduate students only.

ANATOMY 203B. Human Microscopoic Anatomy. 3 Units.
Lecture and laboratory course on human microscopic anatomy. Emphasis is on functional implications of structure of cells and tissues.

Prerequisite: ANATOMY 203A.

Restriction: Graduate students only.

ANATOMY 206. Tutorial in Anatomy. 3 Units.
Series of tutorials on advanced topics in anatomy.

Repeatability: May be repeated for credit unlimited times.

ANATOMY 210A. Systems Neuroscience. 5 Units.
Study of the mammalian nervous system at the systems level. Anatomy and physiology of sensory, motor, and integrative functions.

Repeatability: May be taken for credit 2 times.

Same as NEURBIO 208A.

Restriction: Neurobiology and Behavior graduate students only.

ANATOMY 210B. Systems Neuroscience. 5 Units.
Study of the mammalian nervous system at the systems level. Anatomy and physiology of sensory, motor, and integrative functions.

Prerequisite: NEURBIO 208A.

Repeatability: May be taken for credit 2 times.

Same as NEURBIO 208B.

Restriction: Neurobiology and Behavior graduate students only.

ANATOMY 215. Epilepsy as a Window to Mechanisms of Neuronal Plasticity. 4 Units.
Understanding the mechanisms of brain disorders provides novel insights into the normal function of neurons and circuits. Discusses approaches to studying mechanisms of brain function ranging from imaging, the use of models and others to study epilepsy.

Grading Option: Satisfactory/unsatisfactory only.

ANATOMY 227A. Current Topics in Neuroscience. 1-4 Units.
Focuses on critical reading, presentation, and discussion of current literature in neuroscience research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ANATOMY 227B. Current Topics in Neuroscience. 1-4 Units.
Focuses on critical reading, presentation, and discussion of current literature in neuroscience research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ANATOMY 227C. Current Topics in Neuroscience. 1-4 Units.
Focuses on critical reading, presentation, and discussion of current literature in neuroscience research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ANATOMY 230. Topics in Stem Cells . 2-4 Units.
One-hour seminar presentation by participating faculty or guest lecturer and open to the science community, followed by one-hour student discussion of the lecture topic or related topic. Students are responsible for presentations and readings for the course.

ANATOMY 230A. Molecular, Cellular, & Developmental Neurobiology. 4 Units.
Molecular aspects of the structure and function of neurons and glia including neurotransmission, synaptic modulation, and channels. Neural development at the cellular and molecular level including neurogenesis, pattern formation, trophic factors, axonal growth, and synaptic rearrangement.

Restriction: Graduate students only.

ANATOMY 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

ANATOMY 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

ANATOMY 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Biological Chemistry

Building D, Room 240, Medical Sciences I; 949-824-6051
http://www.biochem.uci.edu/
Eva Y.-H. P. Lee, **Department Chair**
Kyoko Yokomori, **Departmental Graduate Advisor**

The Department of Biological Chemistry provides advanced training to individuals who are interested in understanding the fine regulation of the biological processes, structural basis of the regulation, and the identification of targets for disease managements. Faculty research interests are diverse with emphases on several areas of basic and clinical research: epigenetic regulation of gene expression; circadian rhythm and metabolism; chromatin structure and function; DNA repair and DNA damage responses; telomerase and telomere regulation; ubiquitin regulation in metabolism and cell cycle; signal transduction and transcription regulation in development and disease manifestation; molecular mechanisms of stem cell regulation and tumorigenesis; genomic and bioinformatics. Students are trained and exposed to technical expertise in all facets of current biological sciences. Established core research facilities are available in which students have access to a microarray core facility, electron microscopy, atomic force microscopy, confocal imaging center, mass spectroscopy, flow cytometry, transgenic core laboratories, biopolymer sequencing and synthesis laboratories, and other resources. The Department administers a graduate student and postdoctoral training grant on translational research in cancer genomics and medicine.

The Department offers graduate study under the auspices of the School of Medicine and in conjunction with the gateway program in Cellular and Molecular Biosciences (CMB) as well as the Mathematical and Computational Biology (MCB). Students are eligible to enter the Department program after meeting the specific requirements of the CMB gateway curriculum or by direct application to the department. The Department program leads to the M.S. or Ph.D. degree in Biomedical Sciences, awarded after successful completion of all requirements. Students admitted into the combined program who select a research advisor in the Department begin thesis research in the second year. Students are required to attend and participate in the departmental research seminars. In addition, students are required to complete two advanced-level graduate courses subsequent to entering the Department's Ph.D. concentration. In the third year, students take the advancement-to-candidacy examination for the Ph.D. degree by presenting and defending a proposal for specific dissertation research. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Faculty

Bogi Andersen, M.D. University of Iceland, *Professor of Medicine; Biological Chemistry*

Stuart M. Arfin, Ph.D. Albert Einstein College of Medicine, *Professor Emeritus of Biological Chemistry*

Pierre F. Baldi, Ph.D. California Institute of Technology, *UCI Chancellor's Professor of Computer Science; Biological Chemistry; Biomedical Engineering; Developmental and Cell Biology* (bioinformatics, computational biology)

Phang-Lang Chen, Ph.D. University of California, San Diego, *Associate Professor of Biological Chemistry*

Xing Dai, Ph.D. University of Chicago, *Professor of Biological Chemistry*

Peter J. Donovan, Ph.D. University College London, *Professor of Biological Chemistry; Developmental and Cell Biology* (stem cell biology)

John P. Fruehauf, M.D. Rush University, *Professor of Medicine; Biological Chemistry; Biomedical Engineering; Pharmaceutical Sciences* (in-vitro cancer models using 3-D tissue systems to predict drug response)

Anand K. Ganesan, M.D. Medical College of Wisconsin, *Associate Professor of Dermatology; Biological Chemistry*

Lan Huang, Ph.D. University of Florida, *Professor of Physiology and Biophysics; Biological Chemistry*

Kenneth H. Ibsen, Ph.D. University of California, Los Angeles, *Professor Emeritus of Biological Chemistry*

Peter Kaiser, Ph.D. University of Innsbruck, *Professor of Biological Chemistry*

Eva Y. Lee, Ph.D. University of California, Berkeley, *UCI Chancellor's Professor of Biological Chemistry*

Wen-Hwa Lee, Ph.D. University of California, Berkeley, *Donald Bren Professor Emeritus of Biological Chemistry*

Ellis Levin, M.D. Thomas Jefferson University, Jefferson Medical College, *Professor in Residence of Medicine; Biological Chemistry; Pharmacology*

Haoping Liu, Ph.D. Cornell University, *Professor of Biological Chemistry*

Calvin S. McLaughlin, Ph.D. Massachusetts Institute of Technology, *Professor Emeritus of Biological Chemistry*

Frank L. Meyskens, M.D. University of California, San Francisco, *Daniel G. Aldrich, Jr. Endowed Chair* and *Professor of Medicine; Biological Chemistry; Epidemiology; Program in Public Health*

Robert K. Moyzis, Ph.D. Johns Hopkins University, *Professor Emeritus of Biological Chemistry*

Daniele Piomelli, Ph.D. Columbia University, *Louise Turner Arnold Chair in the Neurosciences* and *Professor of Anatomy and Neurobiology; Biological Chemistry; Pharmacology*

Feng Qiao, Ph.D. University of California, Los Angeles, *Assistant Professor of Biological Chemistry*

Suzanne B. Sandmeyer, Ph.D. University of Washington, *Grace Beekhuis Bell Chair in Biological Chemistry* and *Professor of Biological Chemistry; Chemical Engineering and Materials Science; Microbiology and Molecular Genetics* (retroelements, metabolic molding, genomics)

Paolo Sassone-Corsi, Ph.D. University of Naples Federico II, *Donald Bren Professor* and *Professor of Biological Chemistry; Microbiology and Molecular Genetics; Pharmaceutical Sciences*

Robert E. Steele, Ph.D. Yale University, *Professor of Biological Chemistry*

Leslie M. Thompson, Ph.D. University of California, Irvine, *Professor of Psychiatry and Human Behavior; Biological Chemistry; Neurobiology and Behavior*

Kyoko Yokomori, Ph.D. University of Tokyo, *Professor of Biological Chemistry; Biological Chemistry*

Michael V. Zaragoza, M.D. Case Western Reserve University, *Assistant Professor of Pediatrics; Biological Chemistry*

Courses

BIOCHEM 200A. Research in Biological Chemistry. 2-12 Units.
Individual research under the supervision of a professor.

Repeatability: Unlimited as topics vary.

BIOCHEM 200B. Research in Biological Chemistry. 2-12 Units.
Individual research under the supervision of a professor.

Repeatability: Unlimited as topics vary.

BIOCHEM 200C. Research in Biological Chemistry. 2-12 Units.
Individual research under the supervision of a professor.

Repeatability: Unlimited as topics vary.

BIOCHEM 200R. Research in Biological Chemistry for First-Year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in the Department of Biological Chemistry for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

BIOCHEM 202A. Laboratory Seminar Series. 1 Unit.
Study within a laboratory group including research and journal presentations.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

BIOCHEM 202B. Laboratory Seminar Series. 1 Unit.
Study within a laboratory group including research and journal presentations.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

BIOCHEM 202C. Laboratory Seminar Series. 1 Unit.
Study within a laboratory group including research and journal presentations.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

BIOCHEM 207. Advanced Molecular Genetics. 4 Units.
Teaching genetics and genomics approaches in yeast. Covers cell-type determination, MAPK signaling, cell cycle, ubiquitin, genomics, transposons.

Repeatability: May be taken for credit 2 times.

BIOCHEM 210A. Medical Biochemistry and Molecular Biology. 12 Units.
Covers the following topics from a biomedical perspective: protein and nucleic acid biochemistry, carbohydrates, lipids, amino acids, purines and pyrimidines, genome structure, molecular mechanisms of development, and signal transduction.

Restriction: Graduate students only.

BIOCHEM 212. Signal Transduction and Growth Control. 4 Units.
Covers various eukaryotic signaling pathways (tyrosine kinase, ras-raf-MAPK, TGF-ß, wnt, JAK-STAT, and FAS) with an emphasis on the experimental underpinnings. The material is covered in lectures and discussions of pertinent papers.

Same as PATH 212.

BIOCHEM 215. Mouse Developmental Genetics. 4 Units.
Introduction to using the mouse in contemporary biomedical research. The biology and development of the laboratory mouse, methods for manipulation of the mouse genome and embryos, and examples of application of these methods to understand mammalian development and homeostasis.

Same as DEV BIO 207.

Restriction: Graduate students only.

BIOCHEM 217. Human Evolution and Behavior. 4 Units.
Covers theories and empirical research concerning the evolutionary origins of human behaviors and their variations. An interdisciplinary course emphasizing both evolutionary psychology (e.g., mating strategies, kinship, and parenting) and molecular evolution (i.e., evolution of genes for various behaviors).

Same as PSY BEH P271.

Restriction: Graduate students only.

BIOCHEM 225. Chromatin Structure and Function. 4 Units.
Focuses on the role of chromatin/nuclear structure organization in eukaryotic genome regulation. The effects of histone and DNA modification, chromatin remodeling, higher order chromatin structure and nuclear organization on gene regulation, DNA replication, and repair are discussed.

Prerequisite: MOL BIO 203 or MOL BIO 204 or NEUROBIO 206.

Same as NEURBIO 230.

Restriction: Graduate students only.

BIOCHEM 240. New Breakthroughs in Basic and Translational Cancer Research. 4 Units.
Highlights breakthroughs in molecular and cellular aspects of cancer biology and emerging therapeutic approaches. Emphasis on new discoveries of critical pathways/processes in cancer etiology, progression, and metastasis. Introduces strategies used in the discovery, design of biological and small molecules-based therapies.

Restriction: Graduate students only.

BIOCHEM 291. Research Seminar. 2 Units.
Student research-based colloquium covering current topics in gene organization and expression, cell cycle and differentiation, DNA repair, checkpoint control, and the physical, chemical, and biological properties of macromolecules. Students are encouraged to read critically and analyze recent literature.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

BIOCHEM 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

BIOCHEM 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

BIOCHEM 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

BIOCHEM 299. Independent Study. 2-12 Units.
Independent research in biological chemistry.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Open only to students pursuing the Ph.D. degree in the Department of Biological Chemistry.

Biomedical and Translational Science

Master of Science in Biomedical and Translational Science (M.S.-BATS)

School of Medicine, 100 Theory Street, Suite 110
949-824-6064; fjeffrey@uci.edu
Sherri H. Kaplan, **Director**

The aim of the M.S.-BATS program is to train students in the conduct of high-quality multidisciplinary clinical research to facilitate the rapid transformation of basic knowledge to clinical medicine. The program is designed for students from varying levels of training, including medical students, residents, fellows, physicians, and others who are interested in conducting clinical research to maximize interdisciplinary communication and understanding sufficient to carry out high-quality clinical research. The program provides training in core competencies required to conduct clinical research including study design reflecting the breadth and complexity of clinical research applications, critical appraisal of multidisciplinary research literature, conduct and management of clinical research, medical statistics, research ethics, and the leadership of multidisciplinary research teams. Students who successfully complete the program receive the M.S. degree in Biomedical and Translational Science.

The faculty evaluate applicants to the program on the basis of grades, previous course work, letters of recommendation, MCAT or GRE scores, and other relevant qualifications. All graduate students, including those from public health, nursing science, and pharmaceutical science are eligible to apply, but the program has a highly clinical focus and is specifically designed for those with a sufficient background in clinical sciences. Applicants should have successfully completed a B.S. degree or equivalent, and may be current medical students, residents, clinical fellows, faculty, or licensed physicians in the community.

The M.S.-BATS program will initially offer training in Evidence-Based Medicine/Clinical Research, which will focus on the conduct and interpretation of clinical research, synthesis of clinical literature, and the assessment and improvement of quality of healthcare. Additional fields of emphasis will be added, including Molecular Medicine, focusing on the molecular mechanisms and molecular physiology of human disease, and Population Medicine, focusing on the application of epidemiologic research and research methods and findings to clinical practice.

The M.S.-BATS program is a two-year curriculum. First-year students are required to enroll in core courses including Introduction to Clinical Epidemiology, Introduction to Medical Statistics, Design and Analysis of Clinical Trials, and Ethics in Clinical Research. Additional required courses include, Comparative Effectiveness Research, Health Politics and Policy, Measurement Science, Outcomes Research and Advanced Applied Methods, and Disparities in Health and Health Care. Optional additional courses include, Introduction to Medical Statistics II, Laboratory in Big Data Analysis for Health Services and Clinical Researchers (formerly known as Quantitative Data Analysis Methods), and Research in Quality and Safety (formerly known as Quality, Efficiency, and Cost-effectiveness). Training during the second year emphasizes research and culminates in a written thesis. Throughout the program, students enroll in the BATS Seminar Series. By exception only, some students entering the program with advanced degrees, clinical research experience, and previous completion of the four core courses may be able to complete the program in less than two years.

Courses

BATS 209A. Introduction to Medical Statistics. 4 Units.
Provides understanding of medical statistics for clinicians and clinical researchers to read and interpret literature.

BATS 209B. Introduction to Medical Statistics II. 4 Units.
Provides sufficient understanding of medical statistics to read and interpret medical literature critically, identify appropriate statistics for basic research designs used in medicine, and discriminate between appropriate and inappropriate statistical applications for common research designs.

Prerequisite: BATS 209A.

BATS 210A. Introduction to Clinical Epidemiology. 4 Units.
Introduces principles and practice of clinical epidemiology and the population-based approach to health and disease.

Prerequisite: BATS 209A or STATS 250.

BATS 232. Design and Analysis of Clinical Trials. 4 Units.
Presents history, organization and planning, rationale for methods, limits, and ethics in conducting clinical trials.

Prerequisite: BATS 209A or STATS 250.

BATS 245A. Comparative Effectiveness Research I. 4 Units.
Two-part course designed to provide a comprehensive overview of comparative effectiveness research (CER) with in-depth methodologic clinical practice and policy/dissemination issues related to the conduct, interpretation, and clinical applications of CER.

BATS 245B. Comparative Effectiveness Research II. 4 Units.
Two-part course designed to provide a comprehensive overview of comparative effectiveness research (CER) with in-depth methodologic clinical practice and policy/dissemination issues related to the conduct, interpretation, and clinical applications of CER.

Prerequisite: BATS 245A.

BATS 247. Measurement Science, Outcomes Research and Advanced Applied Methods. 4 Units.
Further the understanding of methodologic issues involved in the conduct of comparative effectiveness research (CER). Topics: risk adjustment, balancing observational study designs, use of outcomes from multiple data sources, innovations clinical trial designs, the conduct of meta-analysis, and psychometric methods.

BATS 251. Research in Quality and Safety. 4 Units.
Introduces the principles and practice of quality of care, patient safety and patient experience research, along with major national and statewide policy and legislative initiatives related to quality of care and patient safety.

BATS 253. Disparities in Health and Health Care. 4 Units.
Review all aspects of culture that influence health status, development of public health policy, and management and practice of health care. Explores how race and ethnicity affect health and health care, including health care services and policies governing these services.

BATS 255. Health Politics and Policy. 4 Units.
Offers political and analytical insights into understanding the U.S. health policymaking and developing strategies that influence health policy outcomes.

BATS 257. Laboratory in Big Data Analysis for Health Services and Clinical Researchers. 4 Units.
Introduces quantitative research methods, with an emphasis on large surveys and administrative health data sets. Presents the advantages and disadvantages of these data sources and the iterative process of formulating research questions and identifying data sources to answer these questions.

Prerequisite: BATS 209A.

Restriction: Biomedical and Translational Science graduate students only.

BATS 280. Biomedical and Translational Science Seminar. 2 Units.
Students present their current research or a topic of interest and are exposed to diverse projects in the biomedical and translational science arena.

Repeatability: May be repeated for credit unlimited times.

BATS 295. Master's Thesis Research and Writing. 2-12 Units.
Master’s thesis research and writing with Biomedical and Translational Science faculty.

Repeatability: May be repeated for credit unlimited times.

BATS 296. Ethics in Clinical Research. 4 Units.
Covers major frameworks and concepts of ethics in public health research as well as human subject protection issues.

BATS 299. Independent Directed Research. 2-12 Units.
Independent research with Biomedical and Translational Science faculty.

Repeatability: May be repeated for credit unlimited times.

Environmental Health Sciences

Center for Occupational and Environmental Health (COEH)
100 Theory Drive, Suite 100, Irvine, CA 92617; 949-824-9013
http://www.medicine.uci.edu/occupational/graduate.asp
Alpesh Amin, **Chair, Department of Medicine**
Ulrike Luderer, **Graduate Program Director**

The Division of Occupational and Environmental Medicine in the Department of Medicine provides graduate training in environmental health sciences and offers the M.S. and Ph.D. degrees in Environmental Health Sciences. The Environmental Health Sciences program is also an official graduate program of the Program in Public Health. The Ph.D. program offers tracks in Environmental Toxicology and in Exposure Sciences and Risk Assessment. The program in Environmental Health Sciences provides students with the knowledge and skills necessary and appropriate to teach and/or conduct basic and applied research programs in inhalation/pulmonary toxicology, biochemical neurotoxicology, reproductive and developmental toxicology, chemical pathology, toxicokinetics, radiation toxicology, exposure sciences, and risk assessment.

Environmental Toxicology involves the scientific study of the entry, distribution, biotransformation and mechanism of the action of chemical agents that are harmful to the body. The graduate program interprets environmental toxicology as the study of the effects and mechanisms of action of hazardous chemicals in food, air, water, and soil in the home, the workplace and the community. It considers experimentally and theoretically such diverse research problems as

- new scientific approaches to toxicological evaluation of environmental chemicals such as air and water pollutants, food additives, industrial wastes, and agricultural adjuvants at the molecular, cellular, and organism levels;
- mechanisms of action in chemical toxicity;
- the molecular pathology of tissue injury in acute and chronic toxicity.

Exposure Sciences involves the study of human exposures to environmental contaminants in different media such as air, water, and food and via multiple routes including inhalation, ingestion, and dermal absorption. Risk Assessment combines knowledge obtained from toxicological and exposure studies to come to conclusions about the risks to human health. Research in the Exposure Sciences and Risk Assessment Track includes

- new approaches to the evaluation of human exposures to environmental chemicals, including exposure modeling and biomonitoring;
- scientific principles involved in evaluating risks to human health from environmental exposures.

Students entering the program have varied backgrounds, including chemistry, biology, and physiology. The curriculum is based on a foundation of basic and health sciences with applications of scientific principles to environmental exposures and their potential health effects. Formal course work is enriched by a strong commitment to student-professor interaction throughout the program. An important and integral part of the learning process is an early and intensive involvement of the student in ongoing original research projects in environmental health sciences, especially inhalation/pulmonary toxicology, reproductive and developmental toxicology, biochemical toxicology, chemical pathology, neurotoxicology, exposure sciences, and risk assessment.

In addition to meeting the general admission requirements set by the Graduate Division, applicants must be admitted by an Admissions Committee composed of faculty members of the program. Candidates are selected on the basis of a balanced evaluation of the following criteria: (1) prior scholastic performance, including a consideration of grade point average, course load, nature of courses taken, and college attended; (2) recommendations by professors and others; (3) scores on the Graduate Record Examination; the Subject Test in either Biology or Chemistry is strongly recommended; (4) an interview by the Admissions Committee, when feasible; and (5) experience in undergraduate research. The applicant must have received a bachelor's degree in a biological, public health, or physical science, in a premedical curriculum, or have an acceptable equivalent. Applicants with a bachelor's degree in engineering may qualify for admission into the program if they have had sufficient training in biology, chemistry, and physical sciences.

Undergraduate preparation of applicants should include six quarter units in general biology, zoology, bacteriology, or anatomy; 12 quarter units in mathematics, including calculus through vector analysis and differential equations; 12 quarter units of chemistry, including four quarter units of organic chemistry; 12 quarter units of physics; and four quarter units in molecular biology or biochemistry. Outstanding applicants who lack one or two of these prerequisites may be given an opportunity to take the required course(s) either before admission or during the first year in the graduate program; in such circumstances, none of these undergraduate courses may be used to satisfy the program elective or core course requirements. Upper-division or graduate science courses may be considered as substitutes for the above prerequisites by the Admissions Committee.

Doctor of Philosophy in Environmental Health Sciences

All courses must be passed with an average grade of B or better.

Core Curriculum	
A. Complete the following:	
EPIDEM 200	Principles of Epidemiology
TOX 206A	Target Organ Toxicology I
TOX 206B	Target Organ Toxicology II

TOX 264	Introduction to Environmental Health Science
TOX 298A	Seminar in Toxicology
TOX 298B	Seminar in Toxicology
TOX 298C	Seminar in Toxicology
B. Select one track:	
1. Environmental Toxicology Track (complete the following):	
EPIDEM 204	Biostatistics
or PUBHLTH 207	Public Health Statistics
or STATS 201	Statistical Methods for Data Analysis I
TOX 201	Principles of Toxicology
TOX 207	Experimental Design and Interpretation of Toxicology Studies
16 units from the approved elective pool.	
2. Exposure Sciences and Risk Assessment Track (complete the following):	
PUBHLTH 283	Geographical Information Systems for Public Health
STATS 201	Statistical Methods for Data Analysis I
STATS 202	Statistical Methods for Data Analysis II
STATS 203	Statistical Methods for Data Analysis III
TOX 275	Environmental Modeling and Risk Management
8 units from the approved elective pool.	
Approved elective pool for both tracks:	
ANATOMY 203A	Human Microscopoic Anatomy
ANATOMY 203B	Human Microscopoic Anatomy
DEV BIO 231B	Cell Biology
EPIDEM 205	Environmental Epidemiology
MOL BIO 203	Nucleic Acid Structure and Function
MOL BIO 204	Protein Structure and Function
PHYSIO 206A	Introduction to Medical Physiology
PHYSIO 206B	Introduction to Medical Physiology
PUBHLTH 265	Advanced Environmental Health Science
PUBHLTH 276	Toxic Chemicals in Environment
TOX 202	Environmental Toxicology
TOX 204	Neurotoxicology
TOX 212	Inhalation Toxicology
TOX 220	Industrial Toxicology
TOX 269	Air Pollution, Climate, and Health
TOX 270	Human Exposure to Environmental Contaminants
C. Fulfill the following:	
Comprehensive Exam	
Qualifying Exam	
Teaching Requirement	
Research Dissertation	

The normative time for advancement to candidacy is three years. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Master of Science in Environmental Health Sciences

All courses must be passed with an average grade of B or better.

A. Complete the following:	
EPIDEM 200	Principles of Epidemiology
EPIDEM 204	Biostatistics
or PUBHLTH 207	Public Health Statistics
or STATS 201	Statistical Methods for Data Analysis I

TOX 206A	Target Organ Toxicology I
TOX 206B	Target Organ Toxicology II
TOX 264	Introduction to Environmental Health Science
TOX 298A	Seminar in Toxicology
TOX 298B	Seminar in Toxicology
TOX 298C	Seminar in Toxicology
TOX 299	Research Problems
Eight units from the approved elective pool.	
C. Complete one of the following plans:	
Plan I:	
Under the direction of a faculty advisor, prepare a thesis that is acceptable to the thesis committee	
Plan II:	
1. Under the supervision of a faculty member, prepare a scholarly paper based on individiual study in an area of toxicology	
2. Pass the written comprehensive examination.	

Opportunities for individual training and independent research experience exist in inhalation and pulmonary toxicology, atmospheric chemistry and aerosol science, neurochemistry and neurotoxicology, reproductive and developmental toxicology, toxicology of naturally occurring compounds, exposure modeling, risk assessment, chemical pathology, environmental microbiology, and environmental chemistry. Research grants and contracts are available to support qualified doctoral students as research assistants.

Faculty

Dean B. Baker, M.D. University of California, San Diego, *Professor of Medicine; Environmental Health Sciences; Program in Public Health*

Scott Bartell, Ph.D. University of California, Davis, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology; Social Ecology; Statistics*

Bruce Blumberg, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering; Environmental Health Sciences; Pharmaceutical Sciences* (gene regulation by nuclear hormone receptors in vertebrate development physiology, endocrine disruption)

Stephen C. Bondy, Ph.D. University of Birmingham, *Professor of Medicine; Environmental Health Sciences; Pharmacology; Program in Public Health*

Vincent J. Caiozzo, Ph.D. University of California, Irvine, *Professor in Residence of Orthopaedic Surgery; Environmental Health Sciences; Physiology and Biophysics*

Jefferson Chan, Ph.D. University of California, San Francisco, *Associate Professor of Pathology and Laboratory Medicine; Environmental Health Sciences*

Ralph J. Delfino, M.D., Ph.D. McGill University, *Professor in Residence of Epidemiology; Environmental Health Sciences*

Derek Dunn-Rankin, Ph.D. University of California, Berkeley, *Professor of Mechanical and Aerospace Engineering; Civil and Environmental Engineering; Environmental Health Sciences* (combustion, optical particle sizing, particle aero-dynamics, laser diagnostics and spectroscopy)

Rufus D. Edwards, Ph.D. Rutgers, The State University of New Jersey, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology*

C. Sunny Jiang, Ph.D. University of South Florida, *Professor of Civil and Environmental Engineering; Environmental Health Sciences* (water pollution microbiology, environmental biotechnology, aquatic microbial ecology)

Virginia Kimonis, M.D. University of Southampton, *Professor of Pediatrics; Environmental Health Sciences*

Michael T. Kleinman, Ph.D. New York University, *Adjunct Professor of Community & Environ Medicine; Environmental Health Sciences; Program in Public Health*

Charles E. Lambert, Ph.D. University of California, Irvine, *Assistant Adjunct Professor of Environmental Health Sciences*

Charles L. Limoli, Ph.D. University of California, San Diego, *Professor of Radiation Oncology; Environmental Health Sciences*

Ulrike Luderer, M.D., Ph.D. Northwestern University, *Professor of Medicine; Developmental and Cell Biology; Environmental Health Sciences; Program in Public Health* (reproductive toxicology, developmental toxicology, developmental basis of ovarian toxicity, ovarian cancer)

Oladele A. Ogunseitan, Ph.D. University of Tennessee, *Professor of Program in Public Health; Environmental Health Sciences*

Kathryn Osann, Ph.D. University of California, Berkeley, *Adjunct Profoessor of Medicine; Environmental Health Sciences*

Robert F. Phalen, Ph.D. University of Rochester, *Professor of Medicine; Environmental Health Sciences*

John L. Redpath, Ph.D. University of Newcastle, *Professor Emeritus of Radiation Oncology; Environmental Health Sciences*

Ronald C. Shank, Ph.D. Massachusetts Institute of Technology, *Professor Emeritus of Medicine; Environmental Health Sciences*

Veronica M. Vieira, D.Sc. Boston University, *Associate Professor of Program in Public Health; Environmental Health Sciences*

Jun Wu, Ph.D. University of California, Los Angeles, *Associate Professor of Program in Public Health; Environmental Health Sciences*

Epidemiology

Irvine Hall, Room 224; 949-824-7401
EpiGrad@uci.edu; http://www.epi.uci.edu/
Hoda Anton-Culver, **Department Chair**
Ralph J. Delfino**, Vice Chair for Research and Graduate Studies**

Overview

The Department of Epidemiology faculty researches the genetic and environmental factors affecting the distribution of health and illness in large human populations. This serves as a cornerstone of the graduate program and the medical research program by utilizing highly evidence-based biostatistical methodologies to determine the risk factors leading to disease and optimal treatment approaches for clinical practice and medical interventions essential to preventative medicine and public health. In addition to the medical sciences, the epidemiology faculty has diverse research interests and relies on a number of other basic science disciplines including biological sciences (to understand the disease process), biostatistics (to evaluate large population data and develop research methods), geographic information science (to map disease patterns), and social science (to understand proximate and distal risk factors). The Department maintains facilities for research that include genetic, molecular, and biochemical techniques. The faculty in the Department of Epidemiology has strong, peer-reviewed research portfolios and resources needed to support the Department's postdoctoral and doctoral training programs.

The Department offers a program of study leading to the M.S. and Ph.D. degrees, but not an undergraduate degree. The Department offers undergraduates the opportunity to gain research experience in epidemiology through the Department's 199 undergraduate research course in epidemiology. This course is available to all upper-division undergraduates irrespective of the individual major they have declared on campus.

Master of Science in Epidemiology

The M.S. degree in Epidemiology requires the student to complete at least four didactic graduate courses (16 units) offered by the department, and elective course work with an additional 8 units of graduate or upper-division undergraduate course work. In addition, the student will typically take additional seminar courses during the graduate study. The student engages in thesis research with a faculty thesis advisor, and will prepare and submit a dissertation to the thesis committee. The final examination is an oral presentation of the thesis to the committee. The normative time to degree is two years for the thesis M.S. degree.

Doctor of Philosophy in Epidemiology

At the end of the first year, students must demonstrate proficiency by passing a preliminary qualifying exam. The purpose of this exam is to verify that the student has completed the required courses of the first-year of the program. The goals of these first-year courses are to establish a foundation of knowledge in the relevant disciplines, to acquire an understanding of research methods including the responsible conduct of research, and to sharpen critical thinking abilities so that students are ready to begin thesis research in which they will take major responsibility for the design, conduct, and publication of Ph.D.- level research projects.

Students must have selected a thesis advisor and joined the advisor's research group by the end of the third quarter of the first year.

Advancement to Candidacy. Following successful completion of the second year of graduate study, the next step in progression toward the doctoral degree is Advancement to Candidacy. The purpose of this process is to ensure that the student has selected an appropriate topic for the dissertation and that the experimental work that has been completed or is contemplated is scientifically rigorous and likely to be completed successfully and within the normal period of graduate study. The advancement to candidacy exam must be taken by the end of the spring quarter of the third year of graduate study.

Once this examination is completed, the student is advanced to candidacy for the doctoral degree and is expected to complete the degree within two to three years. The student must submit a dissertation on this research and defend the thesis in an oral examination during the final year of graduate study. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Students who are interested in these graduate degrees in Epidemiology should apply to the Department of Epidemiology in the School of Medicine. Applications are available at the Graduate Division (http://www.grad.uci.edu) website. For further questions contact EpiGrad@uci.edu or call (949) 824-7401.

The Department of Epidemiology in the School of Medicine also has a joint doctoral program with the School of Social Ecology leading to a Ph.D. in Social Ecology with a concentration in Epidemiology and Public Health. That program is designed to prepare students to conduct research on questions in epidemiology and public health and on related questions on the formulation of environment and health policy. Students interested in that program should contact the School of Social Ecology for information.

Faculty

Hoda Anton-Culver, Ph.D. University of St Andrews, *Professor of Epidemiology*

Scott Bartell, Ph.D. University of California, Davis, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology; Social Ecology; Statistics*

Maria A. Corrada-Bravo, SCE Johns Hopkins University, *Associate Adjunct Professor of Neurology; Epidemiology*

Dwight Culver, M.D. Stanford University, *Health Sciences Clinical Professor of Epidemiology*

Ralph J. Delfino, M.D., Ph.D. McGill University, *Professor in Residence of Epidemiology; Environmental Health Sciences*

Karen L. Edwards, Ph.D. University of Washington, *Professor of Epidemiology; Genetic Epidemiology Research Institute*

Rufus D. Edwards, Ph.D. Rutgers, The State University of New Jersey, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology*

Chad P. Garner, Ph.D. Oxford University, *Associate Professor of Epidemiology; Program in Public Health*

Daniel L. Gillen, Ph.D. University of Washington, *Associate Professor of Statistics; Epidemiology; Program in Public Health*

Deborah Goodman-Gruen, Ph.D. University of California, Los Angeles, *Associate Adjunct Professor of Epidemiology*

Claudia H. Kawas, M.D. University of Louisville, *Nichols Term Chair in Neuroscience* and *Professor of Neurology; Epidemiology; Neurobiology and Behavior*

Christine E. McLaren, Ph.D. Case Western Reserve University, *Professor of Epidemiology*

Frank L. Meyskens, M.D. University of California, San Francisco, *Daniel G. Aldrich, Jr. Endowed Chair* and *Professor of Medicine; Biological Chemistry; Epidemiology; Program in Public Health*

Hannah Park, Ph.D. Stanford University, *Assistant Professor in Residence of Epidemiology*

Daniel S. Stokols, Ph.D. University of North Carolina at Wilmington, *Professor Emeritus of Psychology and Social Behavior; Epidemiology; Planning, Policy, and Design; Program in Public Health* (environmental psychology, science of team science, transdisciplinary public health)

David Timberlake, Ph.D. University of California, San Diego, *Associate Professor of Program in Public Health; Epidemiology*

Nathan D. Wong, Ph.D. Yale University, *Adjunct Profoessor of Medicine; Epidemiology*

Argyrios Ziogas, Ph.D. University of Southern California, *Associate Adjunct Professor of Epidemiology*

Courses

EPIDEM 199. Undergraduate Research in Epidemiology. 2-4 Units.
Provides disciplinary research participation. Original or existing research options provide undergraduates the opportunity for faculty/mentor interactions including access to appropriate facilities. Medical Epidemiology research areas: Cancer, Genetic/Molecular, Environmental, Occupational, Biostatistics, and Infectious Disease.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only.

EPIDEM 200. Principles of Epidemiology. 4 Units.
Fundamental principles of epidemiology, biostatistics, and epidemiological research. Topics include research methods of measuring health problems in populations, disease control and prevention in populations, how epidemiology contributes to knowledge of disease etiology, and biostatistical analysis and interpretation of epidemiologic data.

Restriction: Graduate students only.

EPIDEM 202. Genetic Epidemiology. 4 Units.
Concentrates on the role of genetic factors in the etiology of disease in human populations with an objective of disease control and prevention and the role of interactions of genetic factors and environmental exposures in the occurrence of disease.

Prerequisite: PUBHLTH 203 or EPIDEM 203 or PUBHLTH 206.

Restriction: Graduate students only.

EPIDEM 203. Epidemiology. 4 Units.
Presents descriptive and experimental approaches to the recognition of the causal association of disease in the general population, as these approaches apply to populations using different student designs and models free from the literature.

Same as PUBHLTH 203.

Restriction: Graduate students only.

EPIDEM 204. Biostatistics. 4 Units.
Designed to help students develop an appreciation for statistician's view of the research process, emphasizing biomedical research. Instills an understanding of how statistical models are used to yield insights about data that form evidence-based understanding of the world around us.

Same as PUBHLTH 204.

Restriction: Graduate students only.

EPIDEM 205. Environmental Epidemiology. 4 Units.
Concentrates on epidemiological approaches to the assessment of community environmental hazards; issues involved in environmental exposure estimation; interdisciplinary approaches to environmental epidemiology, including the use of biomarkers of exposures and susceptibility; epidemiological studies within the context of risk assessment.

Prerequisite: EPIDEM 200 and EPIDEM 204.

Restriction: Graduate students only.

EPIDEM 215. Introduction to Statistical Genetics. 4 Units.
Provides students with knowledge of the basic principles, concepts, and methods used in statistical genetic research. Topics include principles of population genetics, and statistical methods for family- and population-based studies.

Prerequisite: Two quarters of upper-division or graduate training in statistical methods.

Same as STATS 257.

EPIDEM 217. Advanced Epidemiologic Methods. 4 Units.
Advanced topics in the design and statistical analysis of epidemiologic studies. Topics include simulation methods, counter-matching and multiphase study designs, missing data, and Bayesian analysis. Published simulation studies are discussed and replicated using the R software package.

Prerequisite: PUBHLTH 101B or STATS 111 or STATS 211.

Same as PUBHLTH 205.

Concurrent with PUBHLTH 119.

EPIDEM 232. Chronic Disease Epidemiology & Prevention. 4 Units.
Epidemiological aspects of chronic human diseases. Topics include methodologies for quantifying aspects of prevalent chronic diseases including risk factors, identification of susceptible groups, societal burdens, promising future research; and the intervention, prevention, and control of diseases in populations.

Restriction: Graduate students only.

EPIDEM 244. Toxic Chemicals in Environment. 4 Units.
Industrial ecology of toxicants and their impacts on environmental quality and human health. Explores theoretical basis of toxicity thresholds and regulatory issues. Uses classic and contemporary research articles to understand the legacy of traditional toxicants, and to identify emerging threats.

Restriction: Graduate students only.

EPIDEM 264. Introduction to Environmental Health Science. 4 Units.
Convergence of agents (chemical, physical, biological or psychosocial) in environment can emerge as diseases influenced bu social, political, and economic factors allowing them to become rooted in society. How these agents from various spheres come together and impact human health.

Same as PUBHLTH 264, TOX 264.

Restriction: Graduate students only.

EPIDEM 265. Advanced Environmental Health Science. 4 Units.
Explores the complex relationships among exposure processes and adverse health effects of environmental toxins focusing on specific chemicals, sources, transport media, exposure pathways, and human behaviors. Techniques of environmental sampling for exposure assessment are discussed.

Same as PUBHLTH 265.

Restriction: Graduate students only.

EPIDEM 269. Air Pollution, Climate, and Health. 4 Units.
Emission of air pollutants into the atmosphere, physical and meteorological processes that affect transport, and influence on global warming. Concepts of how and where people are most exposed, and how exposures and health effects differ in developed and developing regions.

Same as TOX 269, PUBHLTH 269.

EPIDEM 270. Human Exposure to Environmental Contaminants. 4 Units.
Introduces founders of conceptual thought that environmental contaminants can impact health. Theory and principles of exposure assessment, the continuum from emissions of a containment into the environment to evidence of health effects in a population.

Same as TOX 270, PUBHLTH 270.

EPIDEM 275. Special Topics in Epidemiology. 1-4 Units.
Presents various topics and latest research in the broad field of epidemiology.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EPIDEM 290. Introduction to Biostatistics and Epidemiology for Medical Fellows. 4 Units.
Prepares medical fellows and other physicians for rotations in research programs. Understanding of basic biostatistics and study design, and interdependencies between the two. Application of principles in evaluation of medical literature for guidance on patient care and public health policy.

Prerequisite: Medical degree.

EPIDEM 296. M.S. Thesis Research and Writing. 1-12 Units.
Individual research and study necessary for a graduate student to prepare and complete the thesis required for the Master of Science (M.S.) degree.

Prerequisite: Advancement to candidacy.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EPIDEM 297. PhD Degree Dissertation Research & Writing. 1-12 Units.
Individual research and study necessary for a graduate student to prepare and complete the dissertation required for the Doctor of Philosophy (Ph.D.) degree.

Prerequisite: Advancement to candidacy.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EPIDEM 298. Directed Study in Epidemiology. 2-4 Units.
Directed study with Epidemiology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EPIDEM 299. Independent Study in Epidemiology. 2-8 Units.
Independent research with Epidemiology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

EPIDEM 399. University Supervised Teaching. 2-4 Units.
Limited to students with active Teaching Assistant (T.A.) appointments.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Experimental Pathology

Building D, Room D440, Medical Sciences I; 949-824-5367
http://www.pathology.uci.edu/
Edwin S. Monuki**, Acting Department Chair and Graduate Program Director**

The Department of Pathology and Laboratory Medicine offers a Ph.D. in Biomedical Sciences with a concentration in Experimental Pathology. The graduate program emphasizes experimental approaches to better understand the molecular and cellular mechanisms of disease, particularly human disease. Students work in laboratories studying topics ranging from infectious processes such as malaria and the acquired immune deficiency syndrome to innate immunity. The principal areas of research investigated by faculty in the Experimental Pathology concentration range from developmental neurobiology, to microbial genomics, to cellular stress response, to cancer.

The Department offers graduate study under the auspices of the School of Medicine and in conjunction with the program in Cellular and Molecular Biosciences (CMB), which is described in the Francisco J. Ayala School of Biological Sciences (p. 289) section. Students are eligible to enter the Department program after meeting the specific requirements of the CMB gateway curriculum or by direct application to the Department. The Department program leads to the M.S. or Ph.D. degree in Biomedical Sciences, awarded after successful completion of all requirements. Students admitted into the program who select a research advisor in the Department begin following the departmental requirements for the Ph.D. at the start of their second year.

Experimental Pathology makes extensive use of both animal models of human disease and studies on human tissues from human subjects. Therefore, the curriculum is heavily weighted on experimental models, including animal models, of human disease. The didactic teaching components of the track are supplemented by a Pathology research conference, in which faculty, postdoctoral fellows, and graduate students present seminars or “research in progress” (RIP) talks. This seminar series allows trainees the opportunity to gain invaluable experience in presenting their research to other scientists and provides a mentoring process through which students gain insights from diverse scientific viewpoints.

Students should advance to candidacy by the end of their third year. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Faculty

Dylan M. Bach, M.D. University of California, San Diego, *Health Sciences Assistant Clinical Professor of Pathology and Laboratory Medicine*

Philip M. Carpenter, M.D. Southwestern Medical School, *Professor of Pathology and Laboratory Medicine*

Jefferson Chan, Ph.D. University of California, San Francisco, *Associate Professor of Pathology and Laboratory Medicine; Environmental Health Sciences*

Elizabeth Chao, M.D. University of California, Irvine, *Assistant Adjunct Professor of Pediatrics; Pathology and Laboratory Medicine*

Byung H. Choi, M.D. Severance Union Medical College, *Professor Emeritus of Pathology and Laboratory Medicine*

Jennifer L. Clebanoff, M.D. Boston University, *Health Sciences Clinical Instructor of Pathology and Laboratory Medicine*

Maria G. Dacosta-Iyer, M.D. University of Bombay, *Health Sciences Clinical Professor of Pathology and Laboratory Medicine*

Luis M. De La Maza, Ph.D. University of Minnesota, *Professor of Pathology and Laboratory Medicine*

Suvarna A. Deshmukh-Rane, M.D. , *Health Sciences Assistant Clinical Professor of Pathology and Laboratory Medicine*

Robert A. Edwards, M.D. Baylor College of Medicine, *Associate Professor of Pathology and Laboratory Medicine*

Yutaka Kikkawa, M.D. University of Tokyo, *Professor Emeritus of Pathology and Laboratory Medicine*

Ronald C. Kim, M.D. Thomas Jefferson University, Jefferson Medical College, *Health Sciences Professor of Pathology and Laboratory Medicine*

Nils W. Lambrecht, Ph.D. Ruhr University Bochum, *Health Sciences Clinical Professor of Pathology and Laboratory Medicine*

Chung Lee, Ph.D. West Virginia University, *Adjunct Profoessor of Pathology and Laboratory Medicine*

Fritz Lin, M.D. Medical College of Virginia, *Professor of Pathology and Laboratory Medicine*

Di Lu, M.D. Shanghai University, *Health Sciences Professor of Pathology and Laboratory Medicine*

Dan Mercola, Ph.D. University of California, Los Angeles, *Professor of Pathology and Laboratory Medicine*

Donald S. Minckler, M.D. University of Oregon, *Professor Emeritus of Ophthalmology; Pathology and Laboratory Medicine*

Edwin S. Monuki, M.D. University of California, San Diego, *Associate Professor of Pathology and Laboratory Medicine; Developmental and Cell Biology* (cerebral cortex, choroid plexus development, translation)

Richard S. Newman, M.D. University of California, Irvine, *Health Sciences Professor of Pathology and Laboratory Medicine*

Andre J. Ouellette, Ph.D. Indiana University, *Professor Emeritus of Pathology and Laboratory Medicine*

Yi Ouyang, M.D. Jilin University, *Health Sciences Associate Clinical Professor of Pathology and Laboratory Medicine*

Ellena Peterson, Ph.D. Georgetown University, *Professor of Pathology and Laboratory Medicine*

Hubert C. Pirkle, M.D. Indiana University, *Professor Emeritus of Pathology and Laboratory Medicine*

Louis Recher, M.D. University of Basel, *Senate Emeritus of Pathology and Laboratory Medicine*

Sherif Rezk, MBBS Alexandria University, *Associate Professor of Pathology and Laboratory Medicine*

W. Edward Robinson, Ph.D. Vanderbilt University, *Professor in Residence of Pathology and Laboratory Medicine; Microbiology and Molecular Genetics*

Michael E. Selsted, M.D. University of California, Los Angeles, *Professor Emeritus of Pathology and Laboratory Medicine*

Gerald S. Spear, M.D. Johns Hopkins University, *Professor Emeritus of Pathology and Laboratory Medicine*

Sandor Szabo, Ph.D. Université de Montréal, *Professor in Residence of Pathology and Laboratory Medicine; Pharmacology*

Minh-Ha Tran, D.O. Western University of Health Sciences, *Health Sciences Associate Clinical Professor of Pathology and Laboratory Medicine*

Mark Li-Cheng Wu, M.D. University of Wisconsin-Madison, *Associate Professor of Pathology and Laboratory Medicine*

Xiaohui Zhao, Ph.D. University of Illinois at Urbana–Champaign, *Health Sciences Associate Clinical Professor of Pathology and Laboratory Medicine*

Courses

PATH 200A. Research in Experimental Pathology. 2-12 Units.
Independent research for the Ph.D. program within the laboratories of graduate training faculty in Experimental Pathology.

Corequisite: PATH 203A.

Repeatability: Unlimited as topics vary.

PATH 200B. Research in Experimental Pathology. 2-12 Units.
Independent research for the Ph.D. program within the laboratories of graduate training faculty in Experimental Pathology.

Corequisite: PATH 203B.

Repeatability: Unlimited as topics vary.

PATH 200C. Research in Experimental Pathology. 2-12 Units.
Independent research for the Ph.D. program within the laboratories of graduate training faculty in Experimental Pathology.

Corequisite: PATH 203C.

Repeatability: Unlimited as topics vary.

PATH 200R. Research in Experimental Pathology for First-Year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in Experimental Pathology for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

PATH 203A. Advanced Studies in Experimental Pathology. 1 Unit.
A tutorial course for Ph.D. students in Experimental Pathology entailing attendance at Departmental seminars and critical reading of the scientific literature.

Corequisite: PATH 200A.

Repeatability: May be repeated for credit unlimited times.

PATH 203B. Advanced Studies in Experimental Pathology. 1 Unit.
A tutorial course for Ph.D. students in Experimental Pathology entailing attendance at Departmental seminars and critical reading of the scientific literature.

Corequisite: PATH 200B.

Repeatability: May be repeated for credit unlimited times.

PATH 203C. Advanced Studies in Experimental Pathology. 1 Unit.
A tutorial course for Ph.D. students in Experimental Pathology entailing attendance at Departmental seminars and critical reading of the scientific literature.

Corequisite: PATH 200C.

Repeatability: May be repeated for credit unlimited times.

PATH 204A. Experimental Pathology Research Seminar. 1 Unit.
Seminar series for graduate students in Experimental Pathology. Students attend seminars and, beginning in their third year of graduate study, present one formal seminar on their graduate research.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PATH 204B. Experimental Pathology Research Seminar. 1 Unit.
Seminar series for graduate students in Experimental Pathology. Students attend seminars and, beginning in their third year of graduate study, present one formal seminar on their graduate research.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PATH 204C. Experimental Pathology Research Seminar. 1 Unit.
Seminar series for graduate students in Experimental Pathology. Students attend seminars and, beginning in their third year of graduate study, present one formal seminar on their graduate research.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PATH 212. Signal Transduction and Growth Control. 4 Units.
Covers various eukaryotic signaling pathways (tyrosine kinase, ras-raf-MAPK, TGF-ß, wnt, JAK-STAT, and FAS) with an emphasis on the experimental underpinnings. The material is covered in lectures and discussions of pertinent papers.

Same as BIOCHEM 212.

PATH 221. Immunopathogenic Mechanisms of Disease. 3 Units.
Examination of the mechanisms underlying disease states mediated by immune dysregulation. Topics include innate and adaptive immunity, autoimmunity, immunodeficiency, inflammatory disorders, and certain infectious diseases. Emphasis on biological basis of immunopathologies taught from reports in the original scientific literature.

Prerequisite: M&MG 215.

Same as M&MG 221.

Restriction: Graduate students only.

PATH 225. Molecular Mechanisms of Human Disease. 3 Units.
Provides an overview of the molecular mechanisms of human diseases, including neurologic, hematologic, neoplastic, and infectious diseases. Students gain an understanding of these mechanisms, as well as models of human diseases.

Same as M&MG 225.

PATH 226. Topics in Experimental Pathology. 4 Units.
Select topics related to principles of experimental pathology including normal host responses to disease are presented. Animal models of human disease are emphasized. Material includes both lectures and critical review of the primary literature.

PATH 227. Experimental Pathology Journal Club. 1 Unit.
Graduate-level course, which is open to all years, will involve the reading and discussion of papers, preferably written by the invited seminar speaker. Discussions will cover advanced topics in experimental pathology as related to an understanding of human disease.

Corequisite: PATH 204A and PATH 204B and PATH 204C.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PATH 230D. Principles of Experimental Pathology. 4 Units.
Introduces graduate students to the general pathologic processes that mediate disease. Topics include cell injury and repair, inflammation, immunopathology, neoplasia, and genetic diseases. Combines lecture, small group discussion, and oral presentations.

PATH 231A. Pathology of Cardiovascular Diseases. 2 Units.
For graduate students interested in human cardiovascular disease. Students receive training in physiology, anatomy, and pathologic processes of the heart and blood vessels. Experimental approaches to study such processes are emphasized.

PATH 232A. Pathology of Pulmonary Diseases. 1.5 Unit.
For graduate students interested in pulmonary disease. Students receive training in physiology, anatomy, and pathologic processes of the lungs and airways. Experimental approaches to study such processes are emphasized.

PATH 233A. Pathology of Renal Diseases. 1 Unit.
For graduate students interested in renal disease. Students receive training in physiology, anatomy, and pathologic processes of the kidneys. Experimental approaches to study such processes are emphasized.

PATH 234A. Pathology of Gastrointestinal Diseases.
For graduate students interested in grastrointestinal disease. Students receive training in physiology, anatomy, and pathologic processes of the gastrointestinal tract. Experimental approaches to study such processes are emphasized.

Grading Option: In progress only.

PATH 234B. Pathology of Gastrointestinal Diseases. 2 Units.
For graduate students interested in grastrointestinal disease. Students receive training in physiology, anatomy, and pathologic processes of the gastrointestinal tract. Experimental approaches to study such processes are emphasized.

Prerequisite: PATH 234A.

PATH 235A. Pathology of Genitourinary Tract Disease.
For graduate students interested in genitourinary tract or breast disease. Students receive training in physiology, anatomy, and pathologic processes of the breast and genitourinary tract. Experimental approaches to study such processes are emphasized.

Grading Option: In progress only.

PATH 235B. Pathology of Genitourinary Tract Disease. 2 Units.
For graduate students interested in genitourinary tract or breast disease. Students receive training in physiology, anatomy, and pathologic processes of the breast and genitourinary tract. Experimental approaches to study such processes are emphasized.

Prerequisite: PATH 235A.

PATH 236B. Graduate Neuropathology. 1 Unit.
For graduate students interested in diseases of the nervous system. Students receive training in physiology, anatomy, and pathologic processes of the central and peripheral nervous system. Experimental approaches to study such processes are emphasized.

PATH 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PATH 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PATH 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PATH 299. Dissertation in Experimental Pathology. 1-12 Units.
Provided for the preparation and completion of the dissertation required for the Ph.D. degree.

Repeatability: May be repeated for credit unlimited times.

Genetic Counseling

UC Irvine Medical Center, City Tower, Suite 800; 714-456-5789
http://www.pediatrics.uci.edu/gcprogram/
Pamela Flodman, **Graduate Program Director**

The Division of Human Genetics in the School of Medicine's Department of Pediatrics offers a Master of Science degree program in Genetic Counseling. Many graduates of the program join academic or hospital-based genetics teams providing clinical services, teaching, and research. Others work for local, state, or federal genetics programs, for commercial genetics laboratories, in research studies, or in education. The graduate program is fully accredited by the American Board of Genetic Counseling.

Division faculty and staff are engaged in teaching, research, and patient service. Clinical activities center on diagnostic evaluation, management, and genetic counseling for genetic disorders, including birth defects, developmentally disabling conditions, and hereditary cancers. Faculty research interests include clinical genomics; gene mapping and identification using molecular and quantitative methods; characterization and management of malformation and chromosomal syndromes; counseling for late-onset genetic conditions including familial cancers and neurogenetic disorders; factors causing chromosome abnormalities, genomic disorders, and congenital malformations; cancer genetics and cytogenetics; psychosocial and cultural issues associated with genetic conditions, prenatal diagnosis, genetic screening testing, and genetic services delivery; treatment of genetic disease; and ethical and public policy issues in genetics.

During the six to eight academic quarters of the program, students complete a sequence of core courses covering medical, quantitative, biochemical, molecular, and cancer genetics and genomics; teratology, embryology, and development; cytogenetics; counseling theory and application; research methods; ethical issues; and community resources. All courses are taught by Division faculty specifically for students in the program. Experiential professional training occurs concurrently with formal course work in a variety of clinics at UC Irvine Medical Center and satellite facilities, in the prenatal diagnosis program, in the cytogenetics and molecular genetics laboratories, and in various community agencies. Students participate in these and other divisional and departmental professional and educational activities such as lectures, seminars, and journal club; Pediatrics, Obstetrics, and Oncology Grand Rounds; and various research, counseling, and patient management conferences throughout the program. While not required, some students choose to arrange optional clinical rotations at other academic, private, or commercial genetics units.

Degree requirements include a minimum of 75 quarter units, completion of a research thesis that should be publishable, and demonstration of appropriate professional skills in genetic counseling. The program director serves as faculty advisor to students. Teaching and supervision of

professional experiential training are shared by all Division faculty and staff, who frequently review student progress. In the second year, development of professional skills can be individualized according to the trainee's needs and interests. Successful completion of the program fulfills the curricular and clinical training requirements for eligibility to sit for examination by the American Board of Genetic Counseling.

Recommended undergraduate preparation includes course work in the biological and behavioral sciences—particularly in genetics, biochemistry, molecular biology, psychology, and human anatomy or embryology. Course work in statistics is desirable. Fluency in Spanish or a Southeast Asian language confers a considerable advantage. Extracurricular or employment experiences that provide evidence of the student's maturity, interpersonal skills, and promise as a genetic counselor figure prominently in the admissions decision. References should speak to these qualities as well as to the academic qualifications of the applicant. The GRE General Test is required. Subject Test scores in any area will also be considered if they are available. Since there is no GRE code for the Department of Pediatrics, applicants should use the UCI institution code: R4859.

Applications are accepted for the fall quarter only and must be complete by February 1. Because of keen competition for places in the program, a two-stage admissions process is employed. Following initial review of applications by the faculty admissions committee, approximately one-third of applicants are invited for interviews, which are usually conducted during March and April. If invited, it is greatly to the candidate's advantage to have an on-site interview, although in difficult circumstances it may be possible to arrange an out-of-town interview. Any candidate planning to be in the Southern California area in March or April is encouraged to inquire in advance regarding the likelihood of an interview. Final selection from the interviewed candidates occurs in late April or early May. Five or six students are usually admitted each year.

Courses

PED GEN 200A. Introduction to Medical Genetics and Cytogenetics. 4 Units.
Covers current concepts regarding mitosis, meiosis, the cell cycle, and chromosome ultrastructure and function. Clinical disorders caused by chromosomal aneuploidy, duplication, and deletion, and principles of Mendelian, chromosomal, and multifactorial and nontraditional inheritance are presented and illustrated.

Restriction: Graduate students only.

PED GEN 200B. Genetic Screening, Prenatal Development, and Human Teratology. 4 Units.
Principles and techniques of prenatal, neonatal, and carrier screening. Infertility, pregnancy, and delivery. Normal and abnormal prenatal growth and development. Reproductive and fetal effects of drugs, radiation, infections, and other environmental factors.

Prerequisite: PED GEN 200A.

Restriction: Genetic Counseling students only.

PED GEN 200C. Human Genetic Disorders. 4 Units.
Inheritance, diagnosis, natural history, management, and counseling considerations for commonly encountered genetic diseases, birth defects, and dysmorphic syndromes.

Prerequisite: PED GEN 200B.

Restriction: Genetic Counseling students only.

PED GEN 200D. Disorders due to Inborn Errors of Metabolism. 4 Units.
Aspects of biochemistry and metabolism are reviewed with special emphasis on genetic abnormalities which lead to inborn errors of metabolism. Diagnostic procedures, heterozygote detection, treatment, counseling issues, and prenatal diagnosis are reviewed.

Prerequisite: PED GEN 200A.

PED GEN 200E. Molecular Genetics, Gene Mapping, and Genetic Linkage. 4 Units.
Derivation of different types of DNA probes and DNA libraries, restriction endonuclease polymorphisms, assignment of genes to chromosomes, and genetic linkage. Emphasis on the use of recombinant DNA technologies and genetic analysis for diagnosis of human genetic disease.

Prerequisite: PED GEN 200A and PED GEN 200D.

PED GEN 200F. Quantitative Genetics. 2 Units.
Quantitative aspects of human genetics, including population studies, segregation analysis, linkage, mapping, and genetic risk determination.

Prerequisite: Prerequisite or corequisite: PED GEN 200A.

Overlaps with PED GEN 200B.

PED GEN 200G. Hereditary Cancer Counseling. 4 Units.
Issues in genetic counseling for cancer. Cancer biology; genetic mechanisms and environmental influences in carcinogenesis; tumor pathology; cancer gene mapping; epidemiology. Features natural history, diagnosis, prevention, surveillance, and management of heredity cancers. Psychosocial, ethical, legal aspects of cancer risk assessment.

Prerequisite: PED GEN 200B.

Restriction: Genetic Counseling students only.

PED GEN 200H. Genetic Counselin Research Design. 4 Units.
Quantitative and qualitative methods for genetic counseling research. Reference management; statistics: sample size, power, and data analysis; reliability and validity; surveys, questionnaires, interviews, focus groups; quality of life and genetic epidemiology research; designing a research protocol; IRB issues; grant writing.

PED GEN 200L. Cytogenetics Laboratory. 4 Units.
Practicum introducing methods of specimen collection, short-term lymphocyte and bone marrow culture, long-term fibroblast and amniocyte culture, harvesting and slide preparation, chromosome staining, microphotography, and darkroom techniques. Microscopic chromosome analysis, photographic karyotyping, and appropriate use of cytogenetic nomenclature are emphasized.

Restriction: Graduate students only.

PED GEN 201A. Introduction to Genetic Counseling. 4 Units.
Through directed readings, observing patient evaluations, role-playing, and conducting intake interviews, students are introduced to the process of diagnosis, management, and counseling for genetic disease. Psychosocial issues, interviewing techniques, pedigree construction, clinical photography, and various other skills are addressed.

Restriction: Genetic Counseling students only.

PED GEN 201B. Clinical Rotation I. 4 Units.
Provides extensive supervised experience in history taking, interviewing, and psychosocial assessment in the clinical genetics setting. Students independently perform telephone, office, and home-visit intake interviews, participate in counseling, and present cases at patient management conferences.

Restriction: Genetic Counseling students only.

PED GEN 201C. Clinical Rotation II. 4 Units.
Provides further supervised experience in genetic counseling, case management, clinic administration and organization, and the use of community resources. Emphasis is on sharpening counseling skills and on developing a professional identity and code of ethics.

Restriction: Genetic Counseling students only.

PED GEN 201D. Prenatal Diagnosis Counseling. 4 Units.
A practicum with extensive supervised experience in prenatal diagnosis counseling which provides the student with the opportunity to conduct genetic counseling sessions semi-independently and to further develop clinical skills.

Prerequisite: PED GEN 200A and PED GEN 200B and PED GEN 200C.

Restriction: Genetic Counseling students only.

PED GEN 202A. Counseling in Human Genetics: Theory and Methods. 3 Units.
Theoretical approaches, counseling models and methods, and bio-psychosocial assessment strategies are examined in the context of genetic counseling. Contract-setting, working alliance, the use of self and evaluation methods. Beginning counseling and peer supervision skills are practiced in class.

Restriction: Genetic Counseling students only.

PED GEN 202B. Community Resources. 2 Units.
Lectures, guest speakers, and community visits acquaint genetic counselors with public and private health care and funding agencies, parent support and advocacy groups, and other resources to assist individuals and families confronted with genetic disorders, developmental disabilities, and birth defects.

Restriction: Genetic Counseling students only.

PED GEN 202C. Ethical Issues in Human Genetics. 2 Units.
Explores major social, legal, and ethical issues in genetic counseling including those arising in genetic screening, prenatal diagnosis, informed consent, privacy and confidentiality, rights of the disabled, new genetic and reproductive technologies, treatment, and access to services.

PED GEN 203A. Counseling in Human Genetics: Putting Thought to Practice. 4 Units.
Builds upon the skills learned in previous courses emphasizing advanced counseling methods such as listening, empathy, and collaboration. The counselor's own self-awareness, ethical behaviors, and limits are explored. Individual, team, and group exercises are performed.

Prerequisite: PED GEN 202A.

Restriction: Genetic Counseling students only.

PED GEN 204A. Professional Skills Development. 4 Units.
Hones and augments existing competencies in genetic counseling through ongoing clinical experiences. Develops skills using computers for genetics applications, provision of community and professional education, and clinic administration. Further experience in genetics laboratories or specialty clinics may be elected.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

PED GEN 204B. Professional Skills Development. 4 Units.
Hones and augments existing competencies in genetic counseling through ongoing clinical experiences. Develops skills using computers for genetics applications, provision of community and professional education, and clinic administration. Further experience in genetics laboratories or specialty clinics may be elected.

Prerequisite: PED GEN 204A.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

PED GEN 204C. Professional Skills Development. 4 Units.
Hones and augments existing competencies in genetic counseling through ongoing clinical experiences. Develops skills using computers for genetics applications, provision of community and professional education, and clinic administration. Further experience in genetics laboratories or specialty clinics may be elected.

Prerequisite: PED GEN 204B.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

PED GEN 295. Master's Thesis and Research Writing. 4-8 Units.
Under the supervision of one or more faculty members, the student designs and conducts a research project or completes a case report. A problem in the cytogenetics, biochemical, clinical, psychosocial, or behavioral areas of medical genetics may be investigated.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

Microbiology and Molecular Genetics

Building B, Room 240, Medical Sciences I; 949-824-5261
http://www.microbiology.uci.edu/
Rozanne M. Sandri-Goldin, **Department Chair**
Marian L. Waterman, **Department Vice Chair**
Klemens J. Hertel, **Departmental Graduate Advisor**

The Department of Microbiology and Molecular Genetics provides advanced training to individuals interested in the regulation of gene expression and the structural and functional properties of proteins encoded by these genes. The research in the Department covers a wide range of topics with special emphasis on bacterial gene expression and pathogenesis; viral gene expression and host interactions; vector-borne malaria and dengue fever transmission; nuclear-cytoplasmic transport and intracellular signaling; eukaryotic gene expression; mRNA splicing, and processing; cancer genetics and tumor suppressors; ion channel expression and function; genomics and bioinformatics.

The Department offers graduate study under the auspices of the School of Medicine and in conjunction with the program in Cellular and Molecular Biosciences (CMB) and the program in Mathematical and Computational Biology (MCB), which are described in the Francisco J. Ayala School of Biological Sciences (p. 289) section. Students are eligible to enter the Department program after meeting the specific requirements of the CMB gateway curriculum or by direct application to the Department. The Department program leads to the M.S. or Ph.D. degree in Biomedical Sciences, awarded after

successful completion of all requirements. Students admitted into the CMB program who select a research advisor in the Department begin following the departmental requirements for the Ph.D. at the beginning of their second year.

Participation in the Department's seminar series and completion of at least one advanced topics course per year for three years are expected of all students. All students are required to convene a pre-advancement committee meeting at the end of their second year. In their third year, students take the advancement-to-candidacy examination for the Ph.D. degree by presenting and defending an original proposal for specific dissertation research. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Courses

M&MG 200A. Research in Microbiology and Molecular Genetics. 2-12 Units.
Individual research supervised by a particular professor.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

M&MG 200B. Research in Microbiology and Molecular Genetics. 2-12 Units.
Individual research supervised by a particular professor.

Prerequisite: M&MG 200A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

M&MG 200C. Research in Microbiology and Molecular Genetics. 2-12 Units.
Individual research supervised by a particular professor.

Prerequisite: M&MG 200B.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

M&MG 200R. Research in Microbiology and Molecular Genetics for First-Year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in the Department of Microbiology and Molecular Genetics for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

M&MG 201A. Research topics in Microbiology and Molecular Genetics. 1 Unit.
Seminars presented by graduate students and faculty of the Department which explore research topics in specialized areas of microbiology and molecular genetics. Opportunity for students to gain experience in the organization, critical evaluation, and oral presentation of current research developments.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 201B. Research topics in Microbiology and Molecular Genetics. 1 Unit.
Seminars presented by graduate students and faculty of the Department which explore research topics in specialized areas of microbiology and molecular genetics. Oppurtunity for students to gain experience in the organization, critical evaluation, and oral presentation of current research developments.

Prerequisite: M&MG 201A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 201C. Research topics in Microbiology and Molecular Genetics. 1 Unit.
Seminars presented by graduate students and faculty of the Department which explore research topics in specialized areas of microbiology and molecular genetics. Oppurtunity for students to gain experience in the organization, critical evaluation, and oral presentation of current research developments.

Prerequisite: M&MG 201B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 203A. Advanced Studies in Microbiology and Molecular Genetics. 1 Unit.
Organized within each laboratory group, one to four hours. Advanced study in areas related to faculty research interests. Involves small group study based on readings, discussions, and guest speakers. May be conducted as journal clubs.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 203B. Advanced Studies in Microbiology and Molecular Genetics. 1 Unit.
Organized within each laboratory group, one to four hours. Advanced study in areas related to faculty research interests. Involves small group study based on readings, discussions, and guest speakers. May be conducted as journal clubs.

Prerequisite: M&MG 203B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 203C. Advanced Studies in Microbiology and Molecular Genetics. 1 Unit.
Organized within each laboratory group, one to four hours. Advanced study in areas related to faculty research interests. Involves small group study based on readings, discussions, and guest speakers. May be conducted as journal clubs.

Prerequisite: M&MG 203B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 205A. Basic Immunology Core Lectures. 1 Unit.
Basic concepts in human immunology including development of the immune system, innate immunity, immunoglobulin structure and genetics, antigen-antibody reactions, the major histocompatibility complex and antigen presentation, T cell and B cell development, initiation of the immune response, effector mechanisms.

Grading Option: Satisfactory/unsatisfactory only.

M&MG 205B. Basic Immunology Core Lectures. 1 Unit.
Basic concepts in human immunology incluing development of the immune system, innate immunity, immunoglobulin structure and genetics, antigen-antibody reactions, the major histocompatibility complex and antigen presentation, T cell and B cell development, initiation of the immune response, effector mechanisms.

Prerequisite: M&MG 205A.

Grading Option: Satisfactory/unsatisfactory only.

M&MG 205C. Basic Immunology Core Lectures. 1 Unit.
Basic concepts in human immunology including development of the immune system, innate immunity, immunoglobulin structure and genetics, antigen-antibody reactions, the major histocompatibility complex and antigen presentation, T cell and B cell development, initiation of the immune response, effector mechanisms.

Prerequisite: M&MG 205C.

Grading Option: Satisfactory/unsatisfactory only.

M&MG 206. Regulation of Gene Expression. 4 Units.
Aspects of gene expression including organization of the eukaryotic nucleus in terms of protein-nucleic acid interaction; comparisons between prokaryotic and eukaryotic gene expression, enzymology and regulation of RNA transcription in E. Coli and other prokaryotes; enzymology of transcription in eukaryotes.

M&MG 210A. Medical Microbiology. 4-6 Units.
Biology of microbial pathogens (viruses, bacteria, fungi, parasites) as foundation for subsequent study of infectious diseases. Topics: molecular basis of microbial pathogenesis; clinical presentation and epidemiology; diagnostic testing; antimicrobial therapy; prevention strategies. Format: lectures, laboratory, clinical cases, liveclasstech interactive questions.

M&MG 210B. Medical Immunology. 6 Units.
Cellular and molecular basis of immune response and roles of the immune system in both maintaining health and contributing to disease.

Prerequisite: M&MG 210A.

Restriction: Medical students only.

M&MG 215. Integrative Immunology. 4 Units.
Lectures and student presentations of primary literature. The main goal is to achieve a basic understanding of the cellular and molecular basis of innate and adaptive immunity, and how immune function is coordinated at a systems level.

Same as MOL BIO 215.

M&MG 216. Pathogenic Microbiology. 4 Units.
Biochemical and genetic properties of infectious agents; identification and behavior of pathogens; activities of toxins; the chemotherapy, biochemistry, and genetics of drug resistance; and epidemiology of infectious diseases.

M&MG 219. Medical Virology. 4 Units.
Animal viruses as disease causing agents, including mechanisms of infection at both the cellular and organismic levels. Topics include comparative studies of different groups of viruses, viral transformation, and mechanisms of viral gene expression.

M&MG 221. Immunopathogenic Mechanisms of Disease. 3 Units.
Examination of the mechanisms underlying disease states mediated by immune dysregulation. Topics include innate and adaptive immunity, autoimmunity, immunodeficiency, inflammatory disorders, and certain infectious diseases. Emphasis on biological basis of immunopathologies taught from reports in the original scientific literature.

Prerequisite: M&MG 215.

Same as PATH 221.

Restriction: Graduate students only.

M&MG 222. Molecular Pathogenesis of Viral Infections. 4 Units.
Features lectures by faculty on the molecular aspects of viral pathogensis, highlighting both viral and cellular functions. Students give oral presentations and write a research proposal on a selected topic.

Prerequisite: MOL BIO 205.

M&MG 225. Molecular Mechanisms of Human Disease. 3 Units.
Provides an overview of the molecular mechanisms of human diseases, including neurologic, hematologic, neoplastic, and infectious diseases. Students gain an understanding of these mechanisms, as well as models of human diseases.

Same as PATH 225.

M&MG 227. Immunology Journal Club. 2 Units.
Advanced topics in immunology as related to an understanding of human disease.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 230. Topics in Stem Cells. 2-4 Units.
One-hour seminar presentation by participating faculty or guest lecturer and open to the science community, followed by one-hour discussion of the lecture topic or related topic. Students are responsible for presentations and readings.

M&MG 240. M.D./PH.D. Tutorial. 1 Unit.
Explores a variety of topics that impact careers of medical scientists (M.D./Ph.D students). Topics range from scientific, such as recent advances in particular research areas, to ethical problems brought on by increased technology and intervention in the disease process.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

M&MG 250. Responsible Conduct of Research. 2 Units.
Each session includes a formal presentation by faculty/invited speaker followed by a discussion of case studies related to the topic under consideration.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

M&MG 270. Career Development. 2 Units.
Topics include preparation of papers, grants and fellowships, scientific presentations, and curriculum vitae, and career opportunities.

Repeatability: May be repeated for credit unlimited times.

M&MG 280. Tutorial in Microbiology and Molecular Genetics. 2 Units.
Tutorial in Microbiology and Molecular Genetics. Presented by the department chair; relates current laboratory research to the literature.

Repeatability: May be repeated for credit unlimited times.

M&MG 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 298. Independent Study. 1-12 Units.
Provided for MSTP students to synthesize the basic science information learned during the basic science years of medical school and learn how to apply that knowledge toward graduate research directed at understanding the basis of human disease.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

M&MG 299. Dissertation—Microbiology and Molecular Genetics . 1-12 Units.
Course provided for Ph.D. students to prepare and complete the dissertation required for a Ph.D. degree.

Repeatability: May be repeated for credit unlimited times.

Pharmacological Sciences

Graduate Student Affairs: (949) 824-7651 (Program administered by the Department of Pharmacology)
http://www.pharmacology.uci.edu and http://www.pharmsci.uci.edu

Frederick J. Ehlert, **Graduate Program Director/Advisor for the Interdisciplinary Program**

The Department of Pharmacology and Pharmaceutical Sciences join forces to offer an interdisciplinary program leading to the Ph.D. degree in Pharmacological Sciences with a concentration in Pharmacology or in Pharmaceutical Sciences. For complete program information, see the Interdisciplinary Studies (p. 1083) section of the *Catalogue*.

The Department of Pharmacology also admits students through the following two gateway programs:

Graduate Gateway Program in Medicinal Chemistry and Pharmacology (MCP). The one-year graduate MCP Gateway Program is designed to function in concert with selected department programs, including the Ph.D. in Pharmacological Sciences. Upon successful completion of the MCP curriculum at the end of their first year, students choose a faculty advisor who is affiliated with one of the participating departments, and transition into their “home” department to complete the remaining degree requirements. They will receive their Ph.D. degree from the department of their chosen advisor. Detailed information is available at Department of Pharmacology (http://www.pharmacology.uci.edu) website.

The Department also participates in the **Interdepartmental Neuroscience Gateway Program,** described in the Francisco J. Ayala School of Biological Sciences section of the *Catalogue.* Students who select a focus in Neuroscience and a research advisor in the Department begin following the departmental requirements for the Ph.D. at the beginning of their second year and will receive their Ph.D. from the department of their chosen advisor. Detailed information is available at Interdepartmental Neuroscience Gateway Program (http://www.inp.uci.edu/about) website.

Faculty

Geoffrey W. Abbott, Ph.D. University of London, *Professor of Pharmacology; Physiology and Biophysics*

James D. Belluzzi, Ph.D. University of Chicago, *Adjunct Professor of Pharmacology*

Stephen C. Bondy, Ph.D. University of Birmingham, *Professor of Medicine; Environmental Health Sciences; Pharmacology; Program in Public Health*

Emiliana Borrelli, Ph.D. University of Strasbourg, *Professor of Microbiology and Molecular Genetics; Pharmacology*

Catherine M. Cahill, Ph.D. Dalhousie University, *Acting Associate Professor of Anesthesiology and Perioperative Care; Anesthesiology and Perioperative Care; Pharmacology*

A. Richard Chamberlin, Ph.D. University of California, San Diego, *Department Chair and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (chemical biology, organic and synthetic)

Olivier Civelli, Ph.D. Swiss Federal Institute of Technology in Zurich, *Department Chair and Eric L. and Lila D. Nelson Chair in Neuropharmacology* and *Professor of Pharmacology; Developmental and Cell Biology; Pharmaceutical Sciences* (novel neuroactive molecules)

Sue P. Duckles, Ph.D. University of California, San Francisco, *Professor Emerita of Pharmacology*

Frederick J. Ehlert, Ph.D. University of California, Irvine, *Professor of Pharmacology*

Pietro R. Galassetti, Ph.D. Vanderbilt University, *Associate Professor of Pediatrics; Pharmacology*

Kelvin W. Gee, Ph.D. University of California, Davis, *Professor of Pharmacology*

Frances L. Gonzalez, Ph.D. University of Aberdeen, *Professor of Pharmacology; Anatomy and Neurobiology*

Stephen Hanessian, Ph.D. Ohio State University, *Director of Medicinal Chemistry and Pharmacology Graduate Program and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (organic chemistry)

Naoto Hoshi, Ph.D. Kanazawa University, *Assistant Professor of Pharmacology; Physiology and Biophysics*

Mahtab F. Jafari, Ph.D. University of California, San Francisco, *Vice Chair of the Undergraduate Program in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Ecology and Evolutionary Biology; Pharmacology*

Diana N. Krause, Ph.D. University of California, Los Angeles, *Adjunct Professor of Pharmacology*

Arthur D. Lander, Ph.D. University of California, San Francisco, *Donald Bren Professor* and *Professor of Developmental and Cell Biology; Biomedical Engineering; Logic and Philosophy of Science; Pharmacology* (systems biology of development, pattern formation, growth control)

Ellis Levin, M.D. Thomas Jefferson University, Jefferson Medical College, *Professor in Residence of Medicine; Biological Chemistry; Pharmacology*

John C. Longhurst, Ph.D. University of California, Davis, *Susan Samueli Chair in Integrative Medicine* and *Professor of Medicine; Pharmacology; Physiology and Biophysics*

Sandra E. Loughlin-Burkhead, B.A. University of California, San Diego, *Specialist of Pharmacology*

Zhigang D. Luo, Ph.D. State University of New York at Buffalo, *Professor of Anesthesiology and Perioperative Care; Pharmacology*

Daniele Piomelli, Ph.D. Columbia University, *Louise Turner Arnold Chair in the Neurosciences* and *Professor of Anatomy and Neurobiology; Biological Chemistry; Pharmacology*

Ralph E. Purdy, Ph.D. University of California, Los Angeles, *Professor Emeritus of Pharmacology*

Stefano Sensi, M.D. Gabriele D'Annunzio University of Chieti Pescara, *Associate Adjunct Professor of Neurology; Pharmacology*

Larry Stein, Ph.D. University of Iowa, *Professor Emeritus of Pharmacology*

Jeffrey R. Suchard, M.D. University of California, Los Angeles, *Professor of Emergency Medicine; Pharmacology*

Sandor Szabo, Ph.D. Université de Montréal, *Professor in Residence of Pathology and Laboratory Medicine; Pharmacology*

Qun-Yong Zhou, Ph.D. Oregon Health & Science University, *Professor of Pharmacology*

Xiaolin Zi, Ph.D. Shanghai University, *Associate Professor of Urology; Pharmacology*

Courses

PHARM 210. Chemical Neuroanatomy. 4 Units.
Organization of the nervous system, especially with respect to chemical identity of elements, for students of pharmacology. Major cell types, methods of study, ultrastructure, synaptic organization of functionally defined systems, localization of chemically defined cells and receptors, and brain development.

Restriction: Graduate students only.

PHARM 241. Advanced Topics in Pharmacology. 2 Units.
Application of pharmacological principles in disease therapy. Advanced pharmacological mechanisms and in-depth study of drug action. Discussion of several major drug classes/therapeutic strategies: molecular mechanisms of action, physiological consequences of administration, and clinical use.

PHARM 241B. Graduate Pharmacology. 6 Units.
Principles of pharmacology and in-depth study of drug action. Pharmacokinetics and pharmacodynamics: absorption, distribution and metabolism, general principles of action and receptor concepts. Discussion of major drug classes: molecular mechanism of action, physiological consequences of administration, and clinical use.

Prerequisite: PHYSIO 206A and PHYSIO 206B and BIOCHEM 210A.

PHARM 252. Neurotransmitter and Drug Receptors. 6 Units.
Ligand gated ion channels, G protein linked receptors, receptor tyrosine kinases, ligand regulated transcription factors, their signaling mechanisms, trafficking and physiological responses. Analysis of receptor properties by pharmacological methods, radioligand binding, and molecular biology.

PHARM 254. Introduction to Pharmacology. 4 Units.
Receptor analysis: bioassay measuring contraction, calcium mobilization, second messenger responses; operant conditioning: whole animal, single neuron; radioligand binding; quantitative autoradiography; immunocytochemistry; in situ hybridization for analysis of mRNA; Western and Northern analysis; transgenic mouse knock in and knock out techniques.

PHARM 255. Chemical Transmission. 4 Units.
Mechanisms underlying chemical signaling processes in the brain and periphery. Molecular biology, signal transduction, transmitter synthesis and inactivation, pharmacology of integrative function and behavior.

PHARM 256. Experimental Design for Pharmacologists. 1 Unit.
Population and sample statistics, hypothesis testing, analysis of variance, nonparametric statistics, experimental design, power, and the use of statistical computer software.

Prerequisite: PHARM 252.

PHARM 257. Ethics in Research. 1 Unit.
Ethical conduct in research including data handling, authorship, conflict of interest, animal rights, handling of misconduct.

Prerequisite: PHARM 299.

Repeatability: May be taken for credit 2 times.

PHARM 298. Seminar. 2 Units.
Presentation and discussion of current problems and methods in teaching and research in pharmacology, toxicology, and therapeutics.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHARM 299. Research. 1-12 Units.
Independent research with Pharmacology and Toxicology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Physiology and Biophysics

Building D, Room D340, Medical Sciences I; 949-824-5863
http://www.physiology.uci.edu/

Michael D. Cahalan, **Department Chair**

Todd C. Holmes, **Department Vice Chair**

Albert Zlotnik, **Departmental Graduate Advisor**

The Department of Physiology and Biophysics offers research opportunities in the molecular biophysics of membranes and proteins, ion channels and signal transduction, endocrinology, molecular and cell biology, physiological genomics, developmental neurobiology, and exercise physiology.

The Department offers graduate study under the auspices of the School of Medicine and in conjunction with the graduate program in Cellular and Molecular Biosciences (CMB) and the Interdepartmental Neuroscience Program (INP), which are described in the Francisco J. Ayala School of Biological Sciences (p. 289) section. Students are eligible to enter the Department program after meeting the specific requirements of the CMB of INP gateway curriculum or by direct application to the Department. The Department program leads to the M.S. or Ph.D. degree in Biomedical Sciences, awarded after successful completion of all requirements. Students admitted into these combined programs who select a research advisor in the Department begin following the departmental requirements for the Ph.D. at the beginning of their second year.

The faculty conducts quarterly reviews of all continuing students to ensure that they are maintaining satisfactory progress within their particular academic program. Students participate in a literature review course designed to strengthen research techniques and presentation skills, and attend the weekly Department colloquium. Students advance to candidacy during the third year; each student presents a seminar on a topic assigned by the formal candidacy committee. Following the seminar, the committee examines the student's qualifications for the successful conduct of doctoral dissertation research. Each student must submit a written dissertation on an original research project and successfully defend this dissertation in an oral examination. Interdisciplinary dissertation research involving more than one faculty member is encouraged. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Faculty

Geoffrey W. Abbott, Ph.D. University of London, *Professor of Pharmacology; Physiology and Biophysics*

Gregory R. Adams, Ph.D. Michigan State University, *Associate Adjunct Professor of Physiology and Biophysics*

Kenneth M. Baldwin, Ph.D. University of Iowa, *Professor Emeritus of Physiology and Biophysics*

Tallie Z. Baram, M.D. University of Miami, *Danette Dee Dee Shepard Chair in Neurological Studies* and *Professor of Pediatrics; Anatomy and Neurobiology; Neurology; Physiology and Biophysics*

Ralph A. Bradshaw, Ph.D. Duke University, *Professor Emeritus of Physiology and Biophysics*

Michael D. Cahalan, Ph.D. University of Washington, *UCI Distinguished Professor of Physiology and Biophysics*

Vincent J. Caiozzo, Ph.D. University of California, Irvine, *Professor in Residence of Orthopaedic Surgery; Environmental Health Sciences; Physiology and Biophysics*

K. George Chandy, Ph.D. University of Birmingham, *Professor of Physiology and Biophysics; Microbiology and Molecular Genetics*

Philip Felgner, Ph.D. Michigan State University, *Adjunct Professor of Medicine; Physiology and Biophysics*

John Jay Gargus, Ph.D. Yale University, *Professor of Physiology and Biophysics; Pediatrics*

Alan L. Goldin, M.D. University of Michigan, *Professor of Microbiology and Molecular Genetics; Anatomy and Neurobiology; Physiology and Biophysics*

Harry T. Haigler, Ph.D. Vanderbilt University, *Professor of Physiology and Biophysics*

James E. Hall, Ph.D. University of California, Riverside, *Professor of Physiology and Biophysics*

Todd Holmes, Ph.D. Massachusetts Institute of Technology, *Department Vice Chair and Professor of Physiology and Biophysics*

Naoto Hoshi, Ph.D. Kanazawa University, *Assistant Professor of Pharmacology; Physiology and Biophysics*

Lan Huang, Ph.D. University of Florida, *Professor of Physiology and Biophysics; Biological Chemistry*

Rongsheng Jin, Ph.D. Columbia University, *Associate Professor of Physiology and Biophysics*

Frances A. Jurnak, Ph.D. University of California, Berkeley, *Professor Emerita of Physiology and Biophysics*

Janos K. Lanyi, Ph.D. Harvard University, *Professor Emeritus of Physiology and Biophysics*

John C. Longhurst, Ph.D. University of California, Davis, *Susan Samueli Chair in Integrative Medicine* and *Professor of Medicine; Pharmacology; Physiology and Biophysics*

Kenneth J. Longmuir, Ph.D. University of Oregon, *Professor of Physiology and Biophysics*

Hartmut Luecke, Ph.D. William Marsh Rice University, *Professor of Molecular Biology and Biochemistry; Molecular Biology and Biochemistry; Physiology and Biophysics*

Jogeshwar Mukherjee, Ph.D. Jodhpur National University, *Professor in Residence of Radiological Sciences; Physiology and Biophysics*

Ian Parker, Ph.D. University College London, *Professor of Neurobiology and Behavior; Physiology and Biophysics*

Thomas L. Poulos, Ph.D. University of California, San Diego, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences; Physiology and Biophysics* (chemical biology)

Irwin A. Rose, Ph.D. University of Chicago, *Senate Emeritus of Physiology and Biophysics*

Hamid M. Said, Ph.D. Aston University, *Professor of Medicine; Physiology and Biophysics*

Ivan Soltesz, Ph.D. Eötvös Loránd University, *UCI Chancellor's Professor of Anatomy and Neurobiology; Neurobiology and Behavior; Physiology and Biophysics*

Francesco Tombola, Ph.D. University of Padua, *Assistant Professor of Physiology and Biophysics*

Bruce Tromberg, Ph.D. University of Tennessee, *Director of Surgery; Biomedical Engineering; Physiology and Biophysics* (photon migration, diffuse optical imaging, non-linear optical microscopy, photodynamic therapy)

Nosratola D. Vaziri, M.D. University of Tehran, *Professor Emeritus of Medicine; Physiology and Biophysics*

Larry E. Vickery, Ph.D. University of California, Santa Barbara, *Professor Emeritus of Physiology and Biophysics*

Ping H. Wang, M.D. Harvard University, *Professor of Medicine; Physiology and Biophysics*

Stephen H. White, Ph.D. University of Washington, *Professor Emeritus of Physiology and Biophysics*

Qin Yang, M.D. , *Assistant Professor of Medicine; Physiology and Biophysics*

Albert Zlotnik, Ph.D. University of Colorado Boulder, *Professor of Physiology and Biophysics*

Courses

PHYSIO 200. Research in Physiology and Biophysics. 2-12 Units.
Individual research directed toward doctoral dissertation and supervised by a particular professor.

Repeatability: May be repeated for credit unlimited times.

PHYSIO 200R. Research in Physiology and Biophysics for First-Year Students. 2-12 Units.
Independent research within the laboratories of graduate training faculty in the Department of Physiology and Biophysics for first-year Ph.D. students.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

PHYSIO 201. Introduction to Physiology Research. 1-4 Units.
Introduction to research in physiology and related sciences. Concentrates on techniques emphasized in the various laboratories of the Department of Physiology and Biophysics.

Repeatability: May be repeated for credit unlimited times.

PHYSIO 204. Concepts of Biophysics. 3 Units.
Principles of crystallography; introduction to time-resolved absorption and fluorescence spectroscopy; the concepts of kinetic order and kinetic rate theory.

Restriction: Graduate students only.

PHYSIO 205. Electronics for Biologists. 4 Units.
Basic principles of electricity; properties and use of discrete components and integrated circuits; circuit analysis and design. Intended for advanced students in the life sciences.

Same as NEURBIO 249.

PHYSIO 206A. Introduction to Medical Physiology. 5 Units.
Vertebrate physiology with emphasis on humans and on the relationship between the function of normal tissues and the processes of disease. Fundamental principles of physiology and the interrelationships which control organ function.

Prerequisite: A biochemistry course.

Restriction: Graduate students only.

PHYSIO 206B. Introduction to Medical Physiology. 6 Units.
Vertebrate physiology with emphasis on humans and on the relationship between the function of normal tissues and the processes of disease. Fundamental principles of physiology and the interrelationships which control organ function.

Prerequisite: PHYSIO 206A.

Restriction: Graduate students only.

PHYSIO 232. The Physiology of Ion Channels. 4 Units.
Discusses how ion channels work (molecular/structural biophysics level) and what ion channels do in diverse cell types (cell physiology level).

Restriction: Graduate students only.

PHYSIO 252. Introduction to Proteomics. 4 Units.
Introduces students to concepts and methods of proteomics including protein identification, expression proteomics, and protein-protein interactions.

Repeatability: May be taken for credit 2 times.

PHYSIO 290. Topics in Physiology. 3 Units.
Contemporary research problems in physiology. Students review papers in the current literature and present ideas contained therein to other students. Students present results of their own research and attend presentations given by other students and departmental researchers.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PHYSIO 292A. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PHYSIO 292B. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PHYSIO 292C. Scientific Communication. 2 Units.
Small group meetings for graduate students to practice scientific writing, debate, and presentation skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PHYSIO 299. Dissertation in Physiology and Biophysics. 2-12 Units.
Preparation and completion of the dissertation required for the Ph.D. or Master of Science degree.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Program in Nursing Science

252 Berk Hall; 949-824-1514
http://www.nursing.uci.edu/; nssao@uci.edu
Alison Holman, **Interim Director of the Program in Nursing Science**

Degrees

Nursing Science	B.S., M.S., Ph.D.

Undergraduate Program

Nurse professionals are members of interdisciplinary teams who work with people of all ages, cultural backgrounds, and lifestyles to help them achieve the highest level of wellness possible. The Bachelor of Science degree program in Nursing Science prepares graduates to function as generalists in professional nursing practice and to collaborate with other health care providers in clinics, hospitals, and community health settings. The undergraduate curriculum is designed to provide theory and research-based clinical practice focusing on critical thinking, human caring, and clinical expertise. Students who successfully complete the B.S. degree in Nursing Science are eligible to take the licensure examination to become a registered nurse. The Nursing Science major is approved by the Board of Registered Nursing and the Commission on Collegiate Nursing Education (CCNE).

Most of the courses required for the major require completion of prerequisites. The sample program shown is a preferred sequence that accounts for all prerequisites. Most required courses are offered in sequence and only once a year. Full-time enrollment is required.

All students interested in the Nursing Science major should be aware that they will be required to do the following: (1) meet the physical and mental requirements necessary to perform nursing practice functions as outlined in Chapter 6, Article 2, Item 2725 of the *Business and Professions Code of California*; (2) complete a criminal background check prior to entering the clinical portion of the major in the junior year as required by health care facilities in which students will have clinical experiences; (3) purchase uniforms and other required equipment such as stethoscopes; (4) have access to transportation for off-campus clinical experiences beginning in the junior year.

Admission to the Major

Meeting the UCI admission criteria does not guarantee admission into the major. The admission process is competitive due to limited enrollment. In addition to meeting the UCI admission criteria, all eligible applicants are required to submit a supplemental application that includes a personal statement and a résumé detailing experiences in health care. A proctored essay and personal interview may also be required.

Freshmen: Preference will be given to those who rank the highest using the selection criteria as stated in the Admissions (p. 52) section of the *Catalogue*.

Transfer students: Admission to the major is limited and selective. Junior-level applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission to the Nursing Science major. The following list of prerequisites is required for transfer students applying for fall 2015 entry and beyond. All applicants must complete the following with grades of B or better: one year of general chemistry equivalent to UCI's CHEM 1A - CHEM 1B - CHEM 1C; one quarter/semester of organic chemistry equivalent to UCI's CHEM 51A; one quarter/semester of genetics equivalent to UCI's BIO SCI 97; one quarter/semester of biochemistry equivalent to UCI's BIO SCI 98; one quarter/semester of human physiology with laboratory equivalent to UCI's BIO SCI E109 and BIO SCI E112L; one quarter/semester of microbiology with laboratory equivalent to UCI's BIO SCI M122 and either BIO SCI M118L or BIO SCI M122L; one quarter/semester of human anatomy with laboratory equivalent to UCI's BIO SCI D170; one quarter/semester of philosophy equivalent to UCI's PHILOS 4 or PHILOS 5; one quarter/semester of psychology equivalent to UCI's PSYCH 7A/PSY BEH 9; one quarter/semester of public health equivalent to UCI's PUBHLTH 1; one quarter/semester of sociology equivalent to UCI's SOCIOL 1; and one quarter/semester of statistics equivalent to UCI's STATS 7 or STATS 8. Applicants must have a cumulative GPA of 3.0 or higher to be considered.

Change of Major: Due to strict limits on the number of students who can be admitted to the program and rigid sequencing of much of the upper-division curriculum, change-of-major students need to apply in the month of November for winter quarter admission, at the earliest in sophomore year. Students should review the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website and the Nursing Science (http://www.nursing.uci.edu/programs/bs/change-of-major) website for information regarding change of major admission requirements, application instructions, and selection criteria. Change-of-major students who are intending to apply to the Program in Nursing Science should be aware that the Program in Nursing Science cannot waive course prerequisites for any Francisco J. Ayala School of Biological Sciences or School of Physical Sciences courses, prior to admission into the Nursing Science major. As such, change of major students must adhere to the course prerequisites that these Schools have established and have published in the course descriptions that appear in the *Catalogue*.

Honors at Graduation

Honors at graduation, e.g., *cum laude, magna cum laude, summa cum laude,* are awarded to approximately the top 12 percent of the graduating seniors. To be eligible for honors, a general criterion is that students must have completed at least 72 units in residence at a University of

California campus. Other important factors are considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext).

Requirements for the B.S. Degree in Nursing Science

All major requirements must be passed with a C or better if taken at UCI, and a B or better if taken at another university. All Nursing Science courses must be taken at UCI. Students must maintain a 2.75 GPA in their upper-division Nursing Science courses to remain in good standing. If Nursing Science students fail any courses required for the major, they should contact Student Affairs for the repeat policy.

All students must meet the University Requirements (p. 71)**.**

Major Requirements

Complete the following courses:	
BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI D170	Applied Human Anatomy
BIO SCI E109	Human Physiology
BIO SCI E112L	Physiology Laboratory
BIO SCI M122	General Microbiology
BIO SCI M118L	Experimental Microbiology Laboratory
or BIO SCI M122L	Advanced Microbiology Laboratory
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM 51A	Organic Chemistry
PHILOS 4	Introduction to Ethics
or PHILOS 5	Contemporary Moral Problems
Select one of the following:	
PSY BEH 9	Introduction to Psychology
PSY BEH 11A	Psychology Fundamentals
PSY BEH 11B	Psychology Fundamentals
PSY BEH 11C	Psychology Fundamentals
PSYCH 7A	Introduction to Psychology
PSYCH 9A	Psychology Fundamentals
PSYCH 9B	Psychology Fundamentals
PSYCH 9C	Psychology Fundamentals
PSYCH 78A	Self-Identity and Society
Select one of the following:	
ANTHRO 2A	Introduction to Sociocultural Anthropology
ANTHRO 2D	Introduction to Language and Culture
ANTHRO 41A	Global Cultures and Society
SOC SCI 1A	Principles in the Social Sciences
SOCIOL 1	Introduction to Sociology
SOCIOL 2	Globalization and Social Change
SOCIOL 3	Social Problems
SOCIOL 31	Self-Identity and Society
SOCIOL 44	Births, Deaths, and Migration
SOCIOL 62	Families and Intimate Relations
Select one of the following:	
PSYCH 10A	Probability and Statistics in Psychology I
SOC SCI 10A	Probability and Statistics in Social Sciences I
SOCIOL 10A	Probability and Statistics
STATS 7	Basic Statistics
STATS 8	Introduction to Biological Statistics
Complete the following courses:	

PSYCH 120D	Developmental Psychology
PUBHLTH 1	Principles of Public Health

Complete the following Nursing Science courses:

NUR SCI 110W	Frameworks for Professional Nursing Practice
NUR SCI 112LA	Foundations of Professional Practice
NUR SCI 112LB	Foundations of Professional Practice
NUR SCI 114A	Applied Pharmacology I
NUR SCI 114B	Applied Pharmacology II
NUR SCI 118A	Human Health and Disease I
NUR SCI 118B	Human Health and Disease II
NUR SCI 120	Adult Health Care
NUR SCI 125	Research Methods and Applications in Health Care
NUR SCI 130	Maternity and Women's Health Care
NUR SCI 132	Pediatrics: Care of Children and Families
NUR SCI 135	Older Adult Health Care
NUR SCI 140	Human Behavior and Mental Health Care
NUR SCI 150	Critical and Specialty Health Care
NUR SCI 160	Leadership and Management in Health Care
NUR SCI 170	Community-Based Health Care
NUR SCI 175L	Clinical Preceptorship
NUR SCI 179A	Scholarly Concentration I
NUR SCI 179B	Scholarly Concentration II

NOTE: Double majors with Nursing Science, Pharmaceutical Sciences, Public Health Sciences, Biomedical Engineering: Premedical, or with any of the School of Biological Sciences majors are not permitted. Students majoring in Nursing Science may not minor in Biological Sciences.

Sample Program — Nursing Science

Freshman			
Fall	**Winter**	**Spring**	
CHEM 1A	CHEM 1B	CHEM 1C	
PSYCH 7A or PSY BEH 9	SOCIOL 1	WRITING 39C	
PUBHLTH 1	WRITING 39B	Gen. Ed./Elective	
	Gen. Ed./ Elective	Gen. Ed./ Elective	
Sophomore			
Fall	**Winter**	**Spring**	**Summer**
BIO SCI 97	BIO SCI 98	BIO SCI D170	BIO SCI E112L
CHEM 51A	BIO SCI E109	BIO SCI M122	
PHILOS 4 or 5	STATS 7 or 8	BIO SCI M118L or M122L	
Gen. Ed./ Elective	Gen. Ed./ Elective		
Junior			
Fall	**Winter**	**Spring**	
NUR SCI 110W	NUR SCI 112LB	NUR SCI 120	
NUR SCI 112LA	NUR SCI 114B	NUR SCI 140	
NUR SCI 114A	NUR SCI 118B		
NUR SCI 118A	NUR SCI 125		
PSYCH 120D	NUR SCI 135		
Senior			
Fall	**Winter**	**Spring**	
NUR SCI 130	NUR SCI 150	NUR SCI 170	

NUR SCI 132	NUR SCI 160	NUR SCI 175L
	NUR SCI 179A	NUR SCI 179B

Graduate Program

The Program in Nursing Science offers both the M.S. and Ph.D. degrees in Nursing Science. Detailed information about both degree programs follows.

Master of Science in Nursing Science

The Master of Science (M.S.) in Nursing Science at the University of California, Irvine is a professional degree program which will prepare Registered Nurses in selected specialties and in research so they may assume roles as research-based advanced practice clinicians, administrators, or educators. The program course work is designed to prepare nurses with: (1) expertise in a specialized area of advanced nursing practice; (2) role preparation as a nurse practitioner, nurse educator, or nurse administrator; (3) leadership and health policy skills; and (4) research skills. The M.S. degree will also prepare students for future doctoral work.

Admission

Applicants must have earned a bachelor's degree in nursing from an accredited program, currently be licensed as a Registered Nurse in the State of California, and provide proof of licensure by the California Board of Registered Nursing (BRN). In addition, eligible candidates must have a 3.0 cumulative grade point average, have completed a descriptive and inferential statistics course and an upper-division nursing research course at the undergraduate level, and have at least one year direct clinical experience in patient care in a U.S. healthcare system upon entering the program.

Applicants must meet the general admission requirements of the UCI Graduate Division and the Program in Nursing Science admission requirements, and submit both the Application for Graduate Admission and the Nursing Science Supplemental Application in order to be considered for admission. The GRE is not required. Students are admitted every fall quarter.

M.S. Concentration Areas

Students applying to the M.S. program must select an area of concentration, either the Family Nurse Practitioner concentration (FNP) or the Adult-Gerontological Primary Care Nurse Practitioner concentration (AGPCNP). Graduates of the nurse practitioner (NP) tracks will also be eligible for certification by the California Board of Registered Nursing (BRN).

Requirements

Students enrolled in either the FNP concentration or the AGPCNP concentration will complete 72 units. Students will complete 720 hours of clinical practice with populations in their area of concentration to be eligible for certification. There is no foreign language requirement; proficiency in a language other than English is desirable but not required.

Required and Elective Courses for Both Concentrations	
NUR SCI 200	Research Methods and Evaluation for Evidence-Based Practice
NUR SCI 210	Advanced Pathophysiology
NUR SCI 215	Health Promotion/Disease Prevention
NUR SCI 225A	Advanced Pharmacology
NUR SCI 225B	Advanced Pharmacology
NUR SCI 230	Advanced Health and Physical Assessment
NUR SCI 230L	Advanced Health and Physical Assessment Laboratory
NUR SCI 245A- 245B	Primary Care and Primary Care
NUR SCI 250	Primary Care Women's Health
NUR SCI 260A	Primary Care Adult/Geriatric
NUR SCI 281	Frameworks for Advanced Professional Practice in Nursing
NUR SCI 282	Human Behavior and Mental Health Care for Advanced Practice
NUR SCI 283	Primary Care Procedures
NUR SCI 284	Advanced Practice Scholarly Concentration
NUR SCI 285	APN Clinical Practicum I
NUR SCI 286	APN Clinical Practicum II
NUR SCI 287	APN Clinical Pracitcum III
NUR SCI 288	APN Clinical Practicum IV
NUR SCI 289	APN Clinical Practicum V
Required for FNP Concentration only:	
NUR SCI 255	Primary Care Obstetrics

NUR SCI 270	Primary Care Pediatrics
Required for AGPCNP Concentration only:	
NUR SCI 260B	Primary Care Adult/Geriatric
NUR SCI 280	Aging and Chronic Illness

There are no qualifying examinations. Successful completion of required course work will advance students to candidacy the quarter prior to scheduled completion of the master's degree program. Instead of a thesis, students complete a Scholarly Concentration in an area of interest over the final two quarters of the program and prepare a major paper. The comprehensive examination will serve as a final examination which will also prepare graduates for certification examinations. Full-time students are expected to complete the program within two years.

Doctor of Philosophy in Nursing Science

Admission

To be considered for admission, applicants must have a Bachelor or Master of Science degree in Nursing. Degrees must be from U.S. accredited programs or international programs with accreditations satisfactory to the Graduate Division and the Program in Nursing Science and equivalent to UC educational requirements.

Applicants are required to submit transcripts showing a minimum grade point average (GPA) of 3.2 for undergraduate work and 3.5 for graduate work from an accredited institution and a scholarship record commensurate with requirements of the Graduate Division and the Program in Nursing Science. Previous education at the undergraduate and/or graduate levels will be evaluated for equivalency of design, theory, and intensity as a means of determining whether the prior degree standards are equivalent to those required by the UC system. Applicants are also required to submit scores from the General Test of the Graduate Record Examination taken within the last five years as required by the Graduate Division. If English is not the applicant's first language, the applicant must demonstrate proficiency in English prior to admission commensurate with that identified by the Graduate Division for the Test of English as a Foreign Language (TOEFL) or TOEFL Internet-Based (TOEFL iBT).

Applicants who did not have a course in descriptive and inferential statistics within the last five years must complete a course similar to STATS 7 prior to admission. Applicants without an undergraduate research course are required to complete both NUR SCI 125 and NUR SCI 200. Applicants who have completed an undergraduate research course but not a graduate-level course in nursing research must complete NUR SCI 200.

In addition, applicants are required to submit:

- A statement of objectives for graduate study, career goals, and personal research goals including ways in which those goals are compatible with the UCI expected outcomes for doctoral education;
- A resume or *Curriculum Vitae* detailing educational background, professional work, previous research, and volunteer work as well as other relevant information such as fluency in another language;
- Examples of scholarly work;
- Three letters of recommendation submitted on the Graduate Division Recommendation Form from persons in a supervisory role who are able to comment on academic abilities, research-related abilities/capabilities, and/or work-related experiences; and
- Evidence of licensure as a registered nurse.

A personal interview will be required of applicants considered for admission. Acceptance is based on materials submitted, research interests related to those of faculty, and results of the interview process.

Areas of Focus

The specific field of emphasis for the Ph.D. program is Nursing Science. Generally, this involves increasing the quality of life for the community that nurses serve. Consistent with faculty research expertise, the Ph.D. program will specifically promote the development of scientific and theoretical expertise that contributes to scholarly endeavors in four key areas: health promotion/disease prevention, health disparities and diversity, disease and symptom management, and health services and health policy. These areas of research emphasis intersect as they contribute to healthy communities. Emphasis will be placed on building expertise in the use of translational science methods in conjunction with traditional models for research. Research emphasis areas are described below.

Health Promotion/Disease Prevention. According to the World Health Organization (2010), health promotion is empowering others to modify and improve their health. This happens at the individual, family, and community level. Health promoting activities often lead to disease prevention. Students choosing this focus may work with UCI faculty (Nursing Science and others) on stress and coping, women's health, and obesity prevention and nutrition, to name a few specific areas.

Health Disparities and Diversity. The focus on Health Disparities acknowledges that there are individuals, families, and communities who are not equally treated in the quest for health. Many do not have equal access to quality health care nor the means to achieve an equal level of desired health outcomes. The emphasis will be to examine these health disparities among diverse populations who encounter differences in treatment and outcomes. Students choosing this focus will have an opportunity to work with diverse community members in Orange County and beyond, and they will be mentored by researchers who study the experiences of these community members.

Disease and Symptom Management. Many individuals face challenges in managing chronic illness. The focus is to aid individuals to be healthy within the context of living with a chronic illness by investigating factors influencing self-management and developing best intervention strategies for symptom management. Students choosing this focus will have an opportunity to study chronic illness demands and the experiences, coping efforts, and challenges that patients face. Research at UCI covers a wide variety of diseases such as asthma, diabetes, congestive heart failure, peripheral vascular disease, mental illness, dementia, cancer, and other illnesses.

Health Services and Health Policy. Health policy and the economics of delivering health care are important issues affecting health outcomes. Students choosing this focus will have an opportunity to examine the implications of a variety of policies and services on health and health system outcomes. There will be opportunities to study with researchers who have expertise in health care system management, law, organizational theory and behavior, and quality of care.

Requirements

Ph.D. students are required to take a minimum of 75 quarter units. Among those, 44 quarter units must be formal course work selected in part by consultation with the faculty advisor, subject to review by a faculty oversight committee. These courses will cover the necessary fundamental and methodological principles, and accommodate cross-disciplinary themes in nursing science. Students will also be required to participate in the educational mission of the Program in Nursing Science as teaching assistants for two quarters.

Students will have two formal examinations along the process toward writing their thesis. First they will write a comprehensive examination at the end of the second year of study and following completion of required course work. The next benchmark will be the qualifying exam, in which students will advance to candidacy upon successful presentation of an original dissertation research proposal and oral defense of the proposal. Ph.D. completion requires submission of an acceptable dissertation and oral defense. The normative time to degree is five years, and the maximum time permitted is seven years.

Required Courses	
NUR SCI 212	Philosophy of Science and Theory Development in Nursing Science
NUR SCI 220	Nursing Science and the Ecology of Healthy Communities
NUR SCI 222A- 222B- 222C	Seminar in Clinical Translational Science and Seminar in Clinical Translational Science and Seminar in Clinical Translational Science
NUR SCI 246	Qualitative Research Designs in Nursing Science
NUR SCI 247	Quantitative Research Designs in Nursing Science
NUR SCI 296	Doctoral Dissertation Reading and Writing
NUR SCI 298	Directed Studies in Nursing Science
NUR SCI 299	Independent Study in Nursing Science
NUR SCI 399	University Teaching
and either:	
STATS 201- 202	Statistical Methods for Data Analysis I and Statistical Methods for Data Analysis II
or	
PSY BEH P264A- P264B	Quantitative Methods in Psychology and Advanced Quantitative Methods in Psychology
Elective Courses	
At least eight units of elective courses contributing to the area of proposed research must be taken outside of Nursing Science, and elective methods and statistics courses related to proposed research.	

Faculty

Jill Berg, Ph.D. University of Pittsburgh, *Professor Emerita of Program in Nursing Science*

Sarah E. Choi, F.N.P., Ph.D. University of California, San Francisco, *Assistant Professor of Program in Nursing Science*

Karen Deck, F.N.P., M.S.N. California State University, Long Beach, *Health Sciences Assistant Clinical Professor of Program in Nursing Science*

Lorraine S. Evangelista, Ph.D. University of California, Los Angeles, *Professor of Program in Nursing Science*

Camille F. Fitzpatrick, A.N.P., G.N.P., M.S.N. California State University, Long Beach, *Health Sciences Clinical Professor of Program in Nursing Science*

Yuqing Guo, Ph.D. University of Washington, *Assistant Professor of Program in Nursing Science*

Beth M. Haney, D.N.P. University of Colorado, Colorado Springs, *Health Sciences Assistant Clinical Professor of Program in Nursing Science*

E. Alison Holman, F.N.P., Ph.D. University of California, Irvine, *Associate Professor of Program in Nursing Science*

Jung-Ah Lee, Ph.D. University of Washington, *Assistant Professor of Program in Nursing Science*

Bernadette M. Milbury, M.S.N. University of California, Los Angeles, *Health Sciences Assistant Clinical Professor of Program in Nursing Science*

Maureen Movius, M.N. University of California, Los Angeles, *Health Sciences Associate Clinical Professor of Program in Nursing Science*

Ruth A. Mulnard, D.N.Sc. University of San Diego, *Associate Professor of Program in Nursing Science*

Ellen Olshansky, Ph.D. University of California, San Francisco, *Professor of Program in Nursing Science*

Susanne J. Phillips, F.N.P., M.S.N. California State University, Long Beach, *Health Sciences Clinical Professor of Program in Nursing Science*

Julie M. Rousseau, C.N.M., Ph.D. Columbia University, *Health Sciences Assistant Clinical Professor of Program in Nursing Science*

Kathleen Saunders, M.S.N. California State University, Dominguez Hills, *Health Sciences Associate Clinical Professor of Program in Nursing Science*

Susan M. Tiso, D.N.P. George Washington University, *Health Sciences Clinical Professor of Program in Nursing Science*

Courses

NUR SCI 92. Compassion in Health Care. 1 Unit.
An overview of the importance of compassion in health care, providing examples from a variety of health care professions through lectures and discussion.

Grading Option: Pass/no pass only.

NUR SCI 110W. Frameworks for Professional Nursing Practice. 5 Units.
Conceptual frameworks for professional practice. Scope of professional nursing, jurisprudence and ethics, professional interpersonal relationships, and health care delivery systems in the context of the social, political, and economic environments. Socialization of the student for professional roles in nursing.

Corequisite: NUR SCI 112LA and NUR SCI 114A and NUR SCI 118A.
Prerequisite: BIO SCI D170 and BIO SCI E109. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. Nursing Science majors only.

(Ib)

NUR SCI 112LA. Foundations of Professional Practice. 3 Units.
Development of skills in communication, interviewing, functional and physical health assessment across the life span, the art and science of human care, and clinical judgment.

Corequisite: NUR SCI 110W and NUR SCI 114A and NUR SCI 118A.
Prerequisite: BIO SCI E109 and BIO SCI D170.

Restriction: Nursing Science majors only.

NUR SCI 112LB. Foundations of Professional Practice. 4 Units.
Development of skills in communication, interviewing, functional and physical health assessment across the life span, the art and science of human care, and clinical judgment.

Corequisite: NUR SCI 114B and NUR SCI 118B and NUR SCI 125 and NUR SCI 135.
Prerequisite: NUR SCI 112LA and NUR SCI 110W and NUR SCI 114A and NUR SCI 118A.

Restriction: Nursing Science majors only.

NUR SCI 114A. Applied Pharmacology I. 2 Units.
Presents principles of pharmacology applied to interventions in pathophysiologic states across the life span. Discussion of the major drug groups with implications for monitoring, drug administration, toxicity, and patient education are included.

Corequisite: NUR SCI 110W and NUR SCI 118A and NUR SCI 112LA.
Prerequisite: BIO SCI E109 and BIO SCI D170.

Restriction: Nursing Science majors only.

NUR SCI 114B. Applied Pharmacology II. 2 Units.
Presents principles of pharmacology applied to interventions in pathophysiologic states across the life span. Discussion of the major drug groups with implications for monitoring, drug administration, toxicity, and patient education are included.

Corequisite: NUR SCI 118B and NUR SCI 112LB and NUR SCI 125 and NUR SCI 135.
Prerequisite: NUR SCI 114A and NUR SCI 118A and NUR SCI 110W and NUR SCI 112LA.

Restriction: Nursing Science majors only.

NUR SCI 118A. Human Health and Disease I. 2 Units.
Presents content on pathologic alterations in physiologic processes in cells, tissues, organs, and systems across the life span. Emphasis on critical thinking, application of concepts to clinical practice, and related research.

Corequisite: NUR SCI 114A and NUR SCI 112LA and NUR SCI 110W.
Prerequisite: BIO SCI E109 and BIO SCI D170.

Restriction: Nursing Science majors only.

NUR SCI 118B. Human Health and Disease II. 2 Units.
Presents content on pathologic alterations in physiologic processes in cells, tissues, organs, and systems across the life span. Emphasis on critical thinking, application of concepts to clinical practice, and related research.

Corequisite: NUR SCI 114B and NUR SCI 112LB and NUR SCI 125 and NUR SCI 135.
Prerequisite: NUR SCI 112LA and NUR SCI 114A and NUR SCI 118A and NUR SCI 110W.

Restriction: Nursing Science majors only.

NUR SCI 120. Adult Health Care. 8 Units.
Restorative, perioperative, supportive care of adults with acute/chronic alterations in oxygenation, regulation, immune response, elimination, metabolism, mobility, cognition, and substance abuse. Concurrent practicum occurs in inpatient medical-surgical units, perioperative units and outpatient clinics utilizing critical thinking and research skills.

Corequisite: NUR SCI 140.
Prerequisite: NUR SCI 112LB and NUR SCI 114B and NUR SCI 118B and NUR SCI 125 and NUR SCI 135.

Restriction: Nursing Science majors only.

NUR SCI 125. Research Methods and Applications in Health Care. 4 Units.
Foundational concepts of research in health care. Emphasizes critical evaluation and interpretation of research for application in practice.

Corequisite: NUR SCI 112LB and NUR SCI 114B and NUR SCI 118B and NUR SCI 135.
Prerequisite: NUR SCI 110W and NUR SCI 112LA and NUR SCI 114A and NUR SCI 118A and a basic statistics course.

Restriction: Nursing Science majors only.

NUR SCI 130. Maternity and Women's Health Care. 8 Units.
Provides didactic and clinical experiences in nursing management of women's wellness across the lifespan, the childbirth process, and newborn care. Incorporates concepts of family-centered care, teamwork and collaboration, patient safety, quality improvement and informatics, utilizing an evidence-based practice approach.

Corequisite: NUR SCI 132.
Prerequisite: NUR SCI 120 and NUR SCI 140 and PSYCH 120D.

Restriction: Nursing Science majors only.

NUR SCI 132. Pediatrics: Care of Children and Families. 7 Units.
Provides didactic and clinical experiences in nursing management of infants, children, and adolescents with acute, chronic and/or life-threatening conditions. Incorporates concepts of family-centered care, teamwork and collaboration, patient safety, quality improvement and informatics, utilizing an evidence-based practice approach.

Corequisite: NUR SCI 130.
Prerequisite: NUR SCI 120 and NUR SCI 140 and PSYCH 120D.

Restriction: Nursing Science majors only.

NUR SCI 135. Older Adult Health Care. 2 Units.
Theories of aging and application of principles of gerontology in health maintenance of older adults. Concepts and principles of rehabilitation and palliative care.

Corequisite: NUR SCI 112LB and NUR SCI 114B and NUR SCI 118B and NUR SCI 125.
Prerequisite: NUR SCI 112LA and NUR SCI 114A and NUR SCI 118A and NUR SCI 110W.

Restriction: Nursing Science major only.

NUR SCI 140. Human Behavior and Mental Health Care. 8 Units.
Biopsychosocial and cultural influences on promotion and restoration of mental health in adults and adolescents. Assessment, classification, and care of clients with mental health problems and/or substance abuse. Concurrent practicum in adult/adolescent inpatient psychiatric units and outpatient mental health clinics.

Corequisite: NUR SCI 120.
Prerequisite: NUR SCI 112LB and NUR SCI 114B and NUR SCI 118B and NUR SCI 125 and NUR SCI 135.

Restriction: Nursing Science majors only.

NUR SCI 150. Critical and Specialty Health Care. 6 Units.
Delivery of patient centered care for individuals with life-threatening alterations in health status utilizing technology and pharmacology for life support. Concurrent practicum in critical care units emphasizes collaboration, team work, and quality improvement in safe care delivery.

Corequisite: NUR SCI 160 and NUR SCI 179A.
Prerequisite: NUR SCI 130 and NUR SCI 132.

Restriction: Nursing Science majors only.

NUR SCI 160. Leadership and Management in Health Care. 4 Units.
Principles, concepts, and theories related to organizations, management, leadership, decision-making, and group process applied to the delivery of health care. The professional nurse using evidenced based practice, collaboration and informatics is incorporated in concurrent practicum emphasizing safe patient care delivery.

Corequisite: NUR SCI 150 and NUR SCI 179A.
Prerequisite: NUR SCI 130 and NUR SCI 132.

Restriction: Nursing Science majors only.

NUR SCI 170. Community-Based Health Care. 6 Units.
Epidemiology, primary health care promotion, and disease prevention applied to nursing care of individuals, families, groups, and communities. Includes sociocultural, political, economic, and environmental influences. Concepts and methods of assessing populations and communities incorporated in concurrent practicum.

Corequisite: NUR SCI 175L and NUR SCI 179B.
Prerequisite: NUR SCI 150 and NUR SCI 160 and NUR SCI 179A.

Restriction: Nursing Science majors only.

NUR SCI 175L. Clinical Preceptorship. 8 Units.
Independent study course focusing on critical thinking skills for nursing practice in selected clinical areas of interest to the student. The clinical experience focus will be on core competencies: patient-centered care, evidence-based practice, quality improvement, safety and informatics.

Corequisite: NUR SCI 170 and NUR SCI 179B.
Prerequisite: NUR SCI 150 and NUR SCI 160 and NUR SCI 179A.

Grading Option: Pass/no pass only.

Restriction: Nursing Science majors only.

NUR SCI 179A. Scholarly Concentration I. 2 Units.
Independent study focusing on the research process to provide the evidence basis for a nursing protocol in an area of interest to the student.

Corequisite: NUR SCI 150 and NUR SCI 160.
Prerequisite: NUR SCI 130 and NUR SCI 132.

Restriction: Nursing Science majors only.

NUR SCI 179B. Scholarly Concentration II. 2 Units.
Second of two sequential courses focusing on analysis of research as evidence to support a nursing protocol in an area of interest to the student. Emphasizes formal development and dissemination of information to peers in a podium/poster session.

Corequisite: NUR SCI 170 and NUR SCI 175L.
Prerequisite: NUR SCI 179A.

Restriction: Nursing Science majors only.

NUR SCI 199. Independent Study in Nursing Science. 1-4 Units.
Original research with Nursing Science faculty.

Repeatability: May be repeated for credit unlimited times.

NUR SCI 200. Research Methods and Evaluation for Evidence-Based Practice. 3 Units.
Clinical research methods and evaluation procedures relevant to evidence-based advanced nursing practice.

Prerequisite: Undergraduate statistics course; undergraduate nursing research course.

Restriction: Nursing Science graduate students only.

NUR SCI 210. Advanced Pathophysiology. 3 Units.
Principles of normal body functioning and pathophysiologic changes that occur as a result of compensatory mechanisms and disease. Physical and psychological aspects of altered health are explored from the cellular to the level of the total body system.

Restriction: Nursing Science graduate students only.

NUR SCI 212. Philosophy of Science and Theory Development in Nursing Science. 4 Units.
Development of philosophy of science in relation to nursing science, scholarship, and practice; emphasis on inquiry, scientific reasoning, and contemporary philosophical thought; historical and contemporary influences on nursing science theory development; evaluation/analysis of interdisciplinary theory and application to nursing research.

Restriction: Graduate students only.

NUR SCI 215. Health Promotion/Disease Prevention. 3 Units.
Covers the evidence-based national clinical preventive services guidelines for health promotion and disease prevention. Emphasizes counseling about personal health behaviors, screening tests for the early dtection of risk factors and disease, immunizations and chemo-prophylaxis.

Restriction: Nursing Science graduate students only.

NUR SCI 220. Nursing Science and the Ecology of Healthy Communities. 2 Units.
Seminar in nursing science research contributionis and opportunities as they pertain to the ecology of health in local, national, and global communities. Emphasis on methodological and ethical issues, research gaps, and clinical translational opportunities.

Restriction: Graduate students only.

NUR SCI 222A. Seminar in Clinical Translational Science. 2 Units.
Discussion of clinical translational science methods in the context of nursing science research. Emphasis placed on interdisciplinary and community participatory research approaches.

Restriction: Graduate students only.

NUR SCI 222B. Seminar in Clinical Translational Science. 2 Units.
Discussion of clinical translational science methods in the context of nursing science research. Emphasis placed on interdisciplinary and community participatory research approaches.

Prerequisite: NUR SCI 222A.

Restriction: Graduate students only.

NUR SCI 222C. Seminar in Clinical Translational Science. 2 Units.
Discussion of clinical translational science methods in the context of nursing science research. Emphasis placed on interdisciplinary and community participatory research approaches.

Prerequisite: NUR SCI 222B.

Restriction: Graduate students only.

NUR SCI 225A. Advanced Pharmacology. 2 Units.
Principles of pharmacology that serve as a foundation for the pharmacotherapeutic management of patients evaluated and treated by advanced practie nurses. Emphasis includes that application of pharmacokinetic and pharmacodynamic principles.

Restriction: Nursing Science graduate students only.

NUR SCI 225B. Advanced Pharmacology. 3 Units.
Principles of pharmacology that serve as a foundation for the pharmacotherapeutic management of patients evaluated and treated by advanced practie nurses. Emphasis includes that application of pharmacokinetic and pharmacodynamic principles.

Prerequisite: NUR SCI 225A.

Restriction: Nursing Science graduate students only.

NUR SCI 230. Advanced Health and Physical Assessment. 3 Units.
Application of theoretical concepts related to comprehensive health assessment of patients across the lifespan. Analysis, synthesis, and application of comprehensive health assessment data.

Corequisite: NUR SCI 230L.

Restriction: Nursing Science graduate students only.

NUR SCI 230L. Advanced Health and Physical Assessment Laboratory. 1 Unit.
Clinical laboratory course for the application of concepts related to comprehensive health assessment of patients across the lifespan.

Corequisite: NUR SCI 230.

Restriction: Nursing Science graduate students only.

NUR SCI 245A. Primary Care. 3 Units.
Assessment and management of acute or episodic problems affecting patients and families across the lifespan. Diagnostics, pharmacology, pathophysiology, and therapeutics are integrated.

Prerequisite: NUR SCI 210 and NUR SCI 230.

Restriction: Nursing Science graduate students only.

NUR SCI 245B. Primary Care. 3 Units.
Assessment and management of acute or episodic problems affecting patients and families across the lifespan. Diagnostics, pharmacology, pathophysiology, and therapeutics are integrated.

Prerequisite: NUR SCI 245A.

Restriction: Nursing Science graduate students only.

NUR SCI 246. Qualitative Research Designs in Nursing Science. 4 Units.
Seminar in qualitative research philosophies, methods and analysis in nursing science clinical research. Consideration of population access and sampling, ethics, data management, analytical approaches, and translational potential.

Corequisite: NUR SCI 212.

NUR SCI 247. Quantitative Research Designs in Nursing Science. 4 Units.
Seminar in experimental and survey research designs, methods, and analysis in nursing science clinical research. Consideration of measurement issues, mixed methods models, population access and sampling, data management, analytical approaches, and translational potential.

Prerequisite: NUR SCI 212.

NUR SCI 250. Primary Care Women's Health. 3 Units.
Primary health care needs of women including adolescent, adult and aging adults. Emphasizes assessment, diagnosis, prevention, management, and education of common gynecologic and family planning health care needs.

Prerequisite: NUR SCI 210 and NUR SCI 230.

Restriction: Nursing Science graduate students only.

NUR SCI 255. Primary Care Obstetrics. 3 Units.
Assessment and management of women during pregnancy. Diagnostics, pharmacology, pathophysiology and therapeutics are integrated. Includes assessment, differential diagnosis, management, patient/family education, & counseling related to normal pregnancy care.

Prerequisite: NUR SCI 245A and NUR SCI 210 and NUR SCI 230 and NUR SCI 230L.

Restriction: Nursing Science graduate students only.

NUR SCI 260A. Primary Care Adult/Geriatric. 3 Units.
Assessment and management of acute or episodic problems affecting adult and geriatric patients and their families. Diagnostics, pharmacology, pathophysiology, and therapeutic are integrated.

Prerequisite: NUR SCI 245A.

Restriction: Nursing Science graduate students only.

NUR SCI 260B. Primary Care Adult/Geriatric. 3 Units.
Assessment and management of acute or episodic problems affecting adult and geriatric patients and their families. Diagnostics, pharmacology, pathophysiology, and therapeutic are integrated.

Prerequisite: NUR SCI 260A.

Restriction: Nursing Science graduate students only.

NUR SCI 270. Primary Care Pediatrics. 3 Units.
Assessment and management of acute or episodic problems affecting pediatric patients and their families. Diagnostics, pharmacology, pathophysiology, and therapeutics are integrated.

Prerequisite: NUR SCI 245A and NUR SCI 210 and NUR SCI 230 and NUR SCI 230L.

Restriction: Nursing Science graduate students only.

NUR SCI 280. Aging and Chronic Illness. 3 Units.
Assessment and management of the geriatric patient. Diagnostics, pharmacology, pathophysiology, and therapeutics are integrated. Includes assessment, differential diagnosis, management, patient/family education, and counseling related to aging.

Prerequisite: NUR SCI 260B.

Restriction: Nursing Science graduate students only.

NUR SCI 281. Frameworks for Advanced Professional Practice in Nursing. 3 Units.
Provides an orientation to the scope and standards of advanced professional nursing practice. Principles of jurisprudence, ethics, and advocacy are introduced along with conceptual frameworks for nursing practice.

Restriction: Nursing Science graduate students only.

NUR SCI 282. Human Behavior and Mental Health Care for Advanced Practice. 3 Units.
Focuses on theory and research related to the psychiatric illness and sociocultural factors such as race, ethnicity, gender, and class which may impact patients across their life span. Emphasis includes assessment, diagnosis, management, patient/family education, lifestyle modification, and counseling strategies.

Restriction: Nursing Science graduate students only.

NUR SCI 283. Primary Care Procedures. 3 Units.
Introduces the theoretical basis for common procedures performed in primary care clinical practice. Focus includes EKG interpretation, x-ray interpretation, minor surgery and orthopaedic procedures.

Prerequisite: NUR SCI 245A.

Restriction: Nursing Science graduate students only.

NUR SCI 284. Advanced Practice Scholarly Concentration. 3 Units.
Independent study focusing on critique, analysis, and synthesis of research evidence as a basis for advanced practice nursing in an area of interest to the student.

Prerequisite: NUR SCI 200.

Restriction: Nursing Science graduate students only.

NUR SCI 285. APN Clinical Practicum I. 2 Units.
Clinical application of theory and research related to the advanced assessment and health promotion of patients across the lifespan.

Prerequisite: NUR SCI 210 and NUR SCI 230.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Nursing Science graduate students only.

NUR SCI 286. APN Clinical Practicum II. 4 Units.
Clinical field study applying theory, research, and developing clinical skills related to the provision of care to patients and their families in increasingly complex clinical situations.

Prerequisite: NUR SCI 285.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Nursing Science graduate students only.

NUR SCI 287. APN Clinical Pracitcum III. 5 Units.
Clinical application of theory and research through clinical experiences in selected primary care settings designed to provide students with competencies in the assessment, diagnosis, management, and education/counseling in selected populations.

Prerequisite: NUR SCI 286.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Nursing Science graduate students only.

NUR SCI 288. APN Clinical Practicum IV. 6 Units.
Continued clinical application of theory and research through clinical experiences in selected primary care settings designed to provide students with competencies in the assessment, diagnosis, management, and education/counseling in selected populations.

Prerequisite: NUR SCI 287.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Nursing Science graduate students only.

NUR SCI 289. APN Clinical Practicum V. 6 Units.
Culminating clinical experience serves as a transition from the student role to that of the advanced practice nurse.

Prerequisite: NUR SCI 288.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Nursing Science graduate students only.

NUR SCI 294. Directed Study in Vulnerable Populations. 1-4 Units.
Independent study that focuses on individually designed clinical learning experiences and goals within a selected vulnerable population, such as the homeless, veterans, minority groups, etc. Students work in a clinical setting addressing health care needs of the vulnerable population(s).

Prerequisite: NUR SCI 286.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 2 times.

Restriction: Nursing Science graduate students only.

NUR SCI 295. Directed Study in Latino Health Care. 2-4 Units.
Independent study in Latino health care.

Prerequisite: NUR SCI 286. Spanish language skills.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 2 times.

Restriction: Nursing Science graduate students only.

NUR SCI 296. Doctoral Dissertation Reading and Writing. 4-12 Units.
Dissertation research with Nursing Sciences faculty.

Prerequisite: Advancement to Candidacy.

Repeatability: May be repeated for credit unlimited times.

NUR SCI 298. Directed Studies in Nursing Science. 1-4 Units.
Directed study with Nursing Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

NUR SCI 299. Independent Study in Nursing Science. 1-4 Units.
Independent research with Nursing Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

NUR SCI 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Department of Pharmaceutical Sciences

147 Bison Modular; 949-824-1239
http://www.pharmsci.uci.edu
A. Richard Chamberlin, **Department Chair**

The Department of Pharmaceutical Sciences offers a curriculum focusing on the preparation of students for professional positions in the pharmaceutical production, control, and development sectors of the pharmaceutical and biotechnology industry or for graduate studies in pharmaceutics, medicinal chemistry, pharmacology, analytical chemistry, medicine, and pharmacy. Collaborative interdisciplinary research will be supported by joint faculty appointments shared with other UCI departments.

Degrees

Pharmaceutical Sciences	B.S.
Pharmacological Sciences*	M.S., Ph.D.

* Offered in conjunction with the Department of Pharmacology.

In addition, the Gateway Program in Medicinal Chemistry and Pharmacology (MCP), established through the joint efforts of the Departments of Chemistry, Pharmacology, Molecular Biology and Biochemistry, and Pharmaceutical Sciences, offers a graduate program of study.

Undergraduate Program

The B.S. degree program in Pharmaceutical Sciences trains students in a multidisciplinary approach so that they can contribute to the advancement of new pharmaceutical technologies such as accelerated chemical synthesis, molecular-based assays using cloned enzymes and cloned metabolizing enzymes, combinatorial chemistry, *in vitro* biopharmaceutical techniques, and gene therapies. Pharmaceutical scientists are rapidly changing the field of drug discovery and development. The graduates of this program may seek employment in public and private sectors or choose to pursue graduate degrees such as a Ph.D., M.D., or Pharm.D.

Undergraduate Honors. Honors at graduation, e.g., *cum laude, magna cum laude, summa cum laude,* are awarded to approximately the top 12 percent of the graduating seniors. To be eligible for honors, a general criterion is that students must have completed at least 72 units in residence at a University of California campus. Other important factors are considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext).

Admission to the Major

Students may be admitted to the Pharmaceutical Sciences major upon entering the University as freshmen, via change of major, or as transfer students from other colleges and universities.

Information about change-of-major policies is available in the Department of Pharmaceutical Sciences office and at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Transfer Students: All applicants must have completed the following required courses with a grade of B- or better in all courses: one year of general chemistry courses with laboratory courses equivalent to UCI's CHEM 1A-CHEM 1B-CHEM 1C and CHEM 1LC-CHEM 1LD **and** one year of biology courses equivalent to UCI's BIO SCI 93 and BIO SCI 94. In addition, all applicants must have a cumulative GPA of 3.0 or better. Additional courses that are recommended, but not required: one year of calculus, one year of calculus-based physics with laboratory, one year of organic chemistry with laboratory, and additional articulated lower-division biology requirements.

Requirements for the B.S. Degree in Pharmaceutical Sciences

All students must meet the University Requirements (p. 71)**.**

Major Requirements

A. Lower-Division Requirements:

1. Select one of the following sequences:	
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM H2A- H2B- H2C	Honors General Chemistry and Honors General Chemistry and Honors General Chemistry
and select one of the following lab sequences:	

CHEM 1LC- 1LD	General Chemistry Laboratory and General Chemistry Laboratory
CHEM H2LA- H2LB- H2LC	Honors General Chemistry Laboratory and Honors General Chemistry Laboratory and Honors General Chemistry Laboratory
CHEM M2LA- M2LB- M3LC	Majors General Chemistry Laboratory and Majors General Chemistry Laboratory and Majors Quantitative Analytical Chemistry Laboratory
Select one of the following organic chemistry sequences and accompanying labs:	
CHEM 51A- 51B- 51C	Organic Chemistry and Organic Chemistry and Organic Chemistry
CHEM 51LB- 51LC	Organic Chemistry Laboratory and Organic Chemistry Laboratory
or	
CHEM H52A- H52B- H52C	Honors Organic Chemistry and Honors Organic Chemistry and Honors Organic Chemistry
CHEM H52LA- H52LB- H52LC	Honors Organic Chemistry Laboratory and Honors Organic Chemistry Laboratory and Honors Organic Chemistry Laboratory
2. Complete:	
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
and select one of the following:	
MATH 2D	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
STATS 7	Basic Statistics
STATS 8	Introduction to Biological Statistics
3. Select one of the following physics sequences and accompanying labs:	
PHYSICS 3A- 3B- 3C	Basic Physics and Basic Physics and Basic Physics
PHYSICS 3LB- 3LC	Basic Physics Laboratory and Basic Physics Laboratory
or	
PHYSICS 7C- 7D- 7E	Classical Physics and Classical Physics and Classical Physics
PHYSICS 7LC- 7LD	Classical Physics Laboratory and Classical Physics Laboratory
4. Complete:	
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
5. Complete:	
PHRMSCI 42	Life 101
B. Upper-Division Requirements:	
Complete:	
BIO SCI 100	Scientific Writing
BIO SCI 194S	Safety and Ethics for Research
PHRMSCI 120- 120L	Human Physiology and Human Physiology Lab

PHRMSCI 170A- 170B	Molecular Pharmacology I and Molecular Pharmacology II
PHRMSCI 171	Physical Biochemistry
PHRMSCI 172	Topics in Pharmaceutical Sciences
PHRMSCI 173	Pharmacotherapy
PHRMSCI 174- 174L	Biopharmaceutics and Nanomedicine and Biopharmaceutics & Nanomedicine Lab
PHRMSCI 176	Ethics Conduct of Research
PHRMSCI 177- 177L	Medicinal Chemistry and Medicinal Chemistry Laboratory
C. Upper-Division Electives (8 units):	
The upper-division electives may be selected from the following: [1]	
BIO SCI D103	Cell Biology
BIO SCI D104	Developmental Biology
BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI D129	Biotechnology and Plant Breeding
BIO SCI D136	Human Anatomy
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI D140	How to Read a Science Paper
BIO SCI D145	Genomics, Development, and Medicine
BIO SCI D148	Development and Disease
BIO SCI D153	Molecular and Cellular Basis of Disease
BIO SCI D170	Applied Human Anatomy
BIO SCI E136	The Physiology of Human Nutrition
BIO SCI E137	Genetics of Complex Traits
BIO SCI E142W	Writing/Philosophy of Biology
BIO SCI E189	Environmental Ethics
BIO SCI M114	Advanced Biochemistry
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M120	Signal Transduction in Mammalian Cells
BIO SCI M121	Immunology with Hematology
BIO SCI M122	General Microbiology
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M123	Introduction to Computational Biology
BIO SCI M124A	Virology
BIO SCI M124B	Viral Pathogenesis and Immunity
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M125	Molecular Biology of Cancer
BIO SCI M137	Microbial Genetics
BIO SCI M143	Human Parasitology
BIO SCI M144	Cell Organelles and Membranes
BIO SCI N110	Neurobiology and Behavior
BIO SCI N113L	Neurobiology Laboratory
BIO SCI N153	Neuropharmacology
BIO SCI N154	Molecular Neurobiology
CHEM 107	Inorganic Chemistry
CHEM 107L	Inorganic Chemistry Laboratory
CHEM 125	Advanced Organic Chemistry
CHEM 128	Introduction to Chemical Biology
CHEM 128L	Introduction to Chemical Biology Laboratory Techniques

CHEM 138	Introduction to Computational Organic Chemistry
CHEM 156	Advanced Laboratory in Chemistry and Synthesis of Materials
CHEM 160	Organic Synthesis Laboratory
CHEM 170	Radioisotope Techniques
PUBHLTH 121	Introduction to Complementary and Alternative Medicine

[1] Course may not be used to satisfy more than one requirement.

Upper-Division Writing Requirement: Pharmaceutical Sciences majors satisfy the upper-division writing requirement by completing BIO SCI 100 with a grade of C or better, followed by the completion of PHRMSCI 174L and PHRMSCI 177L. Students must earn a grade of C or better in each of these laboratory courses.

NOTE: Double majors with Pharmaceutical Sciences, Public Health Sciences, Nursing Science, Biomedical Engineering: Premedical, or with any of the School of Biological Sciences majors are not permitted.

Sample Program — Pharmaceutical Sciences

Freshman		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	CHEM 1C- 1LC
CHEM 1A	CHEM 1B	MATH 2A
WRITING 39B or HUMAN 1A	WRITING 39C or HUMAN 1B	HUMAN 1C (or Gen. Ed.)
Gen. Ed.	Gen. Ed.	PHRMSCI 1
Sophomore		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99
CHEM 51A- 1LD	CHEM 51B- 51LB	CHEM 51C- 51LC
MATH 2B	STATS 7, 8, MATH 2D, or MATH 3A	PHRMSCI 90
BIO SCI 194S	PHRMSCI 42	Gen. Ed.
Junior		
Fall	**Winter**	**Spring**
PHRMSCI 120- 120L	PHRMSCI 170A	PHRMSCI 170B
PHRMSCI 172	PHYSICS 3B- 3LB	PHRMSCI 173
PHYSICS 3A	Gen. Ed.	PHYSICS 3C- 3LC
BIO SCI 100		Elective
Senior		
Fall	**Winter**	**Spring**
PHRMSCI 171	PHRMSCI 177- 177L	PHRMSCI 176
PHRMSCI 174- 174L	Gen. Ed.	Gen. Ed.
Gen. Ed.	Elective	Elective

Graduate Programs

Graduate Student Affairs: (949) 824-1991
http://www.pharmacology.uci.edu and http://www.pharmsci.uci.edu

Andrej Luptak, **Graduate Program Advisor/Vice Chair of Graduate Programs for the Pharmaceutical Sciences Department**

The Department of Pharmacology and Pharmaceutical Sciences join forces to offer an interdisciplinary program leading to the Ph.D. degree in Pharmacological Sciences with a concentration in Pharmacology or in Pharmaceutical Sciences. For complete program information, see the Interdisciplinary Studies (p. 1083) section of the *Catalogue*.

The Department also admits students through the **Graduate Gateway Program in Medicinal Chemistry and Pharmacology (MCP)**. The one-year graduate MCP Gateway Program is designed to function in concert with selected department programs, including the Ph.D. in Pharmacological Sciences. Upon successful completion of the MCP curriculum at the end of their first year, students choose a faculty advisor who is affiliated with one of the participating departments, and transition into their “home” department to complete the remaining degree requirements. They will receive their Ph.D. degree from the department of their chosen advisor. Detailed information is available at Department of Pharmaceutical Sciences (http://www.pharmsci.uci.edu/graduate) website.

Faculty

Claudia Benavente, Ph.D. University of Arizona, *Assistant Professor of Pharmaceutical Sciences*

Bruce Blumberg, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering; Environmental Health Sciences; Pharmaceutical Sciences* (gene regulation by nuclear hormone receptors in vertebrate development physiology, endocrine disruption)

A. Richard Chamberlin, Ph.D. University of California, San Diego, *Department Chair and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (chemical biology, organic and synthetic)

Olivier Civelli, Ph.D. Swiss Federal Institute of Technology in Zurich, *Department Chair and Eric L. and Lila D. Nelson Chair in Neuropharmacology* and *Professor of Pharmacology; Developmental and Cell Biology; Pharmaceutical Sciences* (novel neuroactive molecules)

Melanie Cocco, Ph.D. Pennsylvania State University, *Associate Professor of Molecular Biology and Biochemistry; Pharmaceutical Sciences*

John P. Fruehauf, M.D. Rush University, *Professor of Medicine; Biological Chemistry; Biomedical Engineering; Pharmaceutical Sciences* (in-vitro cancer models using 3-D tissue systems to predict drug response)

Daniel W. Gil, Ph.D. University of Pennsylvania, *Associate Adjunct Professor of Pharmaceutical Sciences*

Celia Goulding, Ph.D. King's College London, *Associate Professor of Molecular Biology and Biochemistry; Pharmaceutical Sciences*

Stephen Hanessian, Ph.D. Ohio State University, *Director of Medicinal Chemistry and Pharmacology Graduate Program and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (organic chemistry)

Mahtab F. Jafari, Ph.D. University of California, San Francisco, *Vice Chair of the Undergraduate Program in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Ecology and Evolutionary Biology; Pharmacology*

Young Jik Kwon, Ph.D. University of Southern California, *Associate Professor of Pharmaceutical Sciences; Biomedical Engineering; Chemical Engineering and Materials Science; Molecular Biology and Biochemistry* (gene therapy, drug delivery, cancer-targeted therapeutics, combined molecular imaging and therapy, cancer vaccine)

Anthony D. Long, Ph.D. McMaster University, *Professor of Ecology and Evolutionary Biology; Pharmaceutical Sciences*

Andrej Luptak, Ph.D. Yale University, *Vice Chair of Graduate Programs in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Chemistry; Molecular Biology and Biochemistry* (chemical biology)

David L. Mobley, Ph.D. University of California, Davis, *Associate Professor of Pharmaceutical Sciences; Chemistry* (chemical biology, physical chemistry and chemical physics, theoretical and computational)

Lawrence Plon, PHAR University of Southern California, *Assistant Adjunct Professor of Pharmaceutical Sciences*

Thomas L. Poulos, Ph.D. University of California, San Diego, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences; Physiology and Biophysics* (chemical biology)

Jennifer A. Prescher, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Molecular Biology and Biochemistry; Pharmaceutical Sciences* (chemical biology, organic and synthetic)

Paolo Sassone-Corsi, Ph.D. University of Naples Federico II, *Donald Bren Professor* and *Professor of Biological Chemistry; Microbiology and Molecular Genetics; Pharmaceutical Sciences*

Samuel E. Schriner, Ph.D. University of Washington, *Lecturer with Potential Security of Employment of Pharmaceutical Sciences*

Robert Spitale, Ph.D. University of Rochester, *Assistant Professor of Pharmaceutical Sciences*

Shiou-Chuan (Sheryl) Tsai, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences*

Sun (Coco) Yang, Pharm D. Chinese Academy of Medical Science & Peking Union Medical College, *Assistant Adjunct Professor of Pharmaceutical Sciences*

Weian Zhao, Ph.D. McMaster University, *Assistant Professor of Pharmaceutical Sciences; Biomedical Engineering* (stem cell therapy, diagnostics, biosensors, nano- and microtechnology, aptamers)

Courses

PHRMSCI 1. Introduction to Pharmaceutical Sciences. 1 Unit.
Introduction to the scientific disciplines that comprise the multidisciplinary field of pharmaceutical sciences. Students gain an appreciation of basic concepts in the relevant physical, biological, and clinical sciences and how they fit together in the search for new medicines.

Grading Option: Pass/no pass only.

PHRMSCI 42. Life 101 . 1 Unit.
Covers the latest scientific work on the impact of nutrition, exercise, and lifestyle choices on mental and physical health. The course will motivate students to make positive changes by fostering personal growth. Course may be offered online.

PHRMSCI 90. Speaking about Science. 4 Units.
Introductory courses in research, composition, organization, and delivery of informative and persuasive speeches for various purposes, including scientific talks. Includes strategies for reducing speaker apprehension.

PHRMSCI 120. Human Physiology. 4 Units.
Focuses on anatomy and physiology—organism structure and function, respectively—as they relate to human diseases and their treatment. Prepares students for more advanced studies in pharmacology, medicinal chemistry, biopharmaceutics, and other disciplines encompassing pharmaceutical sciences.

Prerequisite: BIO SCI 99.

Overlaps with BIO SCI E109.

PHRMSCI 120L. Human Physiology Lab. 3 Units.
Through an active learning environment, provides practical knowledge of topics covered in Human Physiology as they relate to health care professions. Participation in group projects that strengthen basic laboratory skills and teach students to work more efficiently in a team.

Corequisite: PHRMSCI 120.
Prerequisite: BIO SCI 194S or BIO SCI E109.

Overlaps with BIO SCI E112L.

PHRMSCI 170A. Molecular Pharmacology I. 4 Units.
Molecular basis of drug-receptor action at the molecular and cellular levels. Structure-function of drug targets emphasizing enzymes, ion channels, and membrane transport proteins. Understanding how the drugs' mechanisms of action contribute to the development of more efficacious and safer drugs. Course may be offered online.

Corequisite: CHEM 51C or CHEM H52C.
Prerequisite: (CHEM 51C or CHEM H52C) and (PHRMSCI 120 or BIO SCI E109).

Restriction: Pharmaceutical Science majors have first consideration for enrollment.

PHRMSCI 170B. Molecular Pharmacology II. 4 Units.
Mechanism-based overview of pharmacology and therapeutic drugs in the fields of autonomic nervous system, central nervous system, and antimicrobials.

Prerequisite: PHRMSCI 170A.

PHRMSCI 171. Physical Biochemistry. 4 Units.
Thermodynamics and kinetic fundamentals as applied to problems relevant to pharmaceutical sciences such as receptor/enzyme-ligand interactions. Fundamentals of biophysical methods used in the pharmaceutical sciences including structure determination and biomolecular spectroscopy.

Prerequisite: MATH 2B and PHYSICS 3C and (CHEM 1C or CHEM H2C) and BIO SCI 99.

Restriction: Pharmaceutical Sciences majors have first consideration for enrollment.

PHRMSCI 172. Topics in Pharmaceutical Sciences. 2 Units.
Presents information about various fields of research, study, careers, and graduate school opportunities in pharmaceutical sciences. Taught by guest lecturers from various disciplines including 199 research course faculty. Helps Pharmaceutical Sciences students select electives appropriate to their future goals.

Prerequisite: BIO SCI 99 and as a prerequisite or corequisite: CHEM 51C or CHEM H52C.

PHRMSCI 173. Pharmacotherapy. 4 Units.
An exploration of the clinical application of medications to selected disease states. Focus is on an understanding of underlying principles of pharmacology and how this knowledge can be applied to treatment of diseases.

Prerequisite: Prerequisite or corequisite: PHRMSCI 170B.

PHRMSCI 174. Biopharmaceutics and Nanomedicine. 4 Units.
Introduces theories and tools of new drug formulations. Particularly new novel therapeutics based on biological materials, pathological characteristics utilized to achieve the maximum efficacy and specificity, and drug delivery systems based on emerging nanotechnology are extensively discussed.

Prerequisite: PHRMSCI 170B.

Restriction: Pharmaceutical Sciences majors have first consideration for enrollment.

PHRMSCI 174L. Biopharmaceutics & Nanomedicine Lab. 3 Units.
Introduction to cancer drug screening using cellular models and confirmation of comprehensive therapeutic efficacy using a live animal model. Includes basic cell culture, cytotoxicity assays, cell analysis, drug circulation test, and tumor eradiction and imaging experiments.

Prerequisite: PHRMSCI 170B and BIO SCI 100.

PHRMSCI 174LW. Biopharmaceutics Laboratory. 3 Units.
Introduction to cancer drug screening using cellular models and confirmation of comprehensive therapeutic efficacy using a live animal model. Includes basic cell culture, cytotoxicity assays, cell analysis, drug circulation test, and tumor eradication and imaging experiments.

Prerequisite: PHRMSCI 170B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

PHRMSCI 176. Ethics Conduct of Research. 2 Units.
Covers the ethical responsibilities of biomedical scientists. Topics include, as discussions and case studies, the high standards of science, the responsible conduct of research, animal experimentation, and clinical trials as they relate to the pharmaceutical sciences.

PHRMSCI 177. Medicinal Chemistry. 4 Units.
An introduction of the basics of drug activity and mechanisms. Strategies used to identify lead compounds such as natural product chemistry, combinatorial chemistry, molecular modeling, and high-through put screening. Relationship of molecular structure to pharmacological activity.

Prerequisite: CHEM 51A and CHEM 51B and CHEM 51C and (BIO SCI 98 or CHEM 128).

Same as CHEM 177.

Restriction: Pharmaceutical Science majors have first consideration for enrollment.

PHRMSCI 177L. Medicinal Chemistry Laboratory. 2 Units.
An introduction of the basics of drug activity and mechanisms. Strategies used to identify lead compounds such as natural product chemistry, combinatorial chemistry, molecular modeling, and high-through put screening. Relationship of molecular structure to pharmacological activity. Materials fee.

Corequisite: PHRMSCI 177.
Prerequisite: CHEM 51A and CHEM 51B and CHEM 51C and BIO SCI 100 and (BIO SCI 98 or CHEM 128).

Same as CHEM 177L.

Restriction: Pharmaceutical Science majors have first consideration for enrollment.

PHRMSCI 177LW. Medicinal Chemistry Lab. 2 Units.
An introduction of the basics of drug activity and mechanisms. Strategies used to identify lead compounds such as natural product chemistry, combinatorial chemistry, molecular modeling, and high-through put screening. Relationship of molecular structure to pharmacological activity.

Corequisite: CHEM 177.
Prerequisite: CHEM 51A and CHEM 51B and CHEM 51C and (BIO SCI 98 or CHEM 128) and BIO SCI 100.

Same as CHEM 177LW.

(Ib)

PHRMSCI 197. Professional Internship. 4 Units.
Provides students with opportunity to develop leadership and professional skills necessary for competitive placement in their chosen industry. Students gain new and field-specific skills outside the classroom environment while participating in a supervised internship for a total of 100 hours.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Seniors only.

PHRMSCI 198. Independent Study in Pharmaceutical Sciences. 1-4 Units.
Students interested in independent study should arrange with a faculty member to sponsor and supervise such work. A time commitment of three hours per week per unit is expected. A written report is required at the end of each quarter.

Repeatability: May be taken for credit for 4 units.

PHRMSCI 199. Undergraduate Research. 1-4 Units.
Original research in the laboratory of Pharmaceutical Sciences faculty. Attendance at regular research group meetings is also generally expected, and a quarterly written report is required. Strongly recommended for students considering research careers and/or graduate degree programs.

Repeatability: May be repeated for credit unlimited times.

PHRMSCI H199. Honors Research in Pharmaceutical Sciences. 4 Units.
Undergraduate honors research in Pharmaceutical Sciences. A student time commitment of 10-15 hours per week is required.

Repeatability: May be repeated for credit unlimited times.

PHRMSCI 223. Biological Macromolecules. 4 Units.
Introduction to nucleic acid and protein structure, dynamics, and function. Topics include analytical methods, molecular evolution, folding, and catalysis.

Same as CHEM 223.

PHRMSCI 250A. Current Topics in Pharmaceutical Sciences. 1 Unit.
Intended to expose students to the primary literature and current research in the field of Pharmaceutical Sciences. Students analyze and present information for discussion. Guest speakers from academia and industry may participate throughout the quarter.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: MCP Gateway Program students only.

PHRMSCI 250B. Current Topics in Pharmaceutical Sciences. 1 Unit.
Intended to expose students to the primary literature and current research in the field of Pharmaceutical Sciences. Students analyze and present information for discussion. Guest speakers from academia and industry may participate throughout the quarter.

Prerequisite: PHRMSCI 250A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: MCP Gateway Program students only.

PHRMSCI 250C. Current Topics in Pharmaceutical Sciences. 1 Unit.
Intended to expose students to the primary literature and current research in the field of Pharmaceutical Sciences. Students analyze and present information for discussion. Guest speakers from academia and industry may participate throughout the quarter.

Prerequisite: PHRMSCI 250B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: MCP Gateway Program students only.

PHRMSCI 270. Advanced Pharmacology. 4 Units.
Provides a mechanism-based overview of pharmacology with strong emphasis on clinical application of pharmacology. Students will learn the most recent advances in pharmacology as they relate to drug discovery, development, and clinical application.

Restriction: Graduate students only.

PHRMSCI 272. Special Topics in Pharmaceutical Sciences. 2-4 Units.
Reserved for current topics of particular interest in areas of pharmaceutical sciences that are not covered by other courses. The subject will vary from year to year, highlighting, for example, significant emerging fields or highly specialized but vital research areas.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PHRMSCI 274. Nanomedicine . 4 Units.
Students will learn the current challenges in administering drugs to treat highly challenging diseases, the background theories of drug and gene delivery systems, and apply their knowledge in designing innovative forms of therapeutics formulations.

Restriction: Graduate students only.

PHRMSCI 277. Medicinal Chemistry. 4 Units.
Fundamentals of medicinal chemistry covering diverse aspects of drug design, discovery, synthesis, and development. Molecular basis of drug action with an emphasis on the structure-to-function continuum.

PHRMSCI 278. Stem Cell Therapy . 4 Units.
Introduces new paradigms in regenerative medicine particularly those that involve stem cells, and emerging molecular, nano- and micro-engineered tools for in vivo imaging that is critical for studying and monitoring regeneration.

(Design units: 0)

Same as BME 216.

Restriction: Graduate student only.

PHRMSCI 280. Graduate Research. 1-12 Units.
Supervised original research or investigation under the direction of an individual faculty member.

Repeatability: May be repeated for credit unlimited times.

PHRMSCI 298. Researh Seminar . 2 Units.
Presentation and discussion of current problems and methods in teaching and research in pharmaceutical sciences.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHRMSCI 399. University Teaching. 1-4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

School of Physical Sciences

Kenneth C. Janda, **Dean**

Undergraduate Counseling: (949) 824-6507
134 Rowland Hall
http://ps.uci.edu/stuaff

Overview

The School of Physical Sciences offers both professional training and general education in the Departments of Chemistry (p. 1293), Earth System Science (p. 1320), Mathematics (p. 1347), and Physics and Astronomy (p. 1380). The faculty, active in research and graduate education, are at the same time vitally concerned with undergraduate teaching. Curricula of the School are designed to meet the needs of a wide variety of students ranging from those with little technical background who seek insight into the activities and accomplishments of physical scientists to those seeking a comprehensive understanding that will prepare them for creative research in physical science.

Over the course of the past century and a half, physics, chemistry, and mathematics have evolved into interdependent but separate intellectual disciplines. This development is reflected in the departmental structure of the School of Physical Sciences. In the same period, these fundamental disciplines have moved into domains of abstraction unimagined by early scientists. This trend to abstraction with its concomitant increase in understanding of the physical universe provides the major challenge to the student of the physical sciences. Mathematics, physics, and chemistry, while providing the foundation of the technology that dominates contemporary civilization, underlie to an ever-increasing extent the new developments in the biological and social sciences. Earth system science is grounded in the traditional physical sciences while breaking new paths in the quantitative study of changes in the global environment.

Degrees

Chemistry	B.S., M.S., Ph.D.
Earth System Science	B.S., M.S., Ph.D.
Environmental Science	B.A.
Mathematics	B.S., M.S., Ph.D.
Physics	B.S., M.S., Ph.D.

Honors

Criteria used by the School of Physical Sciences in selecting candidates for honors at graduation are as follows: Approximately 1 percent will be awarded *summa cum laude,* 3 percent *magna cum laude,* and 8 percent *cum laude.* Honors are awarded on the basis of a student's performance in research, cumulative grade point average, and performance in upper-division courses in the major. Students considered for honors at graduation must have completed 72 units in residence at the University of California. The student's cumulative record at the end of the final quarter is the basis for all decisions regarding honors at graduation. Other important factors are considered visit at **Honors Recognition**. The School of Physical Sciences also grants special honors to students who have distinguished themselves by their work in their major subject.

- Preparation for Teaching Science and Mathematics (p. 1221)
- Special Programs (p. 1223)

Undergraduate Programs

Each department offers courses that are of value to nonmajors and majors in the sciences. The programs for majors are designed to meet the needs of students planning careers in business, education, or industry; of students planning advanced professional study; and of students planning graduate work that continues their major interest. Students who wish to complete a coordinated set of courses beyond the introductory level in Mathematics and in Earth and Atmospheric Sciences may pursue minors in these areas. Students interested in mathematical and computational biology may complete the Mathematics for Biology minor which prepares them for interdisciplinary graduate studies in this area. Introductory courses in chemistry, mathematics, and physics meet the needs of students majoring in the sciences, mathematics, and engineering and are also appropriate for students in other disciplines who seek a rigorous introduction to the physical sciences. In addition, a number of courses within the School have few or no prerequisites and are directed particularly toward students majoring in areas remote from the sciences.

Planning a Program of Study

Students who choose a major in the School of Physical Sciences have a variety of academic advising and counseling resources available to them. In addition to faculty advisors, there is a Chief Academic Advisor in each department who is responsible for interpreting degree requirements, reviewing student petitions, and assisting with special advising problems. An academic advising and counseling staff, employed in the Associate Dean's Office, is available to serve a broad range of student advising needs. In consultation with their faculty advisor or an academic counselor, students should plan a course of study leading to a major in one of the departments of the School. In carrying out this major, students may often concentrate very heavily in

a second department within the School or in some other school. Occasionally students choose to pursue a double major. Permission to do so may be sought by an online application submitted to the Office of the Associate Dean of Physical Sciences.

All initial courses of study for majors include mathematics through calculus, and calculus is a prerequisite for much of the upper-division work in each major. A student interested in any of the physical sciences should continue mathematical training beyond these prerequisite courses. Furthermore, students interested in either physics or chemistry usually will include work in both of these subjects in their undergraduate careers.

Students in the physical sciences are urged to acquire a working knowledge of computer programming at an early stage of their University studies. This can be accomplished by taking one of the following:

CHEM 5	Scientific Computing Skills
EECS 10	Computational Methods in Electrical and Computer
EECS 12	Introduction to Programming
ENGRMAE 10	Introduction to Engineering Computations
I&C SCI 31	Introduction to Programming
PHYSICS 53	Introduction to C and Numerical Analysis

Career Opportunities

Many of the School of Physical Sciences graduates continue their education beyond the Bachelor's degree level. Some pursue advanced academic degrees in preparation for careers in scientific or medical research, engineering, or postsecondary education. Other students will complete a secondary education credential in order to prepare for careers teaching high school mathematics and science. Some students enter professional school in areas such as medicine, dentistry, law, or business administration. Students who choose not to continue their studies beyond the baccalaureate level most frequently find employment in private business or industry. In addition to technical areas directly related to their major fields of study, students often enter careers in less obviously related fields such as computing, systems analysis, engineering, journalism, marketing, or sales.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center (p. 124) section for additional information.

Preparation for Teaching Science and Mathematics

Option 1: Earn a Bachelor's Degree, Education Concentration, and Teaching Credential

Physical Sciences students who are interested in pursuing a teaching career should consider the UCI Cal Teach Science and Mathematics Program. This program offers Chemistry, Earth System Science, Environmental Science, Mathematics, and Physics majors an option to earn their bachelor's degree concurrently with a California Preliminary Single Subject Teaching Credential. Individuals who hold this credential are authorized to teach science (chemistry, geosciences, or physics) or math in a middle school or high school.

Students complete the degree requirements for their selected major, the requirements for an optional education concentration offered by the same department, and any additional teacher credentialing course requirements that are not included in the major or the concentration. The following courses are required for the Preliminary Single Subject Teaching Credential:

EDUC 55	Knowing and Learning in Mathematics and Science
EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II
EDUC 148	Complex Pedagogical Design
EDUC 158	Student Teaching Mathematics and Science in Middle/High School (two quarters)
LPS 60	The Making of Modern Science (for chemistry, geosciences, and physics credential candidates only)
MATH 8	Explorations in Functions and Modeling (for mathematics credential candidates only)
PHY SCI 5	California Teach 1: Introduction to Science and Mathematics Teaching
PHY SCI 105	California Teach 2: Middle School Science and Mathematics Teaching
PHYSICS 193	Research Methods
or CHEM 193	Research Methods

Beyond course work, some additional requirements for teacher certification are described below.

With careful, early planning, it is possible for students to complete their bachelor's degree and teacher certification in four years. This is a more time-efficient and cost-effective route than the traditional five-year teacher preparation model, which usually involves a full academic year of teacher education courses and clinical teaching experience after completion of a bachelor's degree.

After the School of Physical Sciences verifies the completion of all requirements for the bachelor's degree and education concentration, students are awarded their degree from UC Irvine. The Preliminary Single Subject Teaching Credential is awarded by the California Commission on Teacher Credentialing (CTC) upon completion of a bachelor's degree and the state-approved UCI teacher education program, which combines course work, student teaching, and a teaching performance assessment. The UCI School of Education must verify completion of all requirements for the teaching credential and then recommend that the credential be awarded to a candidate by the CTC.

Additional Requirements for Teacher Certification. In addition to the required course work for a California Preliminary Single Subject Teaching Credential, the following additional requirements must be satisfied:

1. The School of Physical Sciences requires a *cumulative* GPA of 2.0 (C) to graduate with the bachelor's degree. However, students must earn a grade of C or better in each of the following courses in order to be recommended for the Preliminary Single Subject Credential: PHY SCI 105, EDUC 55, , EDUC 143AW, EDUC 143BW, EDUC 148, and EDUC 158.
2. The following must be completed and verified prior to the start of student teaching in EDUC 158:
   a. Pass the California Basic Education Skills Test (CBEST), a basic mathematics and literacy skills test. For more information, visit the CBEST exam (http://www.ctcexams.nesinc.com) website.
   b. Pass the California Subject Exam for Teachers (CSET) in the discipline in which a candidate plans to earn a Preliminary Single Subject Credential (chemistry, geosciences, mathematics, or physics). Although secondary teachers are only required to pass the CSET exam in one discipline, those who pass the CSET exam in more than one disciplinary field (e.g., physics and mathematics) can be authorized to teach classes in each of those disciplines. For more information visit the CSET exam (http://www.ctcexams.nesinc.com/tests.asp) website. Mathematics majors have an option to waive the CSET exam by completing prescribed course work, referred to as a subject-matter preparation program (SMPP). More information is available at the School of Education's Mathematics SMPP (http://www.gse.uci.edu/academic_programs/smpp/math.php) website.
   c. Secondary school science teachers in California are expected to have a broad range of general science knowledge in additional to their discipline of specialization, because their Single Subject Teaching Credential in one of the sciences also authorizes them to teach classes in general or integrated science. The general science subtests of the CSET exam cover foundational topics in astronomy, geodynamics, Earth resources, ecology, genetics and evolution, molecular biology and biochemistry, cell and organismal biology, waves, forces and motion, electricity and magnetism, heat transfer and thermodynamics, and structure and properties of matter. Although students can prepare for the CSET exam's general science subtests through independent study, Physical Sciences students can also prepare themselves by taking lower-division courses that cover this content. Some suggested courses include BIO SCI 1A or BIO SCI 93 and BIO SCI 94; CHEM 1A-CHEM 1B-CHEM 1C; EARTHSS 1 and EARTHSS 7 and PHYSICS 20A.
   d. Obtain a Certificate of Clearance from the State of California.
   e. Obtain a TB test with negative results.
3. The following must be completed and verified before the School of Education is able to recommend an individual for the Preliminary Single Subject Credential:
   a. Complete a college-level course or pass an examination on the U.S. Constitution. POL SCI 21A satisfies this requirement. Contact the UCI School of Education Student Affairs Office for information about the exam.
   b. Obtain a CPR certificate in adult, child, or infant training.

Declaring Intention to Complete the Concentration and Teacher Certification. Prospective teachers who want to complete their degree and a teaching credential in four years are encouraged to start planning early by reviewing the sample programs for the major and the education concentration that they have selected, and to consult with an academic counselor. Interested students are encouraged to get started on the suggested first- and second-year credentialing course work, including PHY SCI 5 and PHY SCI 105, and can do so without officially declaring their intention to complete the concentration or the credential. However, students must declare their intention to complete the optional education concentration and their intention to earn the Preliminary Single Subject Teaching Credential by the end of their second year at the latest, and prior to enrolling in EDUC 55, which they would typically take in fall of their third year. Forms for declaring a selected education concentration and for declaring an intention to complete the teaching credential are available in the Cal Teach Science and Mathematics Resource and Advising Center (137 Bison Modular).

Option 2: Earn a Bachelor's Degree and Education Concentration or Specialization

A second option for students interested in teaching science and mathematics is to earn a teaching credential in a post-baccalaureate teacher preparation program *after* completing their bachelor's degree. UCI and other universities offer such programs, which typically require one academic year of education course work and clinical teaching experience. The Departments of Chemistry, Mathematics, and Physics and Astronomy offer the concentration in Chemistry Education, the specialization in Mathematics for Education, and the concentration in Physics Education, respectively, which are well suited for undergraduates who plan to pursue a teaching credential after finishing their degree. These programs offer strong grounding in the fundamentals of one discipline, and at the same time, emphasize the breadth in natural sciences needed by secondary science teachers. Each department's curriculum includes introductory courses on effective methods of science and mathematics teaching and provides opportunities for practical fieldwork experiences in a secondary school classroom. Detailed requirements for each program are provided in the departmental sections.

Special Programs

Campuswide Honors Program

The Campuswide Honors Program is available to selected high-achieving students from all academic majors from their freshman through senior years. For more information contact the Campuswide Honors Program, 1200 Student Services II; (949) 824-5461; honors@uci.edu; or visit the Campuswide Honors Program (http://www.honors.uci.edu) website.

UC Education Abroad Program

Upper-division students have the opportunity to experience a different culture while making progress toward degree objectives through the University's Education Abroad Program (EAP). UCEAP is an overseas study program which operates in cooperation with host universities and colleges throughout the world. Visit the Study Abroad Center (http://www.studyabroad.uci.edu) website for additional information.

Minor in Biomedical Engineering

The minor in Biomedical Engineering is an interdisciplinary curriculum that includes courses from the Schools of Engineering, Physical Sciences, and Biological Sciences. The minor is designed to provide a student in the physical sciences with the introductory skills needed in the quantitative biomedical arena. See The Henry Samueli School of Engineering (p. 493) section of the *Catalogue* for more information.

Minor in Conflict Resolution

The interdisciplinary minor in Conflict Resolution provides skills in conflict analysis and resolution and a useful understanding of integrative institutions at the local, regional, and international levels. See School of Social Sciences (p. 1877) section of the *Catalogue* for more information.

Minor in Global Sustainability

The interdisciplinary minor in Global Sustainability trains students to understand the changes that need to be made in order for the human population to live in a sustainable relationship with the resources available on this planet. See Interdisciplinary Studies (p. 1095) section of the *Catalogue* for more information.

Requirements for the Bachelor's Degree

All students must meet the University Requirements (p. 71)**.**

School Requirements: None.

Departmental Requirements: Refer to individual departments.

Graduate Programs

The School offers M.S. and Ph.D. degree programs in the Departments of Chemistry, Earth System Science, Mathematics, and Physics and Astronomy. See the department sections for detailed information.

Faculty

Kevork N. Abazajian, Ph.D. University of California, San Diego, *Associate Professor of Physics and Astronomy*

Takeo Akasaki, Ph.D. University of California, Los Angeles, *Professor Emeritus of Mathematics* (ring theory)

Jun F. Allard, Ph.D. University of British Columbia, *Assistant Professor of Mathematics; Physics and Astronomy* (mathematical and computational biology)

Steven D. Allison, Ph.D. Stanford University, *Associate Professor of Ecology and Evolutionary Biology; Earth System Science*

Ioan Andricioaei, Ph.D. Boston University, *Professor of Chemistry* (chemical biology, physical chemistry and chemical physics, theoretical and computational)

Ara Apkarian, Ph.D. Northwestern University, *Professor of Chemistry* (physical chemistry and chemical physics)

Ramesh D. Arasasingham, Ph.D. University of California, Davis, *Senior Lecturer of Chemistry* (chemical education and inorganic chemistry)

Shane Ardo, Ph.D. Johns Hopkins University, *Assistant Professor of Chemistry; Chemical Engineering and Materials Science* (inorganic and organometallic, physical chemistry and chemical physics, polymer, materials, nanoscience)

Vladimir Baranovsky, Ph.D. University of Chicago, *Associate Professor of Mathematics* (algebra and number theory)

Aaron J. Barth, Ph.D. University of California, Berkeley, *Professor of Physics and Astronomy*

Steven W. Barwick, Ph.D. University of California, Berkeley, *Professor of Physics and Astronomy*

Gregory A. Benford, Ph.D. University of California, San Diego, *Professor Emeritus of Physics and Astronomy*

Donald R. Blake, Ph.D. University of California, Irvine, *UCI Distinguished Professor of Chemistry* (analytical, atmospheric, environmental)

Suzanne A. Blum, Ph.D. University of California, Berkeley, *Associate Professor of Chemistry; Chemistry* (inorganic and organometallic, organic and synthetic, physical chemistry and chemical physics, polymer, materials, nanoscience)

Andrew Borovik, Ph.D. University of North Carolina at Chapel Hill, *Vice Chair and Professor of Chemistry* (inorganic and organometallic, organic and synthetic)

David A. Brant, Ph.D. University of Wisconsin-Madison, *Professor Emeritus of Chemistry* (biophysical)

Amanda J. Brindley, Ph.D. University of California, Irvine, *Lecturer with Potential Security of Employment of Chemistry* (chemistry)

James S. Bullock, Ph.D. University of California, Santa Cruz, *Gary McCue Administrative Term Chair in Cosmology* and *Professor of Physics and Astronomy*

David A. Buote, Ph.D. Massachusetts Institute of Technology, *Professor of Physics and Astronomy*

Kieron Burke, Ph.D. University of California, Santa Barbara, *Professor of Chemistry; Physics and Astronomy* (physical chemistry and chemical physics, polymer, materials, nanoscience, theoretical and computational)

Frank B. Cannonito, Ph.D. Adelphi University, *Professor Emeritus of Mathematics* (group theory)

David W. Casper, Ph.D. University of Michigan, *Associate Professor of Physics and Astronomy*

A. Richard Chamberlin, Ph.D. University of California, San Diego, *Department Chair and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (chemical biology, organic and synthetic)

Gary A. Chanan, Ph.D. University of California, Berkeley, *Professor of Physics and Astronomy*

Liu Chen, Ph.D. University of California, Berkeley, *Research Professor and Professor Emeritus of Physics and Astronomy*

Long Chen, Ph.D. Pennsylvania State University, *Associate Professor of Mathematics* (applied and computational mathematics)

Mu-Chun Chen, Ph.D. University of Colorado Boulder, *Associate Professor of Physics and Astronomy*

Alexander L. Chernyshev, Ph.D. Russian Academy of Sciences, *Professor of Physics and Astronomy*

Ralph J. Cicerone, Ph.D. University of Illinois at Urbana-Champaign, *Professor Emeritus of Earth System Science*

Philip Collins, Ph.D. University of California, Berkeley, *Professor of Physics and Astronomy*

Michael Cooper, Ph.D. University of California, Berkeley, *Assistant Professor of Physics and Astronomy*

Asantha R. Cooray, Ph.D. University of Chicago, *Professor of Physics and Astronomy*

Robert Corn, Ph.D. University of California, Berkeley, *Professor of Chemistry; Biomedical Engineering* (analytical, chemical biology, physical chemistry and chemical physics, polymer, materials, nanoscience)

Michael C. Cranston, Ph.D. University of Minnesota, *Professor of Mathematics* (probability)

Anthony V. Daly, M.F.A. University of California, Irvine, *Lecturer of Physical Sciences*

Donald A. Darling, Ph.D. California Institute of Technology, *Professor Emeritus of Mathematics*

Kristen A. Davis, Ph.D. Stanford University, *Assistant Professor of Civil and Environmental Engineering; Earth System Science* (coastal oceanography, fluid mechanics, turbulent flows)

Steven J. Davis, Ph.D. Stanford University, *Assistant Professor of Earth System Science*

Michael B. Dennin, Ph.D. University of California, Santa Barbara, *Professor of Physics and Astronomy*

Robert J. Doedens, Ph.D. University of Wisconsin-Madison, *Professor Emeritus of Chemistry* (inorganic and organometallic)

Vy M. Dong, Ph.D. California Institute of Technology, *Professor of Chemistry* (organic and synthetic)

Ellen R. Druffel, Ph.D. University of California, San Diego, *Fred Kavli Chair in Earth System Science* and *Professor of Earth System Science*

Todd Dupont, Ph.D. Pennsylvania State University, *Assistant Professor of Earth System Science*

Igor E. Dzyaloshinskii, Ph.D. Moscow State University, *Professor Emeritus of Physics and Astronomy*

Kimberly D. Edwards, Ph.D. University of California, Irvine, *Lecturer with Security of Employment of Chemistry* (general chemistry)

Paul C. Eklof, Ph.D. Cornell University, *Professor Emeritus of Mathematics* (logic and algebra)

German A. Enciso Ruiz, Ph.D. Rutgers, the State University of New Jersey, *Associate Professor of Mathematics; Developmental and Cell Biology* (applied and computational mathematics, mathematical and computational biology)

Aaron P. Esser-Kahn, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Biomedical Engineering; Chemical Engineering and Materials Science* (chemical biology, organic and synthetic, polymer, materials, nanoscience)

William J. Evans, Ph.D. University of California, Los Angeles, *Professor of Chemistry* (inorganic and organometallic)

Catherine M. Famiglietti, Ph.D. Princeton University, *Lecturer of Mathematics* (calculus and numerical methods)

James S. Famiglietti, Ph.D. Princeton University, *Professor of Earth System Science; Civil and Environmental Engineering*

Jonathan L. Feng, Ph.D. Stanford University, *Professor of Physics and Astronomy*

Julie E. Ferguson, Ph.D. Oxford University, *Lecturer with Potential Security of Employment of Earth System Science*

Aleksandr Figotin, Ph.D. Tashkent University of Information Technologies, *Professor of Mathematics* (applied and computational mathematics, mathematical physics)

Mark Finkelstein, Ph.D. Stanford University, *Professor Emeritus of Mathematics; Center for Educational Partnerships* (analysis)

Barbara J. Finlayson-Pitts, Ph.D. University of California, Riverside, *Director of AirUCI and UCI Distinguished Professor of Chemistry; Chemistry* (chemistry, analytical, atmospheric and environmental, physical chemistry and chemical physics)

Zachary Fisk, Ph.D. University of California, San Diego, *UCI Distinguished Professor Emeritus of Physics and Astronomy*

Matthew Foreman, Ph.D. University of California, Berkeley, *Professor of Mathematics; Logic and Philosophy of Science* (ergodic theory and dynamical systems, logic and foundations)

Fillmore Freeman, Ph.D. Michigan State University, *Professor of Chemistry* (organic and synthetic, theoretical and computational)

Michael D. Fried, Ph.D. University of Michigan, *Professor Emeritus of Mathematics* (arithmetic geometry and complex variables)

Filipp Furche, Ph.D. University of Karlsruhe, *Professor of Chemistry* (physical chemistry and chemical physics, theoretical and computational)

Nien-Hui Ge, Ph.D. University of California, Berkeley, *Associate Professor of Chemistry* (analytical, chemical biology, physical chemistry and chemical physics, polymer, materials, nanoscience)

Robert B. Gerber, Ph.D. Oxford University, *Professor of Chemistry* (atmospheric and environmental, physical chemistry and chemical physics, theoretical and computational)

Anton Gorodetski, Ph.D. Moscow State University, *Associate Professor of Mathematics* (ergodic theory and dynamical systems)

Alon A. Gorodetsky, Ph.D. California Institute of Technology, *Assistant Professor of Chemical Engineering and Materials Science; Chemistry* (organic photovoltaics, electrical biosensors, nanotechnology, DNA, materials chemistry)

Michael L. Goulden, Ph.D. Stanford University, *Department Vice Chair and Professor of Earth System Science; Ecology and Evolutionary Biology*

Enrico Gratton, Ph.D. University of Rome, *Professor of Biomedical Engineering; Developmental and Cell Biology; Physics and Astronomy* (design of new fluorescence instruments, protein dynamics, single molecule, fluorescence microscopy, photon migration in tissues)

Claudia I. Green, Ph.D. Max Planck Institute, *Assistant Professor of Earth System Science*

Steven P. Gross, Ph.D. University of Texas at Austin, *Professor of Developmental and Cell Biology; Biomedical Engineering; Physics and Astronomy* (force generation by molecular motors in living cells)

Zhibin Guan, Ph.D. University of North Carolina at Chapel Hill, *Professor of Chemistry; Biomedical Engineering* (chemical biology, organic and synthetic, polymer, materials, nanoscience)

Arnold Guerra, Ph.D. University of California, Irvine, *Lecturer of Physics and Astronomy*

Patrick Q. Guidotti, Ph.D. University of Zurich, *Professor of Mathematics* (analysis and partial differential equations, applied and computational mathematics)

Gultekin Gulsen, Ph.D. Bogazici University, *Associate Professor of Radiological Sciences; Biomedical Engineering; Electrical Engineering and Computer Science; Physics and Astronomy* (in vivo molecular imaging, diffuse optical tomography, fluorescence tomography, photo-magnetic imaging, multi-modality imaging)

Herbert W. Hamber, Ph.D. University of California, Santa Barbara, *Professor of Physics and Astronomy*

Stephen Hanessian, Ph.D. Ohio State University, *Director of Medicinal Chemistry and Pharmacology Graduate Program and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (organic chemistry)

Warren J. Hehre, Ph.D. Carnegie Mellon University, *Professor Emeritus of Chemistry* (physical theoretical chemistry)

William W. Heidbrink, Ph.D. Princeton University, *Professor of Physics and Astronomy*

John C. Hemminger, Ph.D. Harvard University, *Vice Chancellor for Research and Professor of Chemistry* (analytical, atmospheric and environmental, physical chemistry and chemical physics, polymer, materials, nanoscience)

Alan F. Heyduk, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Chemistry* (chemical biology, inorganic and organometallic)

Hamid Hezari, Ph.D. Johns Hopkins University, *Assistant Professor of Mathematics* (analysis and partial differential equations)

Wilson Ho, Ph.D. University of Pennsylvania, *Donald Bren Professor* and *Professor of Physics and Astronomy; Chemistry* (physical chemistry and chemical physics, polymer, materials, nanoscience)

Allon I. Hochbaum, Ph.D. University of California, Berkeley, *Assistant Professor of Chemical Engineering and Materials Science; Chemistry* (nanoscale materials and hybrid bio-inorganic devices for applications in clean energy)

Herbert J. Hopster, Ph.D. Aachen University, *Professor Emeritus of Physics and Astronomy*

Kenneth C. Janda, Ph.D. Harvard University, *Dean of the School of Physical Sciences and Professor of Chemistry* (physical chemistry and chemical physics)

Elizabeth R. Jarvo, Ph.D. Boston College, *Associate Professor of Chemistry* (inorganic and organometallic, organic and synthetic)

Svetlana Jitomirskaya, Ph.D. Moscow State University, *UCI Chancellor's Fellow* and *Professor of Mathematics* (mathematical physics)

Kathleen Johnson, Ph.D. University of California, Berkeley, *Assistant Professor of Earth System Science*

Manoj Kaplinghat, Ph.D. Ohio State University, *Professor of Physics and Astronomy*

Saewung Kim, Ph.D. Georgia Institute of Technology, *Assistant Professor of Earth System Science*

Susan M. King, Ph.D. Massachusetts Institute of Technology, *Senior Lecturer of Chemistry* (organic chemistry)

David P. Kirkby, Ph.D. California Institute of Technology, *Professor of Physics and Astronomy; Electrical Engineering and Computer Science* (observational cosmology, data science, embedded systems)

Abel Klein, Ph.D. Massachusetts Institute of Technology, *Professor of Mathematics* (mathematical physics)

Natalia Komarova, Ph.D. University of Arizona, *Professor of Mathematics; Ecology and Evolutionary Biology* (applied and computational mathematics, mathematical and computational biology, mathematics of complex and social phenomena)

Ilya N. Krivorotov, Ph.D. University of Minnesota, *Associate Professor of Physics and Astronomy*

Andrew J. Lankford, Ph.D. Yale University, *Professor of Physics and Astronomy*

Matthew Law, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Chemical Engineering and Materials Science* (inorganic and organometallic, physical chemistry and chemical physics, polymer, materials, nanoscience)

Jon M. Lawrence, Ph.D. University of Rochester, *Professor Emeritus of Physics and Astronomy*

Rachel Lehman, Ph.D. University of California, Irvine, *Lecturer of Mathematics* (mathematics education and probability)

Peter Li, Ph.D. University of California, Berkeley, *Professor Emeritus of Mathematics* (geometry and topology)

Song-Ying Li, Ph.D. University of Pittsburgh, *Professor of Mathematics* (analysis and partial differential equations)

Zhihong Lin, Ph.D. Princeton University, *Professor of Physics and Astronomy*

Renee Link, Ph.D. University of California, Irvine, *Lecturer with Potential Security of Employment of Chemistry* (organic chemistry)

Chang C. Liu, Ph.D. Scripps Research Institute, *Assistant Professor of Biomedical Engineering; Chemistry* (genetic engineering, directed evolution, synthetic biology, chemical biology)

John S. Lowengrub, Ph.D. Courant Institute of Mathematical Sciences, *UCI Chancellor's Professor of Mathematics; Biomedical Engineering; Chemical Engineering and Materials Science* (applied and computational mathematics, mathematical and computational biology)

Zhiqin Lu, Ph.D. Courant Institute of Mathematical Sciences, *Professor of Mathematics* (geometry and topology)

Andrej Luptak, Ph.D. Yale University, *Vice Chair of Graduate Programs in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Chemistry; Molecular Biology and Biochemistry* (chemical biology)

Penelope J. Maddy, Ph.D. Princeton University, *UCI Distinguished Professor of Logic and Philosophy of Science; Mathematics; Philosophy* (philosophy of mathematics and logic, meta-philosophy)

Gudrun Magnusdottir, Ph.D. Colorado State University, *Department Chair and Professor of Earth System Science*

Mark A. Mandelkern, Ph.D. University of California, Berkeley, *Research Professor and Professor Emeritus of Physics and Astronomy*

Vladimir A. Mandelshtam, Ph.D. Russian Academy of Sciences, *Professor of Chemistry* (physical chemistry and chemical physics, theoretical and computational)

Alexei A. Maradudin, Ph.D. University of Bristol, *Professor Emeritus of Physics and Astronomy*

Craig C. Martens, Ph.D. Cornell University, *Professor of Chemistry* (physical chemistry and chemical physics, polymer, materials, nanoscience, theoretical and computational)

Rachel Martin, Ph.D. Yale University, *Associate Professor of Chemistry; Molecular Biology and Biochemistry* (analytical, chemical biology, physical chemistry and chemical physics)

Adam Martiny, Ph.D. Technical University of Denmark, *Associate Professor of Earth System Science; Ecology and Evolutionary Biology*

Robert McIver, Ph.D. Stanford University, *Professor Emeritus of Chemistry*

Roger D. McWilliams, Ph.D. Princeton University, *Professor of Physics and Astronomy*

George E. Miller, Ph.D. Oxford University, *Senior Lecturer with Security of Employment Emeritus of Chemistry* (analytical and radioanalytical chemistry and chemical education)

Eric D. Mjolsness, Ph.D. California Institute of Technology, *Professor of Computer Science; Mathematics* (applied mathematics, mathematical biology, modeling languages)

David L. Mobley, Ph.D. University of California, Davis, *Associate Professor of Pharmaceutical Sciences; Chemistry* (chemical biology, physical chemistry and chemical physics, theoretical and computational)

William R. Molzon, Ph.D. University of Chicago, *Professor of Physics and Astronomy*

Harold W. Moore, Ph.D. University of Illinois at Urbana-Champaign, *Professor Emeritus of Chemistry* (organic and synthetic)

Jefferson Moore, Ph.D. Oregon State University, *Professor of Earth System Science*

Shaul Mukamel, Ph.D. Tel Aviv University, *UCI Distinguished Professor of Chemistry* (physical chemistry and chemical physics, polymer, materials, nanoscience, theoretical and computational)

Simona Murgia, Ph.D. Michigan State University, *Assistant Professor of Physics and Astronomy*

Craig Murray, Ph.D. University of Edinburgh, *Assistant Professor of Chemistry* (atmospheric and environmental, physical chemistry and chemical physics)

Riley D. Newman, Ph.D. University of California, Berkeley, *Professor Emeritus of Physics and Astronomy; Logic and Philosophy of Science; Physics and Astronomy*

Qing Nie, Ph.D. Ohio State University, *Professor of Mathematics; Biomedical Engineering* (computational mathematics, systems biology, cell signaling, stem cell)

Sergey Nizkorodov, Ph.D. University of Basel, *Professor of Chemistry* (analytical, atmospheric and environmental, physical chemistry and chemical physics)

James S. Nowick, Ph.D. Massachusetts Institute of Technology, *Professor of Chemistry* (chemical biology, organic and synthetic, polymer, materials, nanoscience)

Larry E. Overman, Ph.D. University of Wisconsin-Madison, *UCI Distinguished Professor of Chemistry* (chemical biology, inorganic and organometallic, organic and synthetic)

Alessandra Pantano, Ph.D. Princeton University, *Lecturer with Potential Security of Employment of Mathematics* (algebra and number theory)

Siddah Ashok Parameswaran, Ph.D. Princeton University, *Assistant Professor of Physics and Astronomy*

William H. Parker, Ph.D. University of Pennsylvania, *Professor Emeritus of Physics and Astronomy*

Reginald M. Penner, Ph.D. Texas A&M University, *Department Chair and UCI Chancellor's Professor of Chemistry; Chemical Engineering and Materials Science* (analytical, physical chemistry and chemical physics, polymer, materials, nanoscience)

Eric Potma, Ph.D. University of Groningen, *Department Vice Chair and Associate Professor of Chemistry* (analytical, chemical biology, physical chemistry and chemical physics)

Thomas L. Poulos, Ph.D. University of California, San Diego, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences; Physiology and Biophysics* (chemical biology)

Michael J. Prather, Ph.D. Yale University, *UCI Endowed Chair* and *Professor of Earth System Science*

Jennifer A. Prescher, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Molecular Biology and Biochemistry; Pharmaceutical Sciences* (chemical biology, organic and synthetic)

Francois W. Primeau, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Earth System Science*

Michael S. Pritchard, Ph.D. University of California, San Diego, *Assistant Professor of Earth System Science*

Sergey V. Pronin, Ph.D. University of Chicago, *Assistant Professor of Chemistry* (organic chemistry)

Arvind Rajaraman, Ph.D. Stanford University, *Professor of Physics and Astronomy*

James T. Randerson, Ph.D. Stanford University, *UCI Chancellor's Professor of Earth System Science; Ecology and Evolutionary Biology*

David L. Rector, Ph.D. Massachusetts Institute of Technology, *Professor Emeritus of Mathematics* (algebraic topology and computer algebra)

William S. Reeburgh, Ph.D. Johns Hopkins University, *Professor Emeritus of Earth System Science*

Robert C. Reilly, Ph.D. University of California, Berkeley, *Professor Emeritus of Mathematics* (geometry and topology)

Peter M. Rentzepis, Ph.D. Cambridge University, *UC Presidential Chair* and *Professor of Chemistry; Chemical Engineering and Materials Science* (physical chemistry and chemical physics)

Markus W. Ribbe, Ph.D. University of Bayreuth, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry* (chemical biology, inorganic and organometallic)

Eric Rignot, Ph.D. University of Southern California, *Department Vice Chair and Professor of Earth System Science*

Thorsten Ritz, Ph.D. University of Ulm, *Professor of Physics and Astronomy*

Norman Rostoker, Sc.D. Carnegie Institute of Technology, *Research Professor and Professor Emeritus of Physics and Astronomy*

Karl Rubin, Ph.D. Harvard University, *Department Chair and Edward and Vivian Thorp Chair in Mathematics* and *Professor of Mathematics* (algebra and number theory)

Bernard Russo, Ph.D. University of California, Los Angeles, *Professor Emeritus of Mathematics* (functional analysis)

James E. Rutledge, Ph.D. University of Illinois at Chicago Circle, *Associate Dean of the School of Physical Sciences* and *Professor of Physics and Astronomy*

Scott D. Rychnovsky, Ph.D. Columbia University, *Professor of Chemistry* (chemical biology, organic and synthetic)

Nathan Rynn, Ph.D. Stanford University, *Professor Emeritus of Physics and Astronomy*

Donald G. Saari, Ph.D. Purdue University, *UCI Distinguished Professor of Economics; Logic and Philosophy of Science; Mathematics* (ergodic theory and dynamical systems, mathematics of complex social phenomena)

Eric S. Saltzman, Ph.D. University of Miami, *Professor of Earth System Science; Chemistry* (analytical, atmospheric and environmental)

Martin Schechter, Ph.D. New York University, *Professor of Mathematics* (analysis and partial differential equations, mathematical physics)

Stephen Scheinberg, Ph.D. Princeton University, *Professor Emeritus of Mathematics*

Jonas Schultz, Ph.D. Columbia University, *Professor Emeritus of Physics and Astronomy; International Studies; Logic and Philosophy of Science*

A. J. Shaka, Ph.D. Oxford University, *Professor of Chemistry* (chemical biology, physical chemistry and chemical physics)

Kenneth J. Shea, Ph.D. Pennsylvania State University, *Professor of Chemistry; Chemical Engineering and Materials Science* (analytical, chemical biology, organic and synthetic, polymer, materials, nanoscience)

Yuri Shirman, Ph.D. University of California, Santa Cruz, *Professor of Physics and Astronomy*

Alice Silverberg, Ph.D. Princeton University, *Professor of Mathematics; Computer Science* (algebra and number theory)

Dennis J. Silverman, Ph.D. Stanford University, *Professor Emeritus of Physics and Astronomy*

Zuzanna S. Siwy, Ph.D. Silesian University of Technology, *Professor of Physics and Astronomy; Biomedical Engineering; Chemistry* (biosensing, nanotechnology, condensed matter physics)

Tammy Ann Smecker-Hane, Ph.D. Johns Hopkins University, *Associate Professor of Physics and Astronomy*

William H. Smoke, Ph.D. University of California, Berkeley, *Professor Emeritus of Mathematics* (homological algebra)

Henry W. Sobel, Ph.D. Case Western Reserve University, *Professor of Physics and Astronomy*

Knut Solna, Ph.D. Stanford University, *Professor of Mathematics* (applied and computational mathematics, inverse problems and imaging, probability)

Soroosh Sorooshian, Ph.D. University of California, Los Angeles, *Director of the Center for Hydrometeorology and Remote Sensing and UCI Distinguished Professor of Civil and Environmental Engineering; Earth System Science* (hydrology, hydrometeorology and hydroclimate modeling, remote sensing, water sources management)

Ronald J. Stern, Ph.D. University of California, Los Angeles, *Professor Emeritus of Mathematics* (geometry and topology)

Jeffrey D. Streets, Ph.D. Duke University, *Assistant Professor of Mathematics* (geometry and topology)

Min-Ying Su, Ph.D. University of California, Irvine, *Professor of Radiological Sciences; Physics and Astronomy*

Peter Taborek, Ph.D. California Institute of Technology, *Department Chair and Professor of Physics and Astronomy*

Agnes Taffard, Ph.D. University of Liverpool, *Associate Professor of Physics and Astronomy*

Timothy Tait, Ph.D. Michigan State University, *UCI Chancellor's Fellow* and *Professor of Physics and Astronomy*

Fumiko Tajima, Ph.D. University of Tokyo, *Lecturer of Physics and Astronomy*

Toshiki Tajima, Ph.D. University of California, Irvine, *UCI Endowed Chair* and *Adjunct Professor of Physics and Astronomy*

Chuu-Lian Terng, Ph.D. Brandeis University, *UCI ADVANCE Term Chair* and *Professor of Mathematics* (geometry and topology, mathematical visualization)

Edriss S. Titi, Ph.D. Indiana University, *Professor Emeritus of Mathematics; Mechanical and Aerospace Engineering* (analysis and partial differential equations, applied and computational mathematics)

Douglas J. Tobias, Ph.D. Carnegie Mellon University, *Professor of Chemistry* (atmospheric and environmental, chemical biology, physical chemistry and chemical physics, theoretical and computational)

Ivan V. Tomov, Ph.D. , *Associate Specialist of Chemistry*

Virginia L. Trimble, Ph.D. California Institute of Technology, *Professor of Physics and Astronomy*

Susan E. Trumbore, Ph.D. Columbia University, *Professor of Earth System Science*

Shiou-Chuan (Sheryl) Tsai, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences*

Li Sheng Tseng, Ph.D. University of Chicago, *Assistant Professor of Mathematics* (geometry and topology, mathematical physics)

Howard G. Tucker, Ph.D. University of California, Berkeley, *Professor Emeritus of Mathematics* (probability and statistics)

Mark Vagins, Ph.D. Yale University, *Adjunct Professor of Physics and Astronomy*

David Van Vranken, Ph.D. Stanford University, *Professor of Chemistry* (chemical biology, organic and synthetic)

Christopher Vanderwal, Ph.D. Scripps Research Institute, *Professor of Chemistry* (organic and synthetic)

Gerard Vanhoven, Ph.D. Standford University, *Professor Emeritus of Physics and Astronomy*

Isabella Velicogna, Ph.D. Università degli Studi di Trieste, *Associate Professor of Earth System Science*

Jasper A. Vrugt, Ph.D. University of Amsterdam, *Assistant Professor of Civil and Environmental Engineering; Earth System Science* (surface hydrology and soil physics)

Richard F. Wallis, Ph.D. Catholic University of America, *Professor Emeritus of Physics and Astronomy*

Sean P. Walsh, Ph.D. University of Notre Dame, *Assistant Professor of Logic and Philosophy of Science; Mathematics* (philosophy of mathematics, philosophy of logic and mathematical logic)

Daqing Wan, Ph.D. University of Washington, *Professor of Mathematics* (algebra and number theory)

Frederic Yui-Ming Wan, Ph.D. Massachusetts Institute of Technology, *Professor of Mathematics; Mechanical and Aerospace Engineering* (applied and computational mathematics, mathematical and computational biology)

Gregory A. Weiss, Ph.D. Harvard University, *Professor of Chemistry; Molecular Biology and Biochemistry* (analytical, chemical biology, organic and synthetic, polymer, materials, nanoscience)

Frank J. Wessel, Ph.D. University of California, Irvine, *Project Scientist of Physics and Astronomy*

Robert W. West, Ph.D. University of Michigan, *Professor Emeritus of Mathematics* (algebraic toplogy)

Joel J. Westman, Ph.D. University of California, Los Angeles, *Professor Emeritus of Mathematics* (analysis)

Steven R. White, Ph.D. Cornell University, *Professor of Physics and Astronomy*

Daniel Whiteson, Ph.D. University of California, Berkeley, *Associate Professor of Physics and Astronomy; Logic and Philosophy of Science*

Robert J. Whitley, Ph.D. New Mexico State University, *Professor Emeritus of Mathematics* (analysis)

Laurel L. Wilkening, Ph.D. University of California, San Diego, *Professor Emerita of Earth System Science*

Janet L. Williams, Ph.D. Brandeis University, *Professor Emerita of Mathematics* (probability and statistics)

Dominik Franz X. Wodarz, Ph.D. Oxford University, *Professor of Ecology and Evolutionary Biology; Mathematics* (mathematical biology, infectious disease and cancer)

Max Wolfsberg, Ph.D. Washington University, *Professor Emeritus of Chemistry* (physical chemistry and chemical physics, theoretical and computational)

Ruqian Wu, Ph.D. Institute of Physics, Chinese Academy of Science, *Professor of Physics and Astronomy*

Jing Xia, Ph.D. Stanford University, *Assistant Professor of Physics and Astronomy*

Jack Xin, Ph.D. New York University, *Professor of Mathematics* (applied and computational mathematics, mathematical and computational biology, probability)

Jenny Y. Yang, Ph.D. Massachusetts Institute of Technology, *Assistant Professor of Chemistry* (inorganic and organometallic, organic and synthetic, polymer, materials, nanoscience)

Albert Fan Yee, Ph.D. University of California, Berkeley, *Professor of Chemical Engineering and Materials Science; Biomedical Engineering; Chemistry* (materials science aspects of polymers and soft materials, particularly on how they are used to impact nanotechnology)

James J. Yeh, Ph.D. University of Minnesota, *Professor Emeritus of Mathematics* (analysis and partial differential equations, probability)

Basilio J. Yniguez, Ph.D. University of California, Irvine, *Lecturer of Physics and Astronomy*

Gaurang B. Yodh, Ph.D. University of Chicago, *Professor Emeritus of Physics and Astronomy*

Clare C. Yu, Ph.D. Princeton University, *Professor of Physics and Astronomy*

Jin Yi Yu, Ph.D. University of Washington, *Professor of Earth System Science*

Yifeng Yu, Ph.D. University of California, Berkeley, *Associate Professor of Mathematics* (analysis and partial differential equations)

Martin Zeman, Ph.D. Humboldt University of Berlin, *Professor of Mathematics; Logic and Philosophy of Science* (logic and foundations)

Charles S. Zender, Ph.D. University of Colorado Boulder, *Professor of Earth System Science; Computer Science*

Hong-Kai Zhao, Ph.D. University of California, Los Angeles, *Professor of Mathematics; Computer Science* (applied and computational mathematics, inverse problems and imaging)

Weian Zheng, Ph.D. University of Strasbourg, *Professor Emeritus of Mathematics* (probability theory and financial engineering)

Chemistry Courses

CHEM 1A. General Chemistry. 4 Units.
Atomic structure; general properties of the elements; covalent, ionic, and metallic bonding; intermolecular forces; mass relationships.

Prerequisite: MATH 2A or PHYSICS 7C or CHEM 1P or placement via a score of 600 or higher on the SAT Mathematics Reasoning test, or a score of 27 or higher on the ACT Mathematics test, or a score of 700 or higher on the SAT Chemistry subject exam, or a score of 3 on the AP Chemistry exam, or a score of 4 on the AP Calc AB Exam, or a score of 3 on the AP Calc BC Exam. CHEM 1P with a grade of C- or better.

Overlaps with CHEM H2A, ENGR 1A.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

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CHEM 1B. General Chemistry. 4 Units.
Properties of gases, liquids, solids; changes of state; properties of solutions; stoichiometry; thermochemistry; and thermodynamics.

Corequisite: CHEM M2LB. CHEM M2LB for Chemistry majors only. No co-requisite for other majors.
Prerequisite: CHEM 1A or ENGR 1A or a score of 4 or higher on the AP Chemistry exam. CHEM 1A with a grade of C- or better. ENGR 1A with a grade of C- or better.

Overlaps with CHEM H2B.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

(II, Va)

CHEM 1C. General Chemistry. 4 Units.
Equilibria, aqueous acid-base equilibria, solubility equilibria, oxidation reduction reactions, electrochemistry; kinetics; special topics.

Corequisite: CHEM 1LC.
Prerequisite: CHEM 1B. CHEM 1B with a grade of C- or better.

Overlaps with CHEM H2C.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

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CHEM 1LC. General Chemistry Laboratory. 2 Units.
Training and experience in basic laboratory techniques. Chemical practice and principles illustrated through experiments related to lecture topics of CHEM 1A-B-C. Materials fee.

Corequisite: CHEM 1C.
Prerequisite: CHEM 1B. CHEM 1B with a grade of C- or better.

Overlaps with CHEM 1LE, CHEM H2LB, CHEM M2LB.

Restriction: No credit for CHEM 1LC if taken after CHEM H2LB or CHEM M2LB. Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 1LD. General Chemistry Laboratory. 2 Units.
Training and experience in basic laboratory techniques. Chemical practice and principles illustrated through experiments related to lecture topics in CHEM 1A-B-C. Materials fee.

Prerequisite: CHEM 1C and CHEM 1LC or CHEM 1LE. CHEM 1C with a grade of C- or better. CHEM 1LC with a grade of C- or better. CHEM 1LE with a grade of C- or better.

Overlaps with CHEM H2LB, CHEM M2LB.

Restriction: No credit for CHEM M2LA if taken after CHEM 1LD. Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 1LE. Accelerated General Chemistry Lab. 3 Units.
Lecture and experiments covering chemical concepts for accelerated students who do not plan to take organic chemistry. Properties of gases, liquids, solutions, and solids; chemical equilibrium, chemical thermodynamics; atomic and molecular structure; chemical kinetics; electrochemistry. Materials fee.

Corequisite: CHEM 1A or CHEM 1B or ENGR 1A.

Overlaps with CHEM 1LC.

Restriction: Majors in the School of Engineering and Biomedical Computing majors have first consideration for enrollment.

CHEM 1P. Preparation for General Chemistry Online. 4 Units.
Units of measurement, dimensional analysis, significant figures; elementary concepts of volume, mass, force, pressure, energy, density, temperature, heat, work; fundamentals of atomic and molecular structure; the mole concept, stoichiometry; properties of the states of matter; gas laws; solutions concentrations. Course may be offered online.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Biomedical Computing, Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM H2A. Honors General Chemistry. 4 Units.
Covers the same material as CHEM 1A-B-M3C but in greater depth. Additional topics will also be included as time permits.

Corequisite: CHEM H2LA.
Prerequisite: Membership in the Campuswide Honors Program, or a score of 4 or 5 on the Chemistry Advanced Placement Examination, or a score of 700 or better on the SAT II in Chemistry.

Overlaps with CHEM 1A.

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CHEM H2B. Honors General Chemistry. 4 Units.
Covers the same material as CHEM 1A-B-M3C but in greater. depth. Additional topics will also be included as time permits.

Corequisite: CHEM H2LB.
Prerequisite: CHEM H2A and CHEM H2LA. CHEM H2A with a grade of B or better. CHEM H2LA with a grade of B or better.

Overlaps with CHEM 1B.

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CHEM H2C. Honors General Chemistry. 4 Units.
Covers the same material as CHEM 1A-CHEM 1B-CHEM M3C but in greater depth. Additional topics will also be included as time permits.

Corequisite: CHEM H2LC.
Prerequisite: CHEM H2B and CHEM H2LB. CHEM H2B with a grade of B or better. CHEM H2LB with a grade of B or better.

Overlaps with CHEM 1C.

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CHEM H2LA. Honors General Chemistry Laboratory. 3 Units.
Training and experience in fundamental and analytical laboratory techniques through experiments related to lecture topics in CHEM H2A-CHEM H2B-CHEM H2C. Materials fee.

Corequisite: CHEM H2A.
Prerequisite: Membership in the Campuswide Honors Program, or a score of 4 or 5 on the Chemistry Advanced Placement Examination, or a score of 700 or better on the SAT II in Chemistry.

Overlaps with CHEM M2LA.

CHEM H2LB. Honors General Chemistry Laboratory. 3 Units.
Training and experience in fundamental and analytical laboratory techniques through experiments related to lecture topics in CHEM H2A-CHEM H2B-CHEM H2C. Materials fee.

Corequisite: CHEM H2B.
Prerequisite: CHEM H2A and CHEM H2LA. CHEM H2A with a grade of B or better. CHEM H2LA with a grade of B or better.

Overlaps with CHEM M2LB.

Restriction: No credit for CHEM 1LC if taken after CHEM H2LB or CHEM M2LB.

CHEM H2LC. Honors General Chemistry Laboratory. 3 Units.
Training and experience in fundamental and analytical laboratory techniques through experiments related to lecture topics in CHEM H2A-CHEM H2B-CHEM H2C. Materials fee.

Corequisite: CHEM H2C.
Prerequisite: CHEM H2B and CHEM H2LB. CHEM H2B with a grade of B or better. CHEM H2LB with a grade of B or better.

CHEM M2LA. Majors General Chemistry Laboratory. 3 Units.
Training and experience in basic laboratory techniques through experiments related to lecture topics in CHEM 1A-CHEM 1B-CHEM 1C. Materials fee.

Corequisite: CHEM 1A.
Prerequisite: High school chemistry.

Overlaps with CHEM H2LA, CHEM 1LD.

Restriction: Chemistry majors only. No credit for CHEM M2LA if taken after CHEM 1LD.

CHEM M2LB. Majors General Chemistry Laboratory. 3 Units.
Training and experience in basic laboratory techniques through experiments related to lecture topics in CHEM 1A-CHEM 1B-CHEM 1C. Materials fee.

Corequisite: CHEM 1B.
Prerequisite: CHEM 1A and CHEM M2LA. CHEM 1A with a grade of C- or above. CHEM M2LA with a grade of C- or above.

Overlaps with CHEM H2LB.

Restriction: No credit for CHEM 1LC if taken after CHEM H2LB or CHEM M2LB. Chemistry majors only.

CHEM M3C. Majors Quantitative Analytical Chemistry. 4 Units.
Topics covered are equilibria, aqueous acid-base equilibria, solubility equilibria, oxidation reduction reactions, electrochemistry; and kinetics with a special emphasis on the statistical treatment of data and analytical methods of chemical analysis.

Corequisite: CHEM M3LC.
Prerequisite: (CHEM 1B and CHEM M2LB) or (CHEM H2B and H2LB). CHEM 1B with a grade of C- or better. CHEM M2LB with a grade of C- or better. CHEM H2B with a grade of C- or better. CHEM H2LB with a grade of C- or better.

Restriction: Chemistry majors only.

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CHEM M3LC. Majors Quantitative Analytical Chemistry Laboratory. 3 Units.
Training and experience in analytical laboratory techniques through experiments related to lecture topics in CHEM M3C.

Corequisite: CHEM M3C or CHEM H2C.
Prerequisite: (CHEM 1B or CHEM H2B) and (CHEM M2LB or CHEM H2LB). CHEM 1B with a grade of C- or better. CHEM H2B with a grade of C- or better. CHEM M2LB with a grade of C- or better. CHEM H2LB with a grade of C- or better.

Overlaps with CHEM H2LC.

Restriction: Chemistry majors only.

CHEM 5. Scientific Computing Skills. 4 Units.
Introduces students to the personal computing software used by chemists for managing and processing of data sets, plotting of graphs, symbolic and numerical manipulation of mathematical equations, and representing chemical reactions and chemical formulas.

Corequisite: (CHEM 1C or CHEM H2C or CHEM M3C) and (MATH 2D or MATH H2D).
Prerequisite: CHEM 1B or CHEM H2B and MATH 2B or a score of 4 or 5 on the AP CALCULUS BC.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 12. Chemistry Around Us. 4 Units.
Addresses ways in which chemistry affects everyday life. Topics include pollution, global warming, water supply/demands, biodiesel fuels, foods we eat, natural/synthetic materials, common drugs, drug design. Learn and apply basic chemistry concepts. Use risk/benefit analysis for optimal solutions.

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CHEM 51A. Organic Chemistry. 4 Units.
Fundamental concepts relating to carbon compounds with emphasis on structural theory and the nature of chemical bonding, stereochemistry, reaction mechanisms, and stereoscopic, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM M52LA or CHEM H52LA for Chemistry majors only or completion of or concurrent enrollment in CHEM 1LD for other majors.
Prerequisite: (CHEM 1C and CHEM 1LC) or (CHEM H2C and CHEM H2LC) or (CHEM M3C and CHEM M3LC). CHEM 1C and CHEM 1LC with a grade of C- or better. CHEM H2C and CHEM H2LC with a grade of C- or better. CHEM M3C and CHEM M3LC with a grade of C- or better.

Overlaps with CHEM H52A.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51B. Organic Chemistry. 4 Units.
Fundamental concepts relating to carbon compounds with emphasis on structural theory and the nature of chemical bonding, stereochemistry, reaction mechanisms, and stereoscopic, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM M52LB for Chemistry majors or CHEM H52LB or CHEM 51LB for other majors.
Prerequisite: CHEM 51A and (CHEM 1LD or CHEM M52LA or CHEM H52LA). CHEM 51A with a grade of C- or better. CHEM 1LD with a grade of C- or better. CHEM M52LA or CHEM H52LA with a grade of C- or better.

Overlaps with CHEM H52B.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51C. Organic Chemistry. 4 Units.
Fundamental concepts relating to carbon compounds with emphasis on structural theory and the nature of chemical bonding, stereochemistry, reaction mechanisms, and stereoscopic, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM M52LC for Chemistry majors or CHEM H52LC or CHEM 51LC for other majors.
Prerequisite: CHEM 51B and (CHEM 51LB or CHEM M52LB or CHEM H52LB). CHEM 51B with a grade of C- or better. CHEM 51LB with a grade of C- or better. CHEM M52LB with a grade of C- or better. CHEM H52LB with a grade of C- or better.

Overlaps with CHEM H52C.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51LB. Organic Chemistry Laboratory. 2 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-CHEM 51B-CHEM 51C. Course may be offered online. Materials fee.

Corequisite: CHEM 51B.
Prerequisite: CHEM 51A and CHEM 1LD. CHEM 51A with a grade of C- or better. CHEM 1LD with a grade of C- or better.

Overlaps with CHEM H52LA, CHEM M52LA.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51LC. Organic Chemistry Laboratory. 2 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-B-C. Course may be offered online. Materials fee.

Corequisite: CHEM 51C.
Prerequisite: CHEM 51B and CHEM 51LB. CHEM 51B with a grade of C- or better. CHEM 51LB with a grade of C- or better.

Overlaps with CHEM H52LB, CHEM M52LB.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51LD. Organic Chemistry Laboratory. 2 Units.
Modern techniques of organic chemistry using selected experiments to illustrate topics introduced in CHEM 51A-CHEM 51B-CHEM 51C. Course may be offered online. Materials fee.

Prerequisite: CHEM 51C and CHEM 51LC. CHEM 51C with a grade of C- or better. CHEM 51LC with a grade of C- or better.

Overlaps with CHEM H52LC.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM H52A. Honors Organic Chemistry. 4 Units.
Fundamental concepts of the chemistry of carbon compounds. Structural, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM H52LA.
Prerequisite: (CHEM 1A and CHEM 1B and CHEM 1C) or (CHEM H2A and CHEM H2B and CHEM H2C).

Overlaps with CHEM 51A.

CHEM H52B. Honors Organic Chemistry. 4 Units.
Fundamental concepts of the chemistry of carbon compounds. Structural, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM H52LB.
Prerequisite: CHEM H52A and CHEM H52LA. CHEM H52A with a grade of C or better. CHEM H52LA with a grade of C or better.

CHEM H52C. Honors Organic Chemistry. 4 Units.
Fundamental concepts of the chemistry of carbon compounds. Structural, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM H52LC.
Prerequisite: CHEM H52B. CHEM H52B with a grade of C or better.

Overlaps with CHEM 51C.

CHEM H52LA. Honors Organic Chemistry Laboratory. 3 Units.
Fundamental techniques of modern experimental organic chemistry. Materials fee.

Corequisite: CHEM 51A.
Prerequisite: (CHEM 1C or CHEM H2C or CHEM M3C) and (CHEM M3LC or CHEM H2LC or CHEM 1LD).

Overlaps with CHEM 51LB, CHEM M52LA.

Restriction: Campuswide Honors Program students only.

CHEM H52LB. Honors Organic Chemistry Laboratory. 3 Units.
Fundamental techniques of modern experimental organic chemistry. Materials fee.

Corequisite: CHEM 51B.
Prerequisite: CHEM 51A and CHEM H52LA. CHEM 51A with a grade of C- or better. CHEM H52LA with a grade of C- or better.

Overlaps with CHEM M52LB, CHEM 51LC.

CHEM H52LC. Honors Organic Chemistry Laboratory. 3 Units.
Fundamental techniques of modern experimental organic chemistry. Materials fee.

Corequisite: CHEM 51C.
Prerequisite: CHEM 51B and CHEM H52LB. CHEM 51B with a grade of C- or better. CHEM H52LB with a grade of C- or better.

Overlaps with CHEM 51LD, CHEM M52LC.

CHEM M52LA. Majors Organic Chemistry Laboratory. 3 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-B-C. Materials fee.

Corequisite: CHEM 51A.
Prerequisite: (CHEM 1C or CHEM H2C or CHEM M3C) and (CHEM H2LC or CHEM M3LC or CHEM 1LD).

Overlaps with CHEM H52LA, CHEM 51LB.

Restriction: Chemistry majors only.

CHEM M52LB. Majors Organic Chemistry Laboratory. 3 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-B-C. Materials fee.

Corequisite: CHEM 51B.
Prerequisite: CHEM 51A and CHEM M52LA. CHEM 51A with a grade of C- or better. CHEM M52LA with a grade of C- or better.

Overlaps with CHEM H52LB, CHEM 51LC.

Restriction: Chemistry majors only.

CHEM M52LC. Majors Organic Chemistry Laboratory. 3 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-B-C. Materials fee.

Corequisite: CHEM 51C.
Prerequisite: CHEM 51B and CHEM M52LB. CHEM 51B with a grade of C- or better. CHEM M52LB with a grade of C- or better.

Overlaps with CHEM H52LC, CHEM 51LD.

Restriction: Chemistry majors only.

CHEM H90. The Idiom and Practice of Science. 4 Units.
A series of fundamental and applied problems in the chemical sciences are addressed. Topics may include the periodic table, electronic structure of atoms, chemical bonding, molecular structure, thermodynamics, and kinetics, with applications to energy and the environment, and/or biochemistry.

Restriction: Campuswide Honors Program students only.

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CHEM 107. Inorganic Chemistry. 4 Units.
Introduction to modern inorganic chemistry. Principles of structure, bonding, and chemical reactivity with application to compounds of the main group and transition elements, including organometallic chemistry.

Prerequisite: CHEM 51C or CHEM H52C.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 107L. Inorganic Chemistry Laboratory. 3 Units.
Modern techniques of inorganic and organometallic chemistry including experience with glove box, Schlenk line, and vacuum line methods. Materials fee.

Prerequisite: CHEM 107.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 125. Advanced Organic Chemistry. 4 Units.
Rapid-paced comprehensive treatment of organic chemistry. Focuses on molecular structure, reactivity, stability, scope and mechanisms of organic reactions. Topics include: structure and bonding; theoretical organic chemistry; acidity and basicity; reactive intermediates; pericyclic reactions; stereochemistry; organic synthesis; natural products; organic photochemistry.

Prerequisite: CHEM 51C.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 127. Inorganic Chemistry II. 4 Units.
Advanced treatment of selected fundamental topics in inorganic chemistry, building on material presented in Chemistry 107. Molecular symmetry with applications to electronic structure and spectroscopy. Reaction kinetics and mechanisms; inorganic synthesis and catalysis; bioinorganic chemistry.

Prerequisite: CHEM 107.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 128. Introduction to Chemical Biology. 4 Units.
Introduction to the basic principles of chemical biology: structures and reactivity; chemical mechanisms of enzyme catalysis; chemistry of signalling, biosynthesis, and metabolic pathways.

Prerequisite: (CHEM 1A and CHEM 1B and (CHEM 1C or CHEM H2C or CHEM M3C)) and (CHEM 51A and CHEM 51B and CHEM 51C).

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 128L. Introduction to Chemical Biology Laboratory Techniques. 3 Units.
Introduction to the basic laboratory techniques of chemical biology: electrophoresis, plasmid preparation, PCR, protein expression, isolation, and kinetics. Materials fee.

Corequisite: CHEM 128.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 131A. Quantum Principles. 4 Units.
Principles of quantum chemistry with applications to nuclear motions and the electronic structure of the hydrogen atom.

Corequisite: (CHEM 5 or CBEMS 45C) and (CBEMS 45C or PHYSICS 7E).
Prerequisite: (CHEM 1C or CHEM M3C or CHEM H2C) and MATH 2D and PHYSICS 7D.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 131B. Molecular Structure and Elementary Statistical Mechanics. 4 Units.
Principles of quantum mechanics with application to the elements of atomic structure and energy levels, diatomic molecular spectroscopy and structure determination, and chemical bonding in simple molecules.

Prerequisite: CHEM 131A and (PHYSICS 7E or CBEMS 45C).

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 131C. Thermodynamics and Chemical Dynamics. 4 Units.
Energy, entropy, and the thermodynamic potentials. Chemical equilibrium. Chemical kinetics.

Prerequisite: CHEM 131B.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 137. Computational Chemistry. 4 Units.
Short introduction to programming languages and to representative algorithms employed in chemical research. Students have the opportunity to devise and employ their own codes and also to employ codes which are widely used in various fields of chemistry. Materials fee.

Corequisite: CHEM 131B.
Prerequisite: CHEM 51C and CHEM 131A.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 138. Introduction to Computational Organic Chemistry. 4 Units.
An introduction to the use of computational chemistry to investigate reaction mechanisms, to calculate structures, and to predict properties of molecules. Students have the opportunity to perform calculations employing computational methods which are widely used in various fields of chemistry. Materials fee.

Prerequisite: CHEM 51C.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 152. Advanced Analytical Chemistry. 5 Units.
In-depth treatment of modern instrumental methods for quantitative analysis of real samples and basic principles of instrument design. Laboratory experiments using spectroscopic, chromatographic, mass spectrometric, and other instrumental methods. Materials fee.

Prerequisite: (CHEM 1C or CHEM M3C) and CHEM M3LC.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 153. Physical Chemistry Laboratory. 4 Units.
Introduction to the modern experimental approaches and software tools used in spectroscopy, kinetics, electrochemistry, and other physical chemistry experiments. Basics of interfacing with instruments using LabView. Materials fee.

Corequisite: CHEM 131C.
Prerequisite: CHEM 1C OR (CHEM M3C and CHEM M3LC) and CHEM 131B.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 156. Advanced Laboratory in Chemistry and Synthesis of Materials. 4 Units.
Synthesis and characterization of organic and inorganic materials including polymers and oxides. Techniques include electron and scanning probe microscopy, gel permeation chromatography, X-ray diffraction, porosimetry, and thermal analysis. Materials fee.

Prerequisite: CHEM 131B or ENGR 54 or PHRMSCI 171.

Same as CBEMS 160.

Restriction: Chemistry majors and Materials Science Engineering majors have first consideration for enrollment.

CHEM 160. Organic Synthesis Laboratory. 4 Units.
Modern experimental techniques in organic synthesis including experience with thin-layer chromatography, liquid chromatography, and gas chromatography. Modern methods of structure elucidation including FT NMR are employed in the characterization of products. Materials fee.

Prerequisite: CHEM 51C and (CHEM 51LC or CHEM H52LC or CHEM M52LC).

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 170. Radioisotope Techniques. 4 Units.
Basic theory and practice of production, separation, safe handling, counting, applications of radioactive isotopes with emphasis on applications in chemistry, biology, and medicine. Materials fee.

Prerequisite: (CHEM 1C or CHEM M3C or CHEM H2C) and (CHEM 1LC or CHEM M3LC or CHEM H2LC).

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 177. Medicinal Chemistry. 4 Units.
An introduction of the basics of drug activity and mechanisms. Strategies used to identify lead compounds such as natural product chemistry, combinatorial chemistry, molecular modeling, and high-through put screening. Relationship of molecular structure to pharmacological activity.

Prerequisite: CHEM 51A and CHEM 51B and CHEM 51C and (BIO SCI 98 or CHEM 128).

Same as PHRMSCI 177.

Restriction: Pharmaceutical Science majors have first consideration for enrollment.

CHEM 177L. Medicinal Chemistry Laboratory. 2 Units.
An introduction of the basics of drug activity and mechanisms. Strategies used to identify lead compounds such as natural product chemistry, combinatorial chemistry, molecular modeling, and high-through put screening. Relationship of molecular structure to pharmacological activity. Materials fee.

Corequisite: PHRMSCI 177.
Prerequisite: CHEM 51A and CHEM 51B and CHEM 51C and BIO SCI 100 and (BIO SCI 98 or CHEM 128).

Same as PHRMSCI 177L.

Restriction: Pharmaceutical Science majors have first consideration for enrollment.

CHEM 177LW. Medicinal Chemistry Lab. 2 Units.
An introduction of the basics of drug activity and mechanisms. Strategies used to identify lead compounds such as natural product chemistry, combinatorial chemistry, molecular modeling, and high-through put screening. Relationship of molecular structure to pharmacological activity.

Corequisite: CHEM 177.
Prerequisite: CHEM 51A and CHEM 51B and CHEM 51C and (BIO SCI 98 or CHEM 128) and BIO SCI 100.

Same as PHRMSCI 177LW.

(Ib)

CHEM 180. Undergraduate Research. 4 Units.
Research for credit arranged with a faculty member to sponsor and supervise work. Student time commitment of 10 to 15 hours per week is expected, and a written research report is required at the end of each quarter of enrollment.

Repeatability: May be repeated for credit unlimited times.

CHEM H180A. Honors Research in Chemistry. 4 Units.
Undergraduate honors research in Chemistry. A student time commitment of 10-15 hours per week is required.

Restriction: Chemistry Honors program students and Chemistry majors participating in the Campuswide Honors Program only.

CHEM H180B. Honors Research in Chemistry. 4 Units.
Undergraduate honors research in Chemistry. A student time commitment of 10-15 hours per week is required.

Prerequisite: CHEM H180A.

Restriction: Campuswide Honors Program students only.

CHEM H180C. Honors Research in Chemistry. 4 Units.
Undergraduate honors research in Chemistry. A student time committment of 10-15 hours per week is required.

Prerequisite: CHEM H180B.

Restriction: Chemistry majors participating in the Campuswide Honors Program students only. Chemistry Honors Program students only.

CHEM H181W. Honors Seminar in Chemistry. 2 Units.
Students will receive guidance in the preparation of oral and written research presentations. A written thesis will be prepared and a formal research seminar will be presented.

Corequisite: CHEM H180C.
Prerequisite: CHEM H180A and CHEM H180B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

CHEM 191. Chemistry Outreach Program. 2 Units.
Involves intensive participation in the UCI Chemistry Outreach Program, which performs Chemistry demonstrations at local high schools.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 6 times.

CHEM 192. Tutoring in Chemistry. 2 Units.
Enrollment limited to participants in the Chemistry Peer Tutoring Program.

Repeatability: May be taken for credit 9 times.

Restriction: The first eight may be taken for a letter grade. The remaining ten units must be taken Pass/Not Pass only. NOTE: No more than eight units may be counted toward the 180 units required for graduation. Satisfies no degree requirement other than contribution to the 180-unit total.

CHEM 193. Research Methods. 4 Units.
Explores tools of inquiry for developing and implementing science research projects. Students undertake independent projects requiring data collection, analysis, and modeling, and the organization and presentation of results. Additional topics include ethical issues and role of scientific literature.

Prerequisite: BIO SCI 14 or PHY SCI 5.

Same as BIO SCI 108, PHYSICS 193.

CHEM 197. Professional Internship. 4 Units.
Internship program that provides students with opportunity to develop professional skills necessary for competitive placement in their chosen chemical inspired industry. Students gain new and field-specific skills outside the classroom while participating in a supervised internship totaling 100 hours.

Prerequisite: Enrollment requires completion of an application form. Student selection is made by a selection committee.

Restriction: Upper-division students only.

CHEM 199. Independent Study in Chemistry. 1-4 Units.
Independent research with Chemistry faculty. Student time commitment of three to four hours per week per unit is expected, and a written report on the independent study is required at the end of each quarter of enrollment.

Repeatability: Unlimited as topics vary.

CHEM 200. Conduct of Research . 2 Units.
Introduces new graduate students to ethical conduct of scientific research, mentoring, and current research in the Department of chemistry.

Repeatability: May be taken for credit 2 times.

CHEM 201. Organic Reaction Mechanisms I. 4 Units.
Advanced treatment of basic mechanistic principles of modern organic chemistry. Topics include molecular orbital theory, orbital symmetry control of organic reactions, aromaticity, carbonium ion chemistry, free radical chemistry, the chemistry of carbenes and carbanions, photochemistry, electrophilic substitutions, aromatic chemistry.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 202. Organic Reaction Mechanisms II. 4 Units.
Topics include more in-depth treatment of mechanistic concepts, kinetics, conformational analysis, computational methods, stereoelectronics, and both solution and enzymatic catalysis.

Prerequisite: CHEM 201.

CHEM 203. Organic Spectroscopy. 4 Units.
Modern methods used in structure determination of organic molecules. Topics include mass spectrometry; ultraviolet, chiroptical, infrared, and nuclear magnetic resonance spectroscopy.

Prerequisite: (CHEM 51A and CHEM 51B and CHEM 51C) or (CHEM H52A and CHEM H52B and CHEM H52C).

Restriction: Graduate students only.

CHEM 204. Organic Synthesis I. 4 Units.
Fundamentals of modern synthetic organic chemistry will be developed. Major emphasis is on carbon-carbon bond forming methodology. Topics include carbonyl annelations, cycloadditions, sigmatropic rearrangements, and organometallic methods.

Corequisite: CHEM 202.

CHEM 205. Organic Synthesis II. 4 Units.
Fundamentals of modern synthetic organic chemistry will be developed. Major emphasis this quarter is on natural product total synthesis and retrosynthetic (antithetic) analysis.

Prerequisite: CHEM 204.

CHEM 206. Laboratory Skills. 4-6 Units.
Introduces students to a variety of practical laboratory techniques, including lock-in, boxcar, coincidence counting, noise filtering, PID control, properties of common transducers, computer interfacing to instruments, vacuum technology, laboratory safety, basic mechanical design, and shop skills. Materials fee.

Same as PHYSICS 206.

Concurrent with PHYSICS 106.

CHEM 207. Chemistry for Physicists. 4 Units.
Introduction to fundamental concepts in molecular structure and reactivity: theory of bonding, valence and molecular orbitals; structure and reactivity in inorganic chemistry; elements in molecular group theory; nomenclature in organic chemistry; and survey of macromolecules.

Same as PHYSICS 207.

CHEM 208. Mathematics for Chemists. 4 Units.
Applications of mathematics to physical and chemical problems. Calculus of special functions, complex variables and vectors; linear vector spaces and eigenvalue problems. Differential equations.

Same as PHYSICS 208.

CHEM 209. Physics for Chemists. 4 Units.
An introduction to concepts of electrodynamics with special emphasis on applications to chemistry: vector analysis, electrostatics, magnetostatics, electrodynamics, electromagnetic waves, classical radiation theory, special relativity.

CHEM 213. Chemical Kinetics. 4 Units.
Surveys gas phase and organic reaction mechanisms and their relationship to kinetic rate laws; treats the basic theory of elementary reaction rates. A brief presentation of modern cross-sectional kinetics is included.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 215. Inorganic Chemistry I. 4 Units.
Principles of modern inorganic chemistry with applications to chemical systems of current interest. Inorganic phenomena are organized into general patterns which rationalize observed structures, stabilities, and physical properties.

Prerequisite: CHEM 107 and (CHEM 131A and CHEM 131B and CHEM 131C).

Restriction: Graduate students only.

CHEM 216. Organometallic Chemistry. 4 Units.
Synthesis and reactivity of organometallic complexes with an emphasis on mechanisms. Topics include bonding and fluxional properties; metal-carbon single and multiple bonds; metal š-complexes. Applications to homogenous catalysis and organic synthesis are incorporated throughout the course.

Prerequisite: CHEM 107 or CHEM 215.

CHEM 217. Physical Inorganic Chemistry. 4 Units.
General principles of the spectroscopy and magnetism of inorganic compounds. Characterization of inorganic complexes by infrared, near-infrared, visible, ultraviolet, NMR, EPR, EXAFS, and Mossbauer spectroscopies. Some necessary group theory developed.

Prerequisite: CHEM 215.

CHEM 218. Metallobiochemistry. 4 Units.
A review of the biochemistry of metallic elements emphasizing: methods for studying metals in biological systems; the chemical basis for nature's exploitation of specific elements; structures of active sites; mechanisms; solid-state structures and devices; metals in medicine.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 219. Chemical Biology. 4 Units.
A survey of the organic chemistry underlying biological function. Introduction to chemical genetics, receptor-ligand interactions, small molecule agonists and antagonists, combinatorial synthesis, high throughput assays, molecular evolution, protein and small molecule design.

Restriction: Graduate students only.

CHEM 220. Bioorganic Chemistry. 4 Units.
Structure and function of biologically important macromolecules. Introduction to nucleic acid, protein structure, principles of molecular recognition, enzyme function, modelling, and engineering.

Prerequisite: (CHEM 51A and CHEM 51B and CHEM 51C).

CHEM 221A. Fundamentals of Molecular Biophysics. 4 Units.
An overview of the principles and concepts in molecular biophysics. Topics covered include energy and entropy in biology, non-equilibrium reaction kinetics, random walks and molecular diffusion, molecular forces in biology.

Prerequisite: Undergraduate courses in physical chemistry and biochemistry.

Repeatability: May be taken for credit 3 times.

CHEM 223. Biological Macromolecules. 4 Units.
Introduction to nucleic acid and protein structure, dynamics, and function. Topics include analytical methods, molecular evolution, folding, and catalysis.

Same as PHRMSCI 223.

CHEM 224. Molecular and Cellular Biophotonics. 4 Units.
Principles underlying the application of photonic technologies to biomolecular and cellular systems. Sample technologies Optical Tweezers, Linear and Nonlinear Optical Microscopy and Fluorescence Lifetime and Correlation Methods and their use to investigate emergent problems in Molecular, Cellular, and Developmental Biology.

(Design units: 0)

Same as CBEMS 224.

Restriction: Graduate students only.

CHEM 225. Polymer Chemistry: Synthesis and Characterization of Polymers. 4 Units.
Structure of synthetic and natural polymers. Survey of modern polymer synthetic methods. Molecular weight and molecular weight distribution. Chain conformation and stereochemistry. Introduction to polymer characterization, chain models, and solution behavior.

Prerequisite: Undergraduate courses in organic and physical chemistry.

CHEM 228. Electromagnetism. 4 Units.
Maxwell’s equations, electrodynamics, electromagnetic waves and radiation, wave propagation in media, interference and quantum optics, coherent and incoherent radiation, with practical applications in interferometry, lasers, waveguides, and optical instrumentation.

Same as PHYSICS 228.

CHEM 229A. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Same as PHYSICS 229A.

Concurrent with PHYSICS 100.

CHEM 229B. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Same as PHYSICS 229B.

CHEM 230. Classical Mechanics and Electromagnetic Theory. 4 Units.
Fundamentals of classical mechanics and electromagnetic theory are developed with specific application to molecular systems. Newtonian, Lagrangian, and Hamiltonian mechanics are developed. Boundary value problems in electrostatics are investigated. Multipole expansion and macroscopic media are discussed from a molecular viewpoint.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 231A. Fundamentals of Quantum Mechanics. 4 Units.
The postulates of quantum mechanics are discussed and applied to a variety of model problems.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 231B. Applications of Quantum Mechanics. 4 Units.
Approximate methods for solving atomic and molecular structure problems are developed, and the application of quantum mechanics to spectroscopy is introduced.

Prerequisite: CHEM 231A.

CHEM 231C. Molecular Spectroscopy. 4 Units.
Theory and techniques of spectroscopy as used for the study of molecular and condensed phase properties. Coherent time domain spectroscopies are covered.

Prerequisite: CHEM 231B.

CHEM 232A. Thermodynamics and Introduction to Statistical Mechanics. 4 Units.
A detailed discussion from an advanced point of view of the principles of classical thermodynamics. The fundamentals of statistical mechanics. Topics include an introduction to ensemble theory, Boltzmann statistics, classical statistical mechanics, and the statistical mechanics of ideal gas systems.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 232B. Advanced Topics in Statistical Mechanics. 4 Units.
Continued discussion of the principles of statistical mechanics. Applications to topics of chemical interest including imperfect gases, liquids, solutions, and crystals. Modern techniques such as the use of autocorrelation function methods.

Prerequisite: CHEM 232A.

CHEM 232C. Non-Equilibrium Statistical Mechanics. 4 Units.
Phenomenology of material processes, including: kinetic theories of transport and continuum, linear response theory, critical phenomena of phase transition, self-assembly, and nucleation.

CHEM 233. Nuclear and Radiochemistry. 4 Units.
Advanced treatment of nuclear structure, nuclear reactions, and radioactive-decay processes. Introduction to nuclear activation analysis, isotope effects, radiation chemistry, hot-atom chemistry, nuclear age-dating methods, nuclear reactors, and nuclear power.

Same as CBEMS 233.

Concurrent with CBEMS 133.

CHEM 234. Advanced Chemical Kinetics. 4 Units.
Topics and format vary.

Prerequisite: CHEM 213.

Repeatability: Unlimited as topics vary.

CHEM 235. Molecular Quantum Mechanics. 4 Units.
Application of quantum mechanics to calculation of molecular properties. Electronic structure of molecules.

Prerequisite: CHEM 231A.

CHEM 236. Forces Between Molecules. 4 Units.
The nature and effects of non-covalent interactions between molecular systems. The focus is on properties of these interactions in condensed phases: macromolecular systems; particle-surface interactions.

CHEM 237. Mathematical Methods in Chemistry. 4 Units.
Survey of essential math methods in chemistry. Topics may include series and limits, complex analysis, Fourier and Laplace transforms, linear algebra and operators (theory and algorithms), differential equations, and probability concepts for stochastic processes.

CHEM 241. Current Issues Related to Tropospheric and Stratosheric Processes. 4 Units.
Examination of current issues related to the atmosphere, including energy usage; toxicology; effects on humans, forests, plants, and ecosystems; particulate matter (PM10); combustion; modeling and meteorology; airborne toxic chemicals and risk assessment; application of science to development of public policies.

Prerequisite: ENGRMAE 164 or ENGRMAE 261 or CHEM 245 or EARTHSS 240.

Same as ENGRMAE 260.

CHEM 242A. Physical and Geometrical Optics. 4 Units.
Focuses on the practical aspects of optics and optical engineering, starting at the fundamentals. Topics include geometrical optics, ray tracing, polarization optics, interferometers, and diffractive optics.

Same as CBEMS 242A.

Restriction: Graduate students only.

Concurrent with PHYSICS 134A.

CHEM 242B. Applied Optics. 4 Units.
Focuses on the treatment of a wide variety of tools and techniques used in optics, particularly in research. Subjects include an introduction to lasers, optical detection, coherent optics, spectroscopic techniques, and selected topics corresponding to the interest of the students.

Prerequisite: CHEM 242A.

Same as CBEMS 242B.

CHEM 243. Advanced Instrumental Analysis. 4 Units.
Theory and applications of modern advanced instrumental methods of analysis. Includes data acquisition, storage, retrieval and analysis; Fourier transform methods; vacuum technologies; magnetic sector; quadrupole and ion trap mass spectrometry; surface science spectroscopic methods; lasers and optics.

Prerequisite: CHEM 152 and (CHEM 131A and CHEM 131B and CHEM 131C).

CHEM 245. Atmospheric Chemistry of the Natural and Polluted Troposphere. 4 Units.
Kinetics, mechanisms and photochemistry of tropospheric reactions in the gas, liquid, and solid phases, and methods of analysis. Chemistry of photochemical oxidant formation and acid deposition, and applications to control strategies. Chemistry of toxic chemicals and indoor air pollution.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 246. Separations and Chromatography. 4 Units.
Introduction to modern separation techniques such as gas chromatography, high-performance liquid chromatography, supercritical fluid chromatography, capillary electrophoresis, and field flow fractionation. Applications of these separation strategies are discussed.

CHEM 247. Current Problems in Analytical Chemistry. 4 Units.
Surveys current research challenges in analytical chemistry. Topics include electrochemistry, chromatography, spectroscopy, and mass spectrometry.

CHEM 248. Electrochemistry. 4 Units.
Fundamentals of electrochemistry including thermodynamics and the electrochemical potential, charge transfer kinetics, and mass transfer. Methods based on controlled potential and controlled current are described; the effects of slow heterogeneous kinetics and the perturbation caused by homogeneous chemistry are discussed.

CHEM 249. Analytical Spectroscopy. 4 Units.
Advanced treatment of spectroscopic techniques and instrumentation. Atomic and molecular absorption, emission, and scattering processes and their application to quantitative chemical analysis are outlined. Puts different spectroscopic techniques in perspective and demonstrates most appropriate applications to analytical problems.

CHEM 251. Special Topics in Organic Chemistry. 1-4 Units.
Advanced topics in organic chemistry.

Repeatability: Unlimited as topics vary.

CHEM 252. Special Topics in Physical Chemistry. 1-4 Units.
Advanced topics in physical chemistry. Materials fee.

Repeatability: Unlimited as topics vary.

CHEM 253. Special Topics in Inorganic Chemistry. 4 Units.
Advanced topics in inorganic chemistry.

Prerequisite: CHEM 215.

Repeatability: Unlimited as topics vary.

CHEM 254. Special Topics in Computational and Theoretical Chemistry. 4 Units.
Subjects covered vary from year to year.

Repeatability: Unlimited as topics vary.

CHEM 263. Materials Chemistry . 4 Units.
An introduction to crystalline solids, descriptive crystal chemistry, solid-state synthesis and characterization techniques, x-ray and electron diffraction, phase diagrams, electronic band structure of extended solids, semi conductors, and nanoscale inorganic materials.

CHEM 266. Current Topics in Chemical and Materials Physics. 1 Unit.
The subjects covered vary from year to year. Connection between fundamental principles and implementations in practice in science, industry, and technology.

Repeatability: May be repeated for credit unlimited times.

Same as PHYSICS 266.

CHEM 271. Structural X-Ray Cystallography. 4 Units.
The principles and practice of the determination of structures by single crystal X-Ray diffraction techniques. Crystal symmetry, diffraction, structure solution and refinement. Opportunities for hands-on experience in structure determination.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 272. Industrial Chemistry. 4 Units.
Scientific, economic environmental aspects of the top 50 industrially produced chemicals, including: how they are obtained, and used; present and future sources of energy and raw materials, and the effects of chemical manufacturing on the price structure of our economy.

CHEM 273. Technical Communication Skills. 2 Units.
Development of effective communication skills, oral and written presentations, through examples and practice.

Grading Option: Satisfactory/unsatisfactory only.

Same as PHYSICS 273.

CHEM 280. Research. 2-12 Units.
Supervised original research toward the preparation of a Ph.D dissertation or M.S. thesis.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CHEM 290. Seminar. 1 Unit.
Weekly seminars and discussions on general and varied topics of current interest in chemistry.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CHEM 291. Research Seminar. 4 Units.
Detailed discussion of research problems of current interest in the Department. Format, content, and frequency of the course are variable.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

CHEM 292. Graduate Symposium. 2 Units.
Students present public seminars on literature-based research topics in contemporary chemistry. Topics to be chosen by student and approved by instructor.

Repeatability: May be repeated for credit unlimited times.

CHEM 299. Independent Study. 1-4 Units.
Independent research with Chemistry faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CHEM 399. University Teaching. 1-4 Units.
Required of and limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Earth System Science Courses

EARTHSS 1. Introduction to Earth System Science. 4 Units.
Covers the origin and evolution of the Earth, its atmosphere, and oceans, from the perspective of biogeochemical cycles, energy use, and human impacts on the Earth system.

(II, Va)

EARTHSS 3. Oceanography. 4 Units.
Examines circulation of the world oceans and ocean chemistry as it relates to river, hydrothermal vent, and atmospheric inputs. Geological features, the wide variety of biological organisms, and global climate changes, such as greenhouse warming, are also studied.

(II, Va)

EARTHSS 5. The Atmosphere. 4 Units.
The composition and circulation of the atmosphere with a focus on explaining the fundamentals of weather and climate. Topics include solar and terrestrial radiation, clouds, and weather patterns.

(II, Va)

EARTHSS 7. Physical Geology. 4 Units.
Introduction to Earth materials and processes. Topics include rocks and minerals, plate tectonics, volcanoes, earthquakes, Earth surface processes, Earth resources, geologic time, and Earth history. Laboratory work involves hands-on study of geologic materials, maps, and exercises pertaining to geologic processes. Materials fee.

(II, Va)

EARTHSS 11. Climate Change and Policy. 4 Units.
Develops an understanding of the physical basis behind global climate change; examines how human activities cause it, looks to future rates and impacts of global warming, and reviews the international conventions, protocols, and scientific assessments of climate change.

(II)

EARTHSS 13. Global-Change Biology. 4 Units.
Addresses ways in which humans are altering the global environment, with consequences for the ecology of animals, plants, and microbes. Discussion on how these biologically oriented questions relate to human society, politics, and the economy.

Same as BIO SCI 9K.

(II)

EARTHSS 15. Introduction to Global Climate Change. 4 Units.
Introduction of scientific, technological, environmental, economic, and social aspects underlying the threat and understanding of global climate change. Human and natural drivers of climate. Impacts of climate on natural, managed, and human systems, including their vulnerability and ability to adapt.

(II and (VA or VIII)).

EARTHSS 17. Hurricanes, Tsunamis, and other Catastrophes. 4 Units.
Introduction to the basic science and state of predictability of various natural catastrophic events including earthquakes, volcanic eruptions, tsunamis, landslides, floods, hurricanes, fires, and asteroid impacts and their interactions and implications with human society in the U.S. and globally.

(II and (VA or VIII)).

EARTHSS 19. Introduction to Modeling the Earth System. 4 Units.
Simulate the Earth's system using computer models. Covers the interaction of the air, land, and ocean, and explores how changes to one part of the environment affect the complete Earth system. Utilizes technological tools to understand scientific principles.

(II, Vb)

EARTHSS 21. On Thin Ice: Climate Change and the Cryosphere. 4 Units.
Introduction of the basic science that governs the cryosphere and its interaction with the climate system. Covers some of the significant economic, sociological, and political consequences of the recent melting of the cryosphere driven by anthropogenic climate change.

(II and (VA or VIII)).

EARTHSS 23. Air Pollution: From Urban Smog to Global Change . 4 Units.
Air pollution occurs on regional to global scales. A wide range of air pollution sources and physical, chemical, and meteorological sciences behind air pollution are introduced. The consequences of air pollution to our society are also discussed.

(II and (VA or VIII)).

EARTHSS 51. Land Interactions. 4 Units.
The role of terrestrial processes in the Earth system. Provides an introduction to ecosystem processes that regulate the cycling of energy, water, carbon, and nutrients. Analysis of the impact of human activities.

Prerequisite: CHEM 1C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 53. Ocean Biogeochemistry. 4 Units.
Overview of oceanography for those interested in earth system science. Focus is on physical, chemical, and biological processes that drive biogeochemical cycling in the oceans. Coastal systems also reviewed, with emphasis on California waters.

Prerequisite: CHEM 1C. Prerequisite or corequisite: MATH 2B or AP Calculus BC exam with a minimum score of 4.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 55. Earth's Atmosphere. 4 Units.
Composition, physics, and circulation of Earth's atmosphere with an emphasis on explaining the role of atmospheric processes in shaping the climate system. Topics include: atmospheric composition, the global energy balance, radiative transfer and climate, atmospheric circulation and climate sensitivity.

Corequisite: PHYSICS 3B or PHYSICS 7C.
Prerequisite: MATH 2B or a score of 4 or higher on the AP Calculus BC exam.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 60A. Fundamental Processes in Earth and Environmental Studies. 4 Units.
An introduction to the physical environment, biological systems, and human-environment interactions. Explores physical principles such as fluid transport and reaction rates using environmental examples as well as principles of populations, ecosystems, carrying capacity, and sustainable use of resources.

Corequisite: EARTHSS 1 or UNI STU 13A.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 60B. Local and Regional Environmental Issues. 4 Units.
An introduction to common environmental issues using case studies from Orange County and California. Studies natural hazards as well as human-caused problems with air quality, water quality, coastal pollution, ecosystem degradation, and urban climate.

Prerequisite: EARTHSS 60A and (CHEM 1B or CHEM H2B).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 60C. Global Environmental Issues. 4 Units.
An overview of global environmental changes including climate change, sea level rise, biodiversity loss, land and ocean degradation, and resource depletion. Discusses scientific, cultural, historical, and policy dimensions of these issues as well as possible solutions.

Prerequisite: EARTHSS 60A and (CHEM 1B or CHEM H2B).

EARTHSS H90. The Idiom and Practice of Science. 4 Units.
A series of fundamental and applied scientific problems are addressed, illustrating the pervasive role of mathematical analysis. Topics may include energy utilization, the climate system, the "greenhouse effect," zone depletion and air pollution, ecological consequences of water pollution, nutrient cycles.

Restriction: Campuswide Honors Program students only.

(II, Va)

EARTHSS 101. Paleoclimatology. 4 Units.
Explores past changes in Earth's climate. Topics include tools and techniques used to reconstruct past climate from natural archives; records and mechanisms of past climate changes throughout Earth history; and lessons learned from the paleo-record for predication of future climate.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or (EARTHSS 51 and EARTHSS 53 and EARTHSS 55).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 110. Environmental Controversies. 4 Units.
Examines the roles and strategies of advocacy groups, scientists, lobbyists, celebrities, pundits, politicians, and other opinion-makers in creating and shaping public opinion on controversial environmental issues. Use and misuse of science to influence public opinion is elicited.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or EARTHSS 51 or EARTHSS 53 or EARTHSS 55.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 112. Global Climate Change and Impacts. 4 Units.
Observations over the 20th century show extensive changes in atmospheric composition, climate and weather, and biological systems that have paralleled industrial growth. Evidence of globally driven changes in these biogeochemical systems is studied, including projected impacts over the 21st century.

Prerequisite: (EARTHSS 51 and EARTHSS 53 and EARTHSS 55) or (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 222.

EARTHSS 114. Earth System Science Laboratory and Field Methods. 4 Units.
Introduction to methods used to measure exchange of gases and energy between the atmosphere and terrestrial ecosystems. Laboratories include data acquisition and isotopic and chromatographic analysis. Field measurements at UCI's Marsh Reserve include microclimate, hydrology, trace-gas exchange, and plant growth.

Prerequisite: EARTHSS 51 or EARTHSS 60A.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 116. Data Analysis for Earth Sciences. 4 Units.
Analysis and interpretation of geophysical data, including functional fitting, probability density functions, and multidimensional time-series methods, with applications in atmospheric, oceanic, and biogeochemical sciences.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 118. Advanced Data Analysis and Modeling. 4 Units.
Covers advanced data analysis and modeling techniques for applications within Earth system science. These applications will come from variety of Earth science (writ large) problems. Students will gain programming proficiency by implementing computational methods in MATLAB.

Prerequisite: EARTHSS 116 and (MATH 2B or AP Calculus BC exam with a minimum score of 4).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 122. Atmospheric Dynamics. 4 Units.
Fluid dynamical processes that determine the large-scale flow of the atmosphere and ocean. Most important are interactions between the density stratification and the Coriolis force associated with Earth's rotation. Topics include circulation, vorticity, planetary waves and their role in climate.

Prerequisite: EARTHSS 55 and MATH 2D and PHYSICS 7C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 124. Weather Analysis. 4 Units.
Provides an overview of weather systems in midlatitudes and tropics. The fundamental dynamics possible for these weather systems are described. Elementary weather analysis and forecasting techniques are introduced.

Prerequisite: EARTHSS 55 or EARTHSS 60A.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 130. Physical Oceanography. 4 Units.
Physical processes that determine the distribution of water properties such as salt and temperature. Fluid-dynamical underpinnings of physical oceanography. Wave motions. The wind-driven and thermohaline circulation. Similarities and differences between ocean and atmosphere dynamics.

Prerequisite: MATH 2D and PHYSICS 7C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 132. Terrestrial Hydrology. 4 Units.
Comprehensive treatment of modern conceptual and methodological approaches to hydrological science. Combines qualitative understanding of hydrological processes with quantitative representation, approaches to measurement, and treatment of uncertainty. Components of the hydrological cycle and their linkages within the coupled Earth system.

Prerequisite: EARTHSS 60A or EARTHSS 51.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 232

EARTHSS 134. Fundamentals of GIS for Environmental Sciences. 4 Units.
Introduction to Geographic Information Systems (GIS). Topics include fundamentals of cartography, creating/editing GIS data, linking spatial and tabular data, georeferencing, map projections, geospatial analysis, spatial statistics and the development of GIS models. Examples from hydrology, ecology, and geology.

Prerequisite: EARTHSS 60A or EARTHSS 60C or EARTHSS 51 or EARTHSS 53.

Overlaps with CRM/LAW C148.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 138. Satellite Remote Sensing for Earth System Science. 4 Units.
Satellite remote sensing data are increasingly used to study the Earth system. Provides an overview of the principles behind remote sensing, and the types of satellite data available for study of the oceans, land, and atmosphere.

Prerequisite: EARTHSS 51 or EARTHSS 53 or EARTHSS 60A or EARTHSS 60C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 238.

EARTHSS 140. Advanced Geology. 4 Units.
Introduces students to the geological processes which have formed and continue to shape the Earth. Topics will include geological time, minerals and the rock cycle, plate tectonics and associated geological hazards, earth resources, and earth surface processes.

Prerequisite: EARTHSS 51 or EARTHSS 60A.

Overlaps with EARTHSS 7.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 142. Atmospheric Chemistry. 4 Units.
Chemistry of the troposphere and stratosphere. Topics include: processes controlling the lifetime and reaction pathways of chemicals in the atmosphere, the role of the atmosphere in biogeochemical cycles, and interactions between atmospheric chemistry and the physical climate system.

Prerequisite: (CHEM 1C or CHEM H2C) and (MATH 2B or AP Calculus BC exam with a minimum score of 4).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 144. Marine Geochemistry and Biogeochemistry. 4 Units.
Processes controlling the major and minor element composition of seawater and element distributions in the ocean. Gas exchange, carbon dioxide system, stable isotopes, radionuclides as tracers and chronometers, particle fluxes, organic geochemistry, sediment geochemistry, global cycles of biogeochemically important elements.

Prerequisite: (EARTHSS 53 or EARTHSS 60A) and EARTHSS 60C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 146. Consequences of Air Pollution. 4 Units.
From public health to the global climate system this course will explore the impacts of air pollution from the beginning of human history to current and emerging issues. Scientific concepts behind air pollution and solutions will be discussed.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or (EARTHSS 51 and EARTHSS 53 and EARTHSS 55).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 148. Marine Ecosystems and Global Change. 4 Units.
Presents an overview of marine ecosystem structure, diversity, and processes in the context of global change, including the impacts of climate warming, ocean acidification, marine fisheries, and anthropogenic additions of nutrients and pollutants.

Prerequisite: EARTHSS 53 or (EARTHSS 60A and EARTHSS 60C).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 248.

EARTHSS 150. Laboratory Methods in Earth Systems Science. 4 Units.
Introduction to analytical methods used in Earth science research. Lectures cover theory and applications of each method. Laboratories cover sample preparation, experimental design, standardization and calibration, operation of analytical instruments (mass spectrometers, gas chromatographs, and spectrophotometers), and analysis of data.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 250.

EARTHSS 164. Ecosystem Ecology. 4 Units.
A mechanistic perspective on ecosystem processes. Covers ecosystem development, element cycling, and interactions with plants and microbes. The role of ecosystems in environmental change is also addressed.

Prerequisite: CHEM 51C.

Same as BIO SCI E118.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 264.

EARTHSS 168. Physiological Plant Ecology. 4 Units.
An examination of the interactions between plants and their environment. Emphasis on the underlying physiological mechanisms of plant function, adaptations and responses to stress, and the basis of the distribution of plants and plant assemblages across the landscape.

Prerequisite: (EARTHSS 51) or (EARTHSS 60A and EARTHSS 60C) or (BIO SCI E106).

Same as BIO SCI E127.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 170. Environmental Microbiology. 4 Units.
Establishes a fundamental understanding of microbes living in the environment, including their distribution, diversity, and biochemistry, and discusses how they attribute to global biogeochemical cycles.

Prerequisite: (EARTHSS 53) or (EARTHSS 60A and EARTHSS 60C) or (BIO SCI E106 and BIO SCI M122).

Same as BIO SCI E163.

Concurrent with EARTHSS 270.

EARTHSS 172. Science Communication and Outreach. 2 Units.
Students learn and practice effective science communication skills useful in public and educational outreach. Topics include research explication, language scaffolding, educational psychology, oral presentation techniques, K-12 science standards, and effective writing styles for op-eds, blogs, and Web sites.

Prerequisite: EARTHSS 51 or EARTHSS 60A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 272.

EARTHSS 174. Ice in the Climate System. 4 Units.
Examines the major components of the Earth's cryosphere. Characteristics, volume, extent, remote sensing observations, long-term trends, mass balance, key physical processes, relevance and importance to the climate system, responses and feedbacks, future evolution, and key uncertainties will be discussed.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or (EARTHSS 51 and EARTHSS 53 and EARTHSS 55).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 274.

EARTHSS 178. Solving the Energy-Carbon-Climate Problem. 4 Units.
Why is climate change such a difficult problem? What can we do about it? The course will introduce the global politics of energy and climate, assess options for decreasing energy demand, generating low-carbon energy, sequestering carbon, geoengineering, and adaptation.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or (EARTHSS 51 and EARTHSS 53 and EARTHSS 55).

Restriction: Earth System Science majors and Environmental Science majors have first consideration for enrollment.

EARTHSS 180. Environmental Sustainability I. 4 Units.
Provides an introduction to sustainability from different points of view; historical, scientific, political, ethical, and economic.

Same as PP&D 131.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

EARTHSS 182. Environmental Sustainability II. 4 Units.
Investigates how sustainability can be implemented in a variety of contexts including water, energy, non-renewable resources, biodiversity, and urban policy, and also how it could be measured.

Same as PP&D 132.

Restriction: Urban Studies, Social Ecology, Earth System Science, and Environmental Science majors have first consideration for enrollment.

EARTHSS 190A. Senior Seminar on Global Sustainability I. 2 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze forum presentations. Prepare bibliography.

Prerequisite: BIO SCI 65 and ENVIRON E20 and EARTHSS 10.

Grading Option: In progress only.

Same as BIO SCI 191A, SOCECOL 186A.

Restriction: Seniors only.

EARTHSS 190B. Senior Seminar on Global Sustainability II. 2 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze forum presentations. Prepare research proposal.

Prerequisite: BIO SCI 191A or SOCECOL 186A or EARTHSS 190A.

Grading Option: In progress only.

Same as BIO SCI 191B, SOCECOL 186B.

Restriction: Seniors only.

EARTHSS 190CW. Writing/Senior Seminar on Global Sustainability III. 4 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze Forum presentations and to prepare senior research paper. Prepare/write research paper under direction of faculty member.

Prerequisite: BIO SCI 191B or EARTHSS 190B or SOCECOL 186B. Satisfactory completion of the Lower-Division Writing requirement.

Same as BIO SCI 191CW, SOCECOL 186CW.

Restriction: Seniors only.

(Ib)

EARTHSS 191. Title Introduction to Research in Earth System Science. 1 Unit.
Weekly presentations by Earth System Science faculty describing ongoing research in their laboratories. The goals are to introduce students to the range of research topics and methods in Earth System Science and to the research opportunities available within the Department.

Grading Option: Pass/no pass only.

Restriction: Upper-division students only. Earth System Science and Environmental Science majors have first consideration for enrollment. Earth and Atmospheric Sciences minors have first consideration for enrollment.

EARTHSS 192. Careers in Earth System Science. 1 Unit.
A weekly seminar course designed to help students transition to post-graduation career paths. Topics include designing effective resumes, applying to graduate school, and seeking employment. Also includes presentations by faculty, business, and government leaders describing potential environmental science career trajectories.

Grading Option: Pass/no pass only.

Restriction: Seniors only. Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 197. Independent Study in Earth System Science. 1-4 Units.
Field study, educational outreach, or other independent projects under faculty direction. Interested students should arrange with an ESS faculty member to supervise and support an independent study project. A written summary is required at the end of each quarter.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 12 units.

EARTHSS 198W. Senior Thesis in Earth System Science. 4 Units.
Students receive guidance on the effective oral and written communication of research results. Students prepare and present a seminar, a poster, and a written thesis describing their research in Earth System Science.

Prerequisite: Two quarters of EARTHSS 199. Satisfactory completion of the Lower-Division Writing requirement.

Overlaps with EARTHSS H198.

(Ib)

EARTHSS H198. Honors Thesis in Earth System Science. 4 Units.
Students receive guidance on effective written and oral communication of research results. Students prepare and present a seminar, poster, and written thesis describing their honors research in Earth System Science. Submission of the thesis and successful completion of this course will also satisfy the UCI upper-division writing requirement.

Prerequisite: EARTHSS 199A and EARTHSS 199B

Restriction: Consent of instructor to enroll and Prerequisite required

(Ib)

EARTHSS 199. Undergraduate Research. 1-4 Units.
For junior and senior undergraduates, preferably with majors in science or engineering. Interested students should arrange with an ESS faculty member to supervise and support a research project. A written summary is required at the end of each quarter.

Repeatability: May be taken for credit for 12 units.

Restriction: Juniors and Seniors only.

EARTHSS H199A. Honors Research in Earth System Science. 4 Units.
Undergraduate honors research in Earth System Science. A student commitment of 10-15 hours a week is expected, and a written report is required at the end of the quarter.

Restriction: Earth System Science Honors Program students only. Earth System Science majors only. Campuswide Honors Program students only.

EARTHSS H199B. Honors Research in Earth System Science. 4 Units.
Undergraduate honors research in Earth System Science. A student commitment of 10-15 hours a week is expected, and a written report is required at the end of the quarter.

Restriction: Earth System Science Honors Program students only. Earth System Science majors only. Campuswide Honors Program students only.

EARTHSS H199C. Honors Research in Earth System Science. 4 Units.
Undergraduate honors research in Earth System Science. A student commitment of 10-15 hours a week is expected, and a written report is required at the end of the quarter.

Restriction: Earth System Science Honors Program students only. Earth System Science majors only. Campuswide Honors Program students only.

EARTHSS 200. Global Physical Climatology. 4 Units.
A descriptive overview of Earth’s climate system and energy budget. Large-scale circulations, key physical processes, and climate sensitivity of the atmosphere, ocean, land surface, and cryosphere.

Restriction: Graduate students only.

EARTHSS 202. Climate Change. 4 Units.
Explores past, present, and projected changes in Earth's climate. Topics include paleoclimate records and mechanisms of natural climate variability at a range of timescales (orbital to seasonal); General Circulation Models; and IPCC observations and projections of future climate change.

Restriction: Graduate students only.

EARTHSS 212. Geoscience Modeling and Data Analysis. 4 Units.
Computer-based course. Fundamental statistical techniques needed to analyze Earth system data and models. Basic numerical techniques to solve Earth system models. Focuses on linear and non-linear ordinary differential equations, as well as simple partial differential equations.

Restriction: Graduate students only.

EARTHSS 222. Global Climate Change and Impacts. 4 Units.
Observations over the 20th century show extensive changes in atmospheric composition, climate and weather, and biological systems that have paralleled industrial growth. Evidence of globally driven changes in these biogeochemical systems is studied, including projected impacts over the 21st century.

Concurrent with EARTHSS 112.

EARTHSS 224. Ocean Processes. 4 Units.
Introduction to the physics, chemistry, and biology of the oceans. Offers a mechanistic perspective of the structure and functioning of marine ecosystems, nutrient cycles, and role of ecosystem dynamics in local and global biogeochemistry.

Restriction: Graduate students only.

EARTHSS 226. Land Surface Processes. 4 Units.
Introduction to the physics, chemistry, and biology of the oceans. Offers a mechanistic perspective of the structure and functioning of marine ecosystems, nutrient cycles, and role of ecosystem dynamics in local and global biogeochemistry.

Restriction: Graduate students only.

EARTHSS 228. Geophysical Fluid Dynamics. 4 Units.
Introduces fluid dynamical processes that determine the large-scale flow of the atmosphere and ocean, with particular emphasis on the interactions between the stable density stratification and the Coriolis force associated with Earth's rotation.

Restriction: Graduate students only.

EARTHSS 232. Terrestrial Hydrology. 4 Units.
Comprehensive treatment of modern conceptual and methodological approaches to hydrological science. Combines qualitative understanding of hydrological processes with quantitative representation, approaches to measurement, and treatment of uncertainty. Components of the hydrological cycle and their linkages within the coupled Earth system.

Prerequisite: EARTHSS 60A or EARTHSS 51.

Concurrent with EARTHSS 132

EARTHSS 236. Radiative Processes and Remote Sensing. 4 Units.
Solar and terrestrial radiation and Earth system interaction. Radiative transfer theory. Principles, applications of remote sensing of environment. Planck's law, radiative transfer equation, radiative properties of trace gasses and aerosols, remote sensing techniques, global trends in radiative forcing.

Prerequisite: MATH 2D and PHYSICS 7D.

EARTHSS 238. Satellite Remote Sensing for Earth System Science. 4 Units.
Satellite remote sensing data are increasingly used to study the Earth system. Provides an overview of the principles behind remote sensing, and the types of satellite data available for study of the oceans, land, and atmosphere.

Concurrent with EARTHSS 138.

EARTHSS 240. Atmospheric Chemistry and Physics. 4 Units.
Examines the physical/chemical processes which determine the structure and composition of Earth's atmosphere and its role in the climate system.

Restriction: Graduate students only.

EARTHSS 248. Marine Ecosystems and Global Change. 4 Units.
Presents an overview of marine ecosystem structure, diversity, and processes in the context of global change, including the impacts of climate warming, ocean acidification, marine fisheries, and anthropogenic additions of nutrients and pollutants.

Prerequisite: EARTHSS 224.

Restriction: Graduate students only.

Concurrent with EARTHSS 148.

EARTHSS 250. Laboratory Methods in Earth System Science. 4 Units.
Introduction to analytical methods used in Earth science research. Lectures cover theory and applications of each method. Laboratories cover sample preparation, experimental design, standardization and calibration, operation of analytical instruments (mass spectrometers, gas chromatographs, and spectrophotometers), and analysis of data.

Concurrent with EARTHSS 150.

EARTHSS 264. Ecosystem Ecology . 4 Units.
A mechanistic perspective on ecosystem processes. Covers ecosystem development, element cycling, and interactions with plants and microbes. The role of ecosystems in environmental change is also addressed.

Prerequisite: CHEM 51C.

Concurrent with EARTHSS 164 and BIO SCI E118.

EARTHSS 266. Global Biogeochemical Cycles. 4 Units.
Global biogeochemical cycling of the elements. Topics include global cycling of carbon, nitrogen, oxygen, and sulfur; impact of human activities on biogeochemical processes.

Restriction: Graduate students only.

EARTHSS 270. Environmental Microbiology. 4 Units.
Establishes a fundamental understanding of microbes living in the environment, including their distribution, diversity, and biochemistry, and discusses how they attribute to global biogeochemical cycles.

Prerequisite: (EARTHSS 53 or EARTHSS 60A) and (EARTHSS 60C or BIO SCI E106).

Concurrent with EARTHSS 170 and BIO SCI E163.

EARTHSS 272. Science Communication and Outreach. 2 Units.
Students learn and practice effective science communication skills useful in public and educational outreach. Topics include research explication, language scaffolding, educational psychology, oral presentation techniques, K-12 science standards, and effective writing styles for op-eds, blogs, and Web sites.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Concurrent with EARTHSS 172.

EARTHSS 274. Ice in the Climate System. 4 Units.
Examines the major components of the Earth's cryosphere. Characteristics, volume, extent, remote sensing observations, long-term trends, mass balance, key physical processes, relevance and importance to the climate system, responses and feedbacks, future evolution, and key uncertainties will be discussed.

Concurrent with EARTHSS 174.

EARTHSS 280A. Special Topics in Earth System Science. 1-4 Units.
Each quarter is devoted to current topics in the field of Earth System Science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

EARTHSS 280B. Special Topics in Earth System Science. 1-4 Units.
Each quarter is devoted to current topics in the field of Earth System Science. Topics addressed vary each quarter.

Prerequisite: EARTHSS 280A.

Repeatability: Unlimited as topics vary.

EARTHSS 280C. Special Topics in Earth System Science. 1-4 Units.
Each quarter is devoted to current topics in the field of Earth System Science. Topics addressed vary each quarter.

Prerequisite: EARTHSS 280B.

Repeatability: Unlimited as topics vary.

EARTHSS 282A. Special Topics in Climate. 1-4 Units.
Each quarter is devoted to in-depth analysis of an important and rapidly developing area in the field of climate dynamics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 282B. Special Topics in Climate. 1-4 Units.
Each quarter is devoted to in-depth analysis of an important and rapidly developing area in the field of climate dynamics. Topics addressed vary each quarter.

Prerequisite: EARTHSS 282A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 282C. Special Topics in Climate. 1-4 Units.
Each quarter is devoted to in-depth analysis of an important and rapidly developing area in the field of climate dynamics. Topics addressed vary each quarter.

Prerequisite: EARTHSS 282B.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 284A. Special Topics in Atmospheric Chemistry. 1-4 Units.
Each quarter is devoted to current topics in the field of Atmospheric Chemistry. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

EARTHSS 284B. Special Topics in Atmospheric Chemistry. 1-4 Units.
Each quarter in devoted to current topics in the field of Atmospheric Chemistry. Topics addressed vary each quarter.

Prerequisite: EARTHSS 284A.

Repeatability: Unlimited as topics vary.

EARTHSS 284C. Special Topics in Atmospheric Chemistry. 1-4 Units.
Each quarter is devoted to current topics in the field of Atmospheric Chemistry. Topics addressed vary each quarter.

Prerequisite: EARTHSS 284B.

Repeatability: Unlimited as topics vary.

EARTHSS 286A. Special Topics in Biogeochemistry. 1-4 Units.
Each quarter is devoted to in-depth analysis of a subarea in biogeochemistry which is undergoing rapid development. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 286B. Special Topics in Biogeochemistry. 1-4 Units.
Each quarter is devoted to in-depth analysis of a subarea in biogeochemistry which is undergoing rapid development. Topics addressed vary each quarter.

Prerequisite: EARTHSS 286A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 286C. Special Topics in Biogeochemistry. 1-4 Units.
Each quarter is devoted to in-depth analysis of a subarea in biogeochemistry which is undergoing rapid development. Topics addressed vary each quarter.

Prerequisite: EARTHSS 286B.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 288A. Special Topics in Ecosystems. 1-4 Units.
Each quarter is devoted to current topics relating to Ecosystems. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

EARTHSS 288B. Special Topics in Ecosystems. 1-4 Units.
Each quarter is devoted to current topics relating to Ecosystems. Topics addressed vary each quarter.

Prerequisite: EARTHSS 288A.

Repeatability: Unlimited as topics vary.

EARTHSS 288C. Special Topics in Ecosystems. 1-4 Units.
Each quarter is devoted to current topics relating to Ecosystems. Topics addressed vary each quarter.

Prerequisite: EARTHSS 288B.

Repeatability: Unlimited as topics vary.

EARTHSS 290. Seminar. 1 Unit.
Weekly seminars and discussions on topics of general and current interest in Earth System Science. Topics addressed vary each quarter.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 291. Research Seminar. 1-4 Units.
Detailed discussions of ongoing research in earth system science. Format, content, and frequency of the course are variable.

Repeatability: May be repeated for credit unlimited times.

EARTHSS 298. Practicum in Earth System Science. 4 Units.
Designed to introduce first-year graduate students to research. Students explore research opportunities and develop a proposal for a summer research project under the direction of a faculty mentor.

Restriction: Graduate students only.

EARTHSS 299. Research. 2-12 Units.
Supervised original research in areas of Earth System Science.

Repeatability: May be repeated for credit unlimited times.

EARTHSS 399. University Teaching. 1-4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Mathematics Courses

MATH 1A. Pre-Calculus. 4 Workload Units.
Basic equations and inequalities, linear and quadratic functions, and systems of simultaneous equations. Course may be offered online.

MATH 1B. Pre-Calculus. 4 Units.
Preparation for calculus and other mathematics courses. Exponentials, logarithms, trigonometry, polynomials, and rational functions. Satisfies no requirements other than contribution to the 180 units required for graduation. Course may be offered online.

Prerequisite: MATH 1A or placement into MATH 1B via the Calculus Placement exam, or a score of 450 or higher on the Mathematics section of the SAT Reasoning Test.

MATH 2A. Single-Variable Calculus. 4 Units.
Introduction to derivatives, calculation of derivatives of algebraic and trigonometric functions; applications including curve sketching, related rates, and optimization. Exponential and logarithm functions.

Prerequisite: MATH 1B or placement into MATH 2A via the Calculus Placement exam (fee required), or a score of 3 on the AP Calculus AB exam, or a score of 600 or higher on the Mathematics section of the SAT Reasoning Test. MATH 1B with a grade of C or better.

Restriction: School of Physical Sciences, School of Engineering, and School of Information and Computer Sciences majors have first consideration for enrollment.

(Vb)

MATH 2B. Single-Variable Calculus. 4 Units.
Definite integrals; the fundamental theorem of calculus. Applications of integration including finding areas and volumes. Techniques of integration. Infinite sequences and series. Parametric and polar equations.

Prerequisite: MATH 2A.

Restriction: School of Physical Sciences, School of Engineering, and School of Information and Computer Sciences majors have first consideration for enrollment.

(Vb)

MATH 2D. Multivariable Calculus. 4 Units.
Differential and integral calculus of real-valued functions of several real variables, including applications. Polar coordinates.

Prerequisite: MATH 2A and MATH 2B.

Overlaps with MATH H2D.

Restriction: School of Physical Sciences, School of Engineering, and School of Information and Computer Sciences majors have first consideration for enrollment.

(Vb)

MATH 2E. Multivariable Calculus. 4 Units.
The differential and integral calculus of vector-valued functions. Implicit and inverse function theorems. Line and surface integrals, divergence and curl, theorems of Greens, Gauss, and Stokes.

Prerequisite: MATH 2D.

Overlaps with MATH H2E.

Restriction: School of Physical Sciences and School of Engineering majors have first consideration for enrollment.

MATH 3A. Introduction to Linear Algebra. 4 Units.
Systems of linear equations, matrix operations, determinants, eigenvalues and eigenvectors, vector spaces, subspaces and dimension.

Prerequisite: MATH 2B.

Overlaps with MATH 6G, I&C SCI 6N.

Restriction: School of Physical Sciences and School of Engineering majors have first consideration for enrollment.

MATH 3D. Elementary Differential Equations. 4 Units.
Linear differential equations, variation of parameters, constant coefficient cookbook, systems of equations, Laplace tranforms, series solutions.

Prerequisite: MATH 2D and MATH 3A.

Restriction: School of Physical Sciences and School of Engineering majors have first consideration for enrollment.

MATH 4. Mathematics for Economists. 4 Units.
Topics in linear algebra and multivariable differential calculus suitable for economic applications.

Prerequisite: MATH 2B.

Overlaps with MATH 2D, MATH 2J, MATH 3A.

Restriction: MATH 4 may not be taken for credit if taken after MATH 2D and either MATH 2J or MATH 3A.

(Vb)

MATH 6G. Linear Algebra. 4 Units.
Linear equations, vector spaces and subspaces, linear functions and matrices, linear codes, determinants, scalar products.

Prerequisite: High school mathematics through trigonometry.

Overlaps with MATH 3A, I&C SCI 6N.

(Vb)

MATH 8. Explorations in Functions and Modeling. 4 Units.
Explorations of applications and connections in topics in algebra, geometry, calculus, and statistics for future secondary math educators. Emphasis on nonstandard modeling problems.

Corequisite: MATH 2A.

MATH 13. Introduction to Abstract Mathematics. 4 Units.
Introduction to formal definition and rigorous proof writing in mathematics. Topics include basic logic, set theory, equivalence relations, and various proof techniques such as direct, induction, contradiction, contrapositive, and exhaustion.

Prerequisite: MATH 2A or I&C SCI 6D.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 77A. Mathematics and Computation in the Digital Age: Introduction to Signal Processing. 4 Units.
Signals in Matlab; blurring, filtering; elements of linear algebra, statistics, optimization; blind matrix inversion; de-correlation method, stochastic gradient descent method, applications to sounds and images.

Prerequisite: MATH 2B and I&C SCI 31.

Same as I&C SCI 77A.

Restriction: Lower-division students only.

(II, Va)

MATH 77B. Mathematics and Computation in the Digital Age: Introduction to Collaborative Filtering. 4 Units.
Basic concepts of collaborative filtering; clustering; matrix factorization and principal components analysis; regression; classification: naive Bayes classifier, decision trees, Perceptron (neural networks).

Prerequisite: MATH 2B and I&C SCI 31.

Same as I&C SCI 77B.

Restriction: Lower-division students only.

(II, Va)

MATH 77C. Mathematics and Computation in the Digital Age: Introduction to Image Processing. 4 Units.
Image de-noising, de-blurring, low pass filtering; image segmentation and classification; Sparse representation; visualization.

Prerequisite: MATH 2B and I&C SCI 31.

Same as I&C SCI 77C.

Restriction: Lower-division students only.

(II, Va)

MATH 77D. Mathematics and Computation in the Digital Age: Intro to Game Simulation and Analysis. 4 Units.
Combinatorial Game Theory--game classification, tree graphs, strategy analysis, Sprague Grundy functions, Bouton's Theorem; Zero-Sum and General-Sum Game Theory--pay off matrices, Minimax Theorem, Nash equilibrium; machine learning--search algorithms.

Prerequisite: MATH 2B and I&C SCI 31.

Same as I&C SCI 77D.

Restriction: Lower-division students only.

(II, Va)

MATH 105A. Numerical Analysis. 4 Units.
Introduction to the theory and practice of numerical computation. Floating point arithmetic, roundoff; solving transcendental equations; quadrature; linear systems, eigenvalues, power method.

Corequisite: MATH 105LA.
Prerequisite: MATH 3A. Some acquaintance with computer programming.

Overlaps with ENGRMAE 185.

MATH 105B. Numerical Analysis. 4 Units.
Introduction to the theory and practice of numerical computation. Lagrange interpolation, finite differences, splines, Padé approximations; Gaussian quadrature; Fourier series and transforms.

Corequisite: MATH 105LB.
Prerequisite: MATH 105A.

MATH 105LA. Numerical Analysis Laboratory. 1 Unit.
Provides practical experience to complement the theory developed in Mathematics 105A.

Corequisite: MATH 105A.

MATH 105LB. Numerical Analysis Laboratory. 1 Unit.
Provides practical experience to complement the theory developed in Mathematics 105B.

Corequisite: MATH 105B.

MATH 107. Numerical Differential Equations. 4 Units.
Theory and applications of numerical methods to initial and boundary-value problems for ordinary and partial differential equations.

Corequisite: MATH 107L.
Prerequisite: MATH 3D and MATH 105A and MATH 105B.

MATH 107L. Numerical Differential Equations Laboratory. 1 Unit.
Provides practical experience to complement the theory developed in Mathematics 107.

Corequisite: MATH 107.

MATH 112A. Introduction to Partial Differential Equations and Applications. 4 Units.
Introduction to ordinary and partial differential equations and their applications in engineering and science. Basic methods for classical PDEs (potential, heat, and wave equations). Classification of PDEs, separation of variables and series expansions, special functions, eigenvalue problems.

Prerequisite: MATH 2D and MATH 3D.

MATH 112B. Introduction to Partial Differential Equations and Applications. 4 Units.
Introduction to partial differential equations and their applications in engineering and science. Basic methods for classical PDEs (potential, heat, and wave equations). Green functions and integral representations, method of characteristics.

Prerequisite: MATH 2E and MATH 112A.

MATH 112C. Introduction to Partial Differential Equations and Applications. 4 Units.
Nonhomogeneous problems and Green's functions, Sturm-Liouville theory, general Fourier expansions, applications of partial differential equations in different areas of science.

Prerequisite: MATH 3D and MATH 2D and MATH 3A.

MATH 113A. Mathematical Modeling in Biology. 4 Units.
Discrete mathematical and statistical models; difference equations, population dynamics, Markov chains, and statistical models in biology.

Prerequisite: MATH 2B.

MATH 113B. Mathematical Modeling in Biology. 4 Units.
Linear algebra; differential equations models; dynamical systems; stability; hysteresis; phase plane analysis; applications to cell biology, viral dynamics, and infectious diseases.

Prerequisite: MATH 113A.

MATH 113C. Mathematical Modeling in Biology. 4 Units.
Partial differential equations models in biology such as one dimensional blood flow, morphogen gradients, and tumor growth; stochastic models in cancer and epidemiology.

Prerequisite: MATH 113B.

MATH 114A. Applied Complex Analysis. 4 Units.
Introduction to complex functions and their applications to engineering and science. Complex numbers, elementary functions; analytic functions; complex integration; power series; residue theory; conformal maps; applications.

Prerequisite: MATH 2D and MATH 3A.

Overlaps with MATH 147.

MATH 115. Mathematical Modeling. 4 Units.
Mathematical modeling and analysis of phenomena that arise in engineering physical sciences, biology, economics, or social sciences.

Prerequisite: Corequisite or prerequisite: MATH 112A or ENGRMAE 140. MATH 2D and (MATH 3A or MATH 6G) and MATH 3D.

MATH 117. Dynamical Systems. 4 Units.
Introduction to the modern theory of dynamical systems including contraction mapping principle, fractals and chaos, conservative systems, Kepler problem, billiard models, expanding maps, Smale's horseshoe, topological entropy.

Prerequisite: MATH 3D and MATH 140A.

MATH 118. The Theory of Differential Equations. 4 Units.
Existence and uniqueness of solutions, continuous dependence of solutions on initial conditions and parameteres, Lyapunov and asymptotic stability, Floquet theory, nonlinear systems, and bifurcations.

Prerequisite: MATH 3D and MATH 140A.

MATH 119. Boundary Value Problems. 4 Units.
Introduction to boundary value problems including Green's function representations, maximum principle, variational formulations, Sturm-Liouville problems, eigenfunction expansions, existence and uniqueness for nonlinear problems, method of shooting, finite difference methods.

Prerequisite: MATH 3D and MATH 140A.

MATH 120A. Introduction to Abstract Algebra: Groups. 4 Units.
Axioms for group theory; permutation groups, matrix groups. Isomorphisms, homomorphisms, quotient groups. Advanced topics as time permits. Special emphasis on doing proofs.

Prerequisite: (MATH 3A OR MATH 6G) and MATH 13. MATH 13 with a grade of C- or better.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 120B. Introduction to Abstract Algebra: Rings and Fields. 4 Units.
Basic properties of rings; ideals, quotient rings; polynomial and matrix rings. Elements of field theory.

Prerequisite: MATH 120A.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 120C. Introduction to Abstract Algebra: Galois Theory. 4 Units.
Galois Theory: proof of the impossibility of certain ruler-and-compass constructions (squaring the circle, trisecting angles); nonexistence of analogues to the "quadratic formula" for polynomial equations of degree 5 or higher.

Prerequisite: MATH 120B.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 121A. Linear Algebra. 4 Units.
Introduction to modern abstract linear algebra. Special emphasis on students doing proofs. Vector spaces, linear independence, bases, dimension. Linear transformations and their matrix representations. Theory of determinants.

Prerequisite: (MATH 3A OR MATH 6G) and MATH 13. MATH 13 with a grade of C- or better.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 121B. Linear Algebra. 4 Units.
Introduction to modern abstract linear algebra. Special emphasis on students doing proofs. Canonical forms; inner products; similarity of matrices.

Prerequisite: MATH 121A.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 130A. Probability and Stochastic Processes. 4 Units.
Basic concepts of random variables, distributions, independence, correlations, moments, limit theorems, conditional probability, Markov chains, gambler's ruin, branching process, birth and death processes, numerical simulations in Matlab.

Prerequisite: MATH 2A and MATH 2B and (MATH 3A or MATH 6G).

Overlaps with MATH 131A, MATH 132A, STATS 120A.

MATH 130B. Probability and Stochastic Processes. 4 Units.
Exponential distributions, Poisson processes, continuous time Markov chains, renewal theory, insurance ruin and claim problems, numerical simulations in Matlab.

Prerequisite: MATH 130A OR MATH 131A or STATS 120A.

MATH 130C. Probability and Stochastic Processes. 4 Units.
Martingales, Invariance Principle, Brownian motions and applications in option pricing, stationary processes and applications in Wiener filter, numerical simulations in Matlab.

Prerequisite: MATH 130B.

MATH 131A. Introduction to Probability and Statistics. 4 Units.
Introductory course covering basic principles of probability and statistical inference. Axiomatic definition of probability, random variables, probability distributions, expectation.

Prerequisite: MATH 2A and MATH 2B and (MATH 2D or MATH 4).

Overlaps with MATH 130A, MATH 132A.

MATH 131B. Introduction to Probability and Statistics. 4 Units.
Introductory course covering basic principles of probability and statistical inference. Point estimation, interval estimating, and testing hypotheses, Bayesian approaches to inference.

Prerequisite: (MATH 131A or STATS 120A) and (MATH 3A or MATH 6G or MATH 4).

MATH 133A. Statistical Methods with Applications to Finance. 4 Units.
Overview of probability, statistics and financial concepts: distribution, point estimation, confidence interval, linear regression, hypothesis testing, principal component analysis, financial applications.

Prerequisite: MATH 130A or STATS 120A or MATH 2D or MATH 4.

MATH 133B. Statistical Methods with Applications to Finance. 4 Units.
Overview of markets and options: asset modeling, Brownian motion, risk neutrality, option pricing, value at risk, MC simulations.

Prerequisite: MATH 133A.

MATH 140A. Elementary Analysis. 4 Units.
Introduction to real analysis, including: convergence of sequence, infinite series, differentiation and integration, and sequences of functions. Students are expected to do proofs.

Prerequisite: MATH 2D and MATH 3A and MATH 13. MATH 13 with a grade of C- or better.

Restriction: Math majors have first consideration for enrollment.

MATH 140B. Elementary Analysis. 4 Units.
Introduction to real analysis including convergence of sequences, infinite series, differentiation and integration, and sequences of functions. Students are expected to do proofs.

Prerequisite: MATH 140A. MATH 140A with a grade of C- or better.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 140C. Analysis in Several Variables . 4 Units.
Rigorous treatment of multivariable differential calculus. Jacobians, Inverse and Implicit Function theorems.

Prerequisite: MATH 140B.

MATH 141. Introduction to Topology. 4 Units.
The elements of naive set theory and the basic properties of metric spaces. Introduction to topological properties.

Prerequisite: MATH 140A.

MATH 146. Fourier Analysis. 4 Units.
Rigorous introduction to the theory of Fourier series and orthogonal expansions. Fourier transform.

Prerequisite: MATH 3D and MATH 140A and MATH 140B. Recommended: MATH 112A.

MATH 147. Complex Analysis. 4 Units.
Rigorous treatment of basic complex analysis: analytic functions, Cauchy integral theory and its consequences, power series, residue calculus, harmonic functions, conformal mapping. Students are expected to do proofs.

Corequisite: MATH 140B.
Prerequisite: MATH 140A.

Overlaps with MATH 114A.

Restriction: MATH 114A may not be taken for credit after MATH 147.

MATH 150. Introduction to Mathematical Logic. 4 Units.
First order logic through the Completeness Theorem for predicate logic.

Prerequisite: MATH 13 or (I&C SCI 6B and I&C SCI 6D). MATH 13 with a grade of C- or better.

Overlaps with LPS 105B, PHILOS 105B.

MATH 151. Set Theory. 4 Units.
Axiomatic development; infinite sets; cardinal and ordinal numbers.

Prerequisite: MATH 150.

Overlaps with SOC SCI 105A, LPS 105A.

MATH 152. Computability. 4 Units.
Computable functions; undecidability; Gödel's Incompleteness Theorem.

Prerequisite: MATH 150.

Overlaps with PHILOS 105C, LPS 105C.

MATH 161. Modern Geometry. 4 Units.
Euclidean Geometry; Hilbert's Axioms; Absolute Geometry; Hyperbolic Geometry; the Poincare Models; and Geometric Transformations.

Prerequisite: MATH 13 or (I&C SCI 6B and I&C SCI 6D). MATH 13 with a C- or better.

Restriction: Math majors have first consideration for enrollment.

MATH 162A. Introduction to Differential Geometry. 4 Units.
Applications of advanced calculus and linear algebra to the geometry of curves and surfaces in space.

Prerequisite: MATH 2E and MATH 3A and MATH 3D.

MATH 162B. Introduction to Differential Geometry. 4 Units.
Applications of advanced calculus and linear algebra to the geometry of curves and surfaces in space.

Prerequisite: MATH 162A.

MATH 171A. Mathematical Methods in Operations Research Linear Programming. 4 Units.
Simplex algorithm, duality, optimization in networks.

Prerequisite: MATH 3A or MATH 6G.

MATH 171B. Mathematical Methods in Operations Research Nonlinear Programming. 4 Units.
Conditions for optimality, quadratic and convex programming, search methods, geometric programming.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

MATH 173A. Introduction to Cryptology. 4 Units.
Introduction to some of the mathematics used in the making and breaking of codes, with applications to classical ciphers and public key systems. The mathematics which is covered includes topics from number theory, probability, and abstract algebra.

Prerequisite: MATH 2B and (MATH 3A or MATH 6G) and (MATH 13 or (I&C SCI 6B and I&C SCI 6D)). MATH 13 with a grade of C- or better.

MATH 173B. Introduction to Cryptology. 4 Units.
Introduction to some of the mathematics used in the making and breaking of codes, with applications to classical ciphers and public key systems. The mathematics which is covered includes topics from number theory, probability, and abstract algebra.

Prerequisite: MATH 173A.

MATH 174A. Modern Graphy Theory. 4 Units.
An introductory course emphasizing the fundamental concepts of graph theory by developing abilities to produce examples, following and devising simple proofs, and current applications of graph theory. Topics include: Graph Types; Matching in Graphs; Menger's Theorem; Kuratowski's Theorem.

Prerequisite: MATH 2B and (MATH 3A or MATH 6G) and (MATH 13 or (I&C SCI 6B and I&C SCI 6D)). MATH 13 with a grade of C- or better.

MATH 175. Combinatorics . 4 Units.
Introduction to combinatorics including basic counting principles, permutations, combinations, binomial coefficients, inclusion-exclusion, derangements, ordinary and exponential generating functions, recurrence relations, Catalan numbers, Stirling numbers, and partition numbers. Course may be offered online.

Prerequisite: MATH 2B and MATH 13. MATH 13 with a grade of C- or better.

MATH 176. Mathematics of Finance. 4 Units.
After reviewing tools from probability, statistics, and elementary differential and partial differential equations, concepts such as hedging, arbitrage, Puts, Calls, the design of portfolios, the derivation and solution of the Blac-Scholes, and other equations are discussed.

Prerequisite: MATH 3A.

Same as ECON 135.

Restriction: Mathematics, Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

MATH 180A. Number Theory. 4 Units.
Introduction to number theory and applications. Divisibility, prime numbers, factorization. Arithmetic functions. Congruences. Quadratic residue. Diophantine equations. Introduction to cryptography.

Prerequisite: MATH 3A and MATH 13. MATH 13 with a grade of C- or better.

Restriction: Math majors have first consideration for enrollment.

MATH 180B. Number Theory. 4 Units.
Introduction to number theory and applications. Analytic number theory, character sums, finite fields, discrete logarithm, computational complexity. Introduction to coding theory. Other topics as time permits.

Prerequisite: MATH 180A.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 184. History of Mathematics. 4 Units.
Topics vary from year to year. Some possible topics: mathematics in ancient times; the development of modern analysis; the evolution of geometric ideas. Students will be assigned individual topics for term papers.

Prerequisite: MATH 120A and MATH 140A.

Restriction: Math majors have first consideration for enrollment.

MATH 184L. History of Mathematics Lesson Lab. 1 Unit.
Aspiring math teachers research, design, present, and peer review middle school or high school math lessons that draw from history of mathematics topics.

Corequisite: MATH 184.
Prerequisite: PHY SCI 5.

MATH 189. Special Topics in Mathematics. 4 Units.
Offered from time to time, but not on a regular basis. Content and prerequisites vary with the instructor.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

MATH 191. Mathematical Modeling Seminar. 2 Units.
Developing, testing, and presenting mathematical models for real world problems. Students will prepare for and participate in the Mathematical Contest in Modeling (MCM) in late February. Separate contest registration fee required.

Prerequisite: MATH 3D.

Repeatability: May be taken for credit 2 times.

MATH 192. Studies in the Learning and Teaching of Secondary Mathematics. 2 Units.
Focus is on historic and current mathematical concepts related to student learning and effective math pedagogy, with fieldwork in grades 6-14.

Prerequisite: MATH 2D and MATH 2J and MATH 3D and (MATH 13 or MATH 120A or MATH 140A).

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Upper-division students only. Math majors with specialization in Mathematics for Education only.

MATH 193. SMPP Capstone. 2 Units.
Capstone course for the Mathematics Subject-Matter Preparation (SMP) program. Engages students in reviewing and conducting current research on significant issues related to the teaching and learning of mathematics in the secondary classroom.

Corequisite: Recommended: MATH 192.

Repeatability: May be taken for credit 2 times.

MATH 194. Problem Solving Seminar. 2 Units.
Develops ability in analytical thinking and problem solving, using problems of the type found in the Mathematics Olympiad and the Putnam Mathematical Competition. Students taking the course in fall will prepare for and take the Putnam examination in December.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

MATH H195A. Honors Seminar. 4 Units.
Topics vary from year to year. Provides an integrative experience, including problem-solving and oral and written presentations. Required for the Honors Program in Mathematics and open to others with consent of instructor.

Restriction: Mathematics Honors Program students only.

MATH H195B. Honors Seminar. 4 Units.
Topics vary from year to year. Provides an integrative experience, including problem-solving and oral and written presentations. Required for the Honors Program in Mathematics and open to others with consent of instructor.

Restriction: Mathematics Honors Program students only.

MATH 199A. Special Studies in Mathematics. 2-4 Units.
Supervised reading. For outstanding undergraduate Mathematics majors in supervised but independent reading or research of mathematical topics.

Repeatability: Unlimited as topics vary.

MATH 199B. Special Studies in Mathematics. 2-4 Units.
Supervised reading. For outstanding undergraduate Mathematics majors in supervised but independent reading or research of mathematical topics.

Repeatability: Unlimited as topics vary.

MATH 199C. Special Studies in Mathematics. 2-4 Units.
Supervised reading. For outstanding undergraduate Mathematics majors in supervised but independent reading or research of mathematical topics.

Repeatability: Unlimited as topics vary.

MATH 205A. Introduction to Graduate Analysis. 5 Units.
Construction of the real number system, topology of the real line, concepts of continuity, differential and integral calculus, sequences and series of functions, equicontinuity, metric spaces, multivariable differential and integral calculus, implicit functions, curves and surfaces.

Prerequisite: MATH 2E and MATH 3A and MATH 13.

MATH 205B. Introduction to Graduate Analysis. 5 Units.
Construction of the real number system, topology of the real line, concepts of continuity, differential and integral calculus, sequences and series of functions, equicontinuity, metric spaces, multivariable differential and integral calculus, implicit functions, curves and surfaces.

Prerequisite: MATH 205A.

MATH 205C. Introduction to Graduate Analysis. 5 Units.
Construction of the real number system, topology of the real line, concepts of continuity, differential and integral calculus, sequences and series of functions, equicontinuity, metric spaces, multivariable differential and integral calculus, implicit functions, curves and surfaces.

Prerequisite: MATH 205B.

MATH 206A. Introduction to Graduate Algebra. 5 Units.
Introduction to abstract linear algebra, including bases, linear transformation, eigenvectors, canonical forms, inner products, symmetric operators. Introduction to groups, rings, and fields including examples of groups, group actions, Sylow theorems, modules over principal ideal domains, polynomials and Galois groups.

Prerequisite: MATH 3A.

MATH 206B. Introduction to Graduate Algebra. 5 Units.
Introduction to abstract linear algebra, including bases, linear transformation, eigenvectors, canonical forms, inner products, symmetric operators. Introduction to groups, rings, and fields including examples of groups, group actions, Sylow theorems, modules over principal ideal domains, polynomials and Galois groups.

Prerequisite: MATH 206A.

MATH 206C. Introduction to Graduate Algebra. 5 Units.
Introduction to abstract linear algebra, including bases, linear transformation, eigenvectors, canonical forms, inner products, symmetric operators. Introduction to groups, rings, and fields including examples of groups, group actions, Sylow theorems, modules over principal ideal domains, polynomials and Galois groups.

Prerequisite: MATH 206B.

MATH 210A. Real Analysis. 4 Units.
Measure theory, Lebesgue integral, signed measures, Radon-Nikodym theorem, functions of bounded variation and absolutely continuous functions, classical Banach spaces, Lp spaces, integration on locally compact spaces and the Riesz-Markov theorem, measure and outer measure, product measure spaces.

Prerequisite: MATH 140C.

MATH 210B. Real Analysis. 4 Units.
Measure theory, Lebesgue integral, signed measures, Radon-Nikodym theorem, functions of bounded variation and absolutely continuous functions, classical Banach spaces, Lp spaces, integration on locally compact spaces and the Riesz-Markov theorem, measure and outer measure, product measure spaces.

Prerequisite: MATH 210A.

MATH 210C. Real Analysis. 4 Units.
Measure theory, Lebesgue integral, signed measures, Radon-Nikodym theorem, functions of bounded variation and absolutely continuous functions, classical Banach spaces, Lp spaces, integration on locally compact spaces and the Riesz-Markov theorem, measure and outer measure, product measure spaces.

Prerequisite: MATH 210B.

MATH 211A. Topics in Analysis . 4 Units.
Studies in selected areas of Real Analysis, a continuation of MATH 210A-MATH 210B-MATH 210C. Topics addressed vary each quarter.

Prerequisite: MATH 210C.

MATH 211B. Topics in Analysis . 4 Units.
Studies in selected areas of Real Analysis, a continuation of MATH 210A-MATH 210B-MATH 210C. Topics addressed vary each quarter.

Prerequisite: MATH 211A.

MATH 211C. Topics in Analysis . 4 Units.
Studies in selected areas of Real Analysis, a continuation of MATH 210A-MATH 210B-MATH 210C. Topics addressed vary each quarter.

Prerequisite: MATH 211B.

MATH 218A. Introduction to Manifolds and Geometry. 4 Units.
General topology and fundamental groups, covering space; Stokes theorem on manifolds, selected topics on abstract manifold theory.

Prerequisite: MATH 205C.

MATH 218B. Introduction to Manifolds and Geometry. 4 Units.
General topology and fundamental groups, covering space; Stokes theorem on manifolds, selected topics on abstract manifold theory.

Prerequisite: MATH 218A.

MATH 218C. Introduction to Manifolds and Geometry. 4 Units.
General topology and fundamental groups, covering space; Stokes theorem on manifolds, selected topics on abstract manifold theory.

Prerequisite: MATH 218B.

MATH 220A. Analytic Function Theory. 4 Units.
Standard theorems about analytic functions. Harmonic functions. Normal families. Conformal mapping.

Prerequisite: MATH 140C.

MATH 220B. Analytic Function Theory. 4 Units.
Standard theorems about analytic functions. Harmonic functions. Normal families. Conformal mapping.

Prerequisite: MATH 220A.

MATH 220C. Analytic Function Theory. 4 Units.
Standard theorems about analytic functions. Harmonic functions. Normal families. Conformal mapping.

Prerequisite: MATH 220B.

MATH 222A. Several Complex Variables and Complex Geometry. 4 Units.
Several Complex variables, d-bar problems, mappings, Kaehler geometry, de Rham and Dolbeault Theorems, Chern Classes, Hodge Theorems, Calabi conjecture, Kahler-Einstein geometry, Monge-Ampere.

Prerequisite: MATH 218C and MATH 220C.

MATH 222B. Several Complex Variables and Complex Geometry. 4 Units.
Several Complex variables, d-bar problems, mappings, Kaehler geometry, Le Rham and Dolbeault Theorems, Chern Classes, Hodge Theorems, Calabi conjecture, Kahler-Einstein geometry, Monge-Ampere.

Prerequisite: MATH 222A.

MATH 222C. Several Complex Variables and Complex Geometry. 4 Units.
Several Complex variables, d-bar problems, mappings, Kaehler geometry, Le Rham and Dolbeault Theorems, Chern Classes, Hodge Theorems, Calabi conjecture, Kahler-Einstein geometry, Monge-Ampere.

Prerequisite: MATH 222B.

MATH 225A. Introduction to Numerical Analysis and Scientific Computing. 4 Units.
Introduction to fundamentals of numerical analysis from an advanced viewpoint. Error analysis, approximation of functions, nonlinear equations.

Prerequisite: MATH 3D and ((MATH 105A and MATH 105B) or (MATH 140A and MATH 140B)) and MATH 121A and (MATH 112A or ENGRMAE 140).

Restriction: Graduate students only.

MATH 225B. Introduction to Numerical Analysis and Scientific Computing. 4 Units.
Introduction to fundamentals of numerical analysis from an advanced viewpoint. Numerical linear algebra, numerical solutions of differential equations; stability.

Prerequisite: MATH 225A.

Restriction: Graduate students only.

MATH 225C. Introduction to Numerical Analysis and Scientific Computing. 4 Units.
Introduction to fundamentals of numerical analysis from an advanced viewpoint. Numerical linear algebra, numerical solutions of differential equations; stability.

Prerequisite: MATH 225B.

Restriction: Graduate students only.

MATH 226A. Computational Differential Equations. 4 Units.
Finite difference and finite element methods. Quick treatment of functional and nonlinear analysis background: weak solution, Lp spaces, Sobolev spaces. Approximation theory. Fourier and Petrov-Galerkin methods; mesh generation. Elliptic, parabolic, hyperbolic cases in 226A-B-C, respectively.

Prerequisite: MATH 3D and (MATH 112A or ENGRMAE 140) and (MATH 140B or MATH 105B).

MATH 226B. Computational Differential Equations. 4 Units.
Finite difference and finite element methods. Quick treatment of functional and nonlinear analysis background: weak solution, Lp spaces, Sobolev spaces. Approximation theory. Fourier and Petrov-Galerkin methods; mesh generation. Elliptic, parabolic, hyperbolic cases in 226A-B-C, respectively.

Prerequisite: MATH 226A.

MATH 226C. Computational Differential Equations. 4 Units.
Finite difference and finite element methods. Quick treatment of functional and nonlinear analysis background: weak solution, Lp spaces, Sobolev spaces. Approximation theory. Fourier and Petrov-Galerkin methods; mesh generation. Elliptic, parabolic, hyperbolic cases in 226A-B-C, respectively.

Prerequisite: MATH 226B.

MATH 227A. Mathematical and Computational Biology. 4 Units.
Analytical and numerical methods for dynamical systems, temporal-spatial dynamics, steady state, stability, stochasticity. Application to life sciences: genetics, tissue growth and patterning, cancers, ion channels gating, signaling networks, morphogen gradients. Analytical methods.

Prerequisite: MATH 2A and MATH 2B and MATH 3A.

MATH 227B. Mathematical and Computational Biology. 4 Units.
Analytical and numerical methods for dynamical systems, temporal-spatial dynamics, steady state, stability, stochasticity. Application to life sciences: genetics, tissue growth and patterning, cancers, ion channels gating, signaling networks, morphogen gradients. Numerical simulations.

Prerequisite: MATH 227A.

MATH 227C. Mathematical and Computational Biology . 4 Units.
Analytical and numerical methods for dynamical systems, temporal-spatial dynamics, steady state, stability, stochasticity. Application to life sciences: genetics, tissue growth and patterning, cancers, ion channels gating, signaling networks, morphogen gradients. Probabilistic methods.

Prerequisite: MATH 227A.

Same as COMPSCI 285.

MATH 230A. Algebra. 4 Units.
Elements of the theories of groups, rings, fields, modules. Galois theory. Modules over principal ideal domains. Artinian, Noetherian, and semisimple rings and modules.

Prerequisite: MATH 120A and MATH 121A and MATH 121B.

MATH 230B. Algebra. 4 Units.
Elements of the theories of groups, rings, fields, modules. Galois theory. Modules over principal ideal domains. Artinian, Noetherian, and semisimple rings and modules.

Prerequisite: MATH 230A.

MATH 230C. Algebra. 4 Units.
Elements of the theories of groups, rings, fields, modules. Galois theory. Modules over principal ideal domains. Artinian, Noetherian, and semisimple rings and modules.

Prerequisite: MATH 230B.

MATH 232A. Algebraic Number Theory. 4 Units.
Algebraic integers, prime ideals, class groups, Dirichlet unit theorem, localization, completion, Cebotarev density theorem, L-functions, Gauss sums, diophantine equations, zeta functions over finite fields. Introduction to class field theory.

Prerequisite: MATH 230C.

MATH 232B. Algebraic Number Theory. 4 Units.
Algebraic integers, prime ideals, class groups, Dirichlet unit theorem, localization, completion, Cebotarev density theorem, L-functions, Gauss sums, diophantine equations, zeta functions over finite fields. Introduction to class field theory.

Prerequisite: MATH 232A.

MATH 232C. Algebraic Number Theory. 4 Units.
Algebraic integers, prime ideals, class groups, Dirichlet unit theorem, localization, completion, Cebotarev density theorem, L-functions, Gauss sums, diophantine equations, zeta functions over finite fields. Introduction to class field theory.

Prerequisite: MATH 232B.

MATH 233A. Algebraic Geometry. 4 Units.
Basic commutative algebra and classical algebraic geometry. Algebraic varieties, morphisms, rational maps, blow ups. Theory of schemes, sheaves, divisors, cohomology. Algebraic curves and surfaces, Riemann-Roch theorem, Jocobian classification of curves and surfaces.

Prerequisite: MATH 230C.

MATH 233B. Algebraic Geometry. 4 Units.
Basic commutative algebra and classical algebraic geometry. Algebraic varieties, morphisms, rational maps, blow ups. Theory of schemes, sheaves, divisors, cohomology. Algebraic curves and surfaces, Riemann-Roch theorem, Jocobian classification of curves and surfaces.

Prerequisite: MATH 233A.

MATH 233C. Algebraic Geometry. 4 Units.
Basic commutative algebra and classical algebraic geometry. Algebraic varieties, morphisms, rational maps, blow ups. Theory of schemes, sheaves, divisors, cohomology. Algebraic curves and surfaces, Riemann-Roch theorem, Jocobian classification of curves and surfaces.

Prerequisite: MATH 233B.

MATH 234B. Topics in Algebra. 4 Units.
Group theory, homological algebra, and other selected topics.

Prerequisite: MATH 230C.

Repeatability: May be repeated for credit unlimited times.

MATH 234C. Topics in Algebra. 4 Units.
Group theory, homological algebra, and other selected topics.

Prerequisite: MATH 234B.

Repeatability: May be repeated for credit unlimited times.

MATH 235A. Mathematics of Cryptography. 4 Units.
Mathematics of public key cryptography: encryption and signature schemes; RSA; factoring; primality testing; discrete log based cryptosystems, elliptic and hyperelliptic curve cryptography and additional topics as determined by the instructor.

Prerequisite: MATH 230C.

MATH 235B. Mathematics of Cryptography. 4 Units.
Mathematics of public key cryptography: encryption and signature schemes; RSA; factoring; primality testing; discrete log based cryptosystems, elliptic and hyperelliptic curve cryptography and additional topics as determined by the instructor.

Prerequisite: MATH 235A.

MATH 235C. Mathematics of Cryptography. 4 Units.
Mathematics of public key cryptography: encryption and signature schemes; RSA; factoring; primality testing; discrete log based cryptosystems, elliptic and hyperelliptic curve cryptography and additional topics as determined by the instructor.

Prerequisite: MATH 235B.

MATH 239A. Analytic Methods in Arithmetic Geometry. 4 Units.
Riemann zeta function, Dirichlet L-functions, prime number theorem, zeta functions over finite fields, sieve methods, zeta functions of algebraic curves, algebraic coding theory, L-Functions over number fields, L-functions of modular forms, Eisenstein series.

Prerequisite: MATH 220C and MATH 230C.

MATH 239B. Analytic Methods in Arithmetic Geometry. 4 Units.
Riemann zeta function, Dirichlet L-functions, prime number theorem, zeta functions over finite fields, sieve methods, zeta functions of algebraic curves, algebraic coding theory, L-Functions over number fields, L-functions of modular forms, Eisenstein series.

Prerequisite: MATH 239A.

MATH 239C. Analytic Methods in Arithmetic Geometry. 4 Units.
Riemann zeta function, Dirichlet L-functions, prime number theorem, zeta functions over finite fields, sieve methods, zeta functions of algebraic curves, algebraic coding theory, L-Functions over number fields, L-functions of modular forms, Eisenstein series.

Prerequisite: MATH 239B.

MATH 240A. Differential Geometry. 4 Units.
Riemannian manifolds, connections, curvature and torsion. Submanifolds, mean curvature, Gauss curvature equation. Geodesics, minimal submanifolds, first and second fundamental forms, variational formulas. Comparison theorems and their geometric applications. Hodge theory applications to geometry and topology.

MATH 240B. Differential Geometry. 4 Units.
Riemannian manifolds, connections, curvature and torsion. Submanifolds, mean curvature, Gauss curvature equation. Geodesics, minimal submanifolds, first and second fundamental forms, variational formulas. Comparison theorems and their geometric applications. Hodge theory applications to geometry and topology.

Prerequisite: MATH 240A.

MATH 240C. Differential Geometry. 4 Units.
Riemannian manifolds, connections, curvature and torsion. Submanifolds, mean curvature, Gauss curvature equation. Geodesics, minimal submanifolds, first and second fundamental forms, variational formulas. Comparison theorems and their geometric applications. Hodge theory applications to geometry and topology.

Prerequisite: MATH 240B.

MATH 245A. Topics in Differential Geometry. 4 Units.
Studies in selected areas of differential geometry, a continuation of MATH 240A-MATH 240B-MATH 240C. Topics addressed vary each quarter.

Prerequisite: MATH 240C.

Repeatability: Unlimited as topics vary.

MATH 245B. Topics in Differential Geometry. 4 Units.
Studies in selected areas of differential geometry, a continuation of MATH 240A-MATH 240B-MATH 240C. Topics addressed vary each quarter.

Prerequisite: MATH 245A.

Repeatability: Unlimited as topics vary.

MATH 245C. Topics in Differential Geometry. 4 Units.
Studies in selected areas of differential geometry, a continuation of MATH 240A-MATH 240B-MATH 240C. Topics addressed vary each quarter.

Prerequisite: MATH 245B.

Repeatability: Unlimited as topics vary.

MATH 250A. Algebraic Topology. 4 Units.
Provides fundamental materials in algebraic topology: fundamental group and covering space, homology and cohomology theory, and homotopy group.

Prerequisite: MATH 230A.

MATH 250B. Algebraic Topology. 4 Units.
Provides fundamental materials in algebraic topology: fundamental group and covering space, homology and cohomology theory, and homotopy group.

Prerequisite: MATH 250A.

MATH 250C. Algebraic Topology. 4 Units.
Provides fundamental materials in algebraic topology: fundamental group and covering space, homology and cohomology theory, and homotopy group.

Prerequisite: MATH 250B.

MATH 260A. Functional Analysis. 4 Units.
Normed linear spaces, Hilbert spaces, Banach spaces, Stone-Weierstrass Theorem, locally convex spaces, bounded operators on Banach and Hilbert spaces, the Gelfand-Neumark Theorem for commutative C*-algebras, the spectral theorem for bounded self-adjoint operators, unbounded operators on Hilbert spaces.

Prerequisite: MATH 210C and MATH 220C.

MATH 260B. Functional Analysis. 4 Units.
Normed linear spaces, Hilbert spaces, Banach spaces, Stone-Weierstrass Theorem, locally convex spaces, bounded operators on Banach and Hilbert spaces, the Gelfand-Neumark Theorem for commutative C*-algebras, the spectral theorem for bounded self-adjoint operators, unbounded operators on Hilbert spaces.

Prerequisite: MATH 260A.

MATH 260C. Functional Analysis. 4 Units.
Normed linear spaces, Hilbert spaces, Banach spaces, Stone-Weierstrass Theorem, locally convex spaces, bounded operators on Banach and Hilbert spaces, the Gelfand-Neumark Theorem for commutative C*-algebras, the spectral theorem for bounded self-adjoint operators, unbounded operators on Hilbert spaces.

Prerequisite: MATH 260B.

MATH 270A. Probability. 4 Units.
Probability spaces, distribution and characteristic functions. Strong limit theorems. Limit distributions for sums of independent random variables. Conditional expectation and martingale theory. Stochastic processes.

Prerequisite: MATH 130C and MATH 210C.

MATH 270B. Probability. 4 Units.
Probability spaces, distribution and characteristic functions. Strong limit theorems. Limit distributions for sums of independent random variables. Conditional expectation and martingale theory. Stochastic processes.

Prerequisite: MATH 270A.

MATH 270C. Probability. 4 Units.
Probability spaces, distribution and characteristic functions. Strong limit theorems. Limit distributions for sums of independent random variables. Conditional expectation and martingale theory. Stochastic processes.

Prerequisite: MATH 270B.

MATH 271A. Stochastic Processes. 4 Units.
Processes with independent increments, Wiener and Gaussian processes, function space integrals, stationary processes, Markov processes.

Prerequisite: MATH 210C.

Overlaps with STATS 270.

MATH 271B. Stochastic Processes. 4 Units.
Processes with independent increments, Wiener and Gaussian processes, function space integrals, stationary processes, Markov processes.

Prerequisite: MATH 271A.

Overlaps with STATS 270.

MATH 271C. Stochastic Processes. 4 Units.
Processes with independent increments, Wiener and Gaussian processes, function space integrals, stationary processes, Markov processes.

Prerequisite: MATH 271B.

Overlaps with STATS 270.

MATH 272A. Probability Models. 4 Units.
Spin systems, Ising models, contact process, exclusion process, percolation, increasing events, critical probabilities, sub- and super-critical phases, scaling theory, oriented percolation, concentration of measure, Gaussian fields, Borell's inequality, chaining, entropy.

Prerequisite: MATH 271C.

MATH 272B. Probability Models. 4 Units.
Spin systems, Ising models, contact process, exclusion process, percolation, increasing events, critical probabilities, sub- and super-critical phases, scaling theory, oriented percolation, concentration of measure, Gaussian fields, Borell's inequality, chaining, entropy.

Prerequisite: MATH 272A.

MATH 272C. Probability Models. 4 Units.
Spin systems, Ising models, contact process, exclusion process, percolation, increasing events, critical probabilities, sub- and super-critical phases, scaling theory, oriented percolation, concentration of measure, Gaussian fields, Borell's inequality, chaining, entropy.

Prerequisite: MATH 272B.

MATH 274. Topics in Probability. 4 Units.
Selected topics, such as theory of stochastic processes, martingale theory, stochastic integrals, stochastic differential equations.

Prerequisite: MATH 270C.

Repeatability: Unlimited as topics vary.

MATH 277A. Topics in Mathematical Physics . 4 Units.
Studies in selected areas of mathematical physics. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

MATH 277B. Topics in Mathematical Physics . 4 Units.
Studies in selected areas of mathematical physics. Topics addressed vary each quarter.

Prerequisite: MATH 277A.

Repeatability: May be repeated for credit unlimited times.

MATH 277C. Topics in Mathematical Physics . 4 Units.
Studies in selected areas of mathematical physics. Topics addressed vary each quarter.

Prerequisite: MATH 277B.

Repeatability: May be repeated for credit unlimited times.

MATH 280A. Mathematical Logic. 4 Units.
Basic set theory; models, compactness, and completeness; basic model theory; Incompleteness and Gödel's Theorems; basic recursion theory; constructible sets.

MATH 280B. Mathematical Logic. 4 Units.
Basic set theory; models, compactness, and completeness; basic model theory; Incompleteness and Gödel's Theorems; basic recursion theory; constructible sets.

Prerequisite: MATH 280A.

MATH 280C. Mathematical Logic. 4 Units.
Basic set theory; models, compactness, and completeness; basic model theory; Incompleteness and Gödel's Theorems; basic recursion theory; constructible sets.

Prerequisite: MATH 280B.

MATH 281A. Set Theory. 4 Units.
Ordinals, cardinals, cardinal arithmetic, combinatorial set theory, models of set theory, Gödel's constructible universe, forcing, large cardinals, iterate forcing, inner model theory, fine structure.

Prerequisite: MATH 280C.

MATH 281B. Set Theory. 4 Units.
Ordinals, cardinals, cardinal arithmetic, combinatorial set theory, models of set theory, Gödel's constructible universe, forcing, large cardinals, iterate forcing, inner model theory, fine structure.

Prerequisite: MATH 281A.

MATH 281C. Set Theory. 4 Units.
Ordinals, cardinals, cardinal arithmetic, combinatorial set theory, models of set theory, Gödel's constructible universe, forcing, large cardinals, iterate forcing, inner model theory, fine structure.

Prerequisite: MATH 281B.

MATH 282A. Model Theory. 4 Units.
Languages, structures, compactness and completeness. Model-theoretic constructions. Omitting types theorems. Morley's theorem. Ranks, forking. Model completeness. O-minimality. Applications to algebra.

Prerequisite: MATH 280C.

MATH 282B. Model Theory. 4 Units.
Languages, structures, compactness and completeness. Model-theoretic constructions. Omitting types theorems. Morley's theorem. Ranks, forking. Model completeness. O-minimality. Applications to algebra.

Prerequisite: MATH 282A.

MATH 282C. Model Theory. 4 Units.
Languages, structures, compactness and completeness. Model-theoretic constructions. Omitting types theorems. Morley's theorem. Ranks, forking. Model completeness. O-minimality. Applications to algebra.

Prerequisite: MATH 282B.

MATH 285A. Topics in Mathematical Logic. 4 Units.
Studies in selected areas of mathematical logic, a continuation of MATH 280A-MATH 280B-MATH 280C. Topics addressed vary each quarter.

Prerequisite: MATH 280C.

Repeatability: Unlimited as topics vary.

MATH 285B. Topics in Mathematical Logic. 4 Units.
Studies in selected areas of mathematical logic, a continuation of MATH 280A-MATH 280B-MATH 280C. Topics addressed vary each quarter.

Prerequisite: MATH 285A.

Repeatability: Unlimited as topics vary.

MATH 285C. Topics in Mathematical Logic. 4 Units.
Studies in selected areas of mathematical logic, a continuation of MATH 280A-MATH 280B-MATH 280C. Topics addressed vary each quarter.

Prerequisite: MATH 285B.

Repeatability: Unlimited as topics vary.

MATH 290A. Methods in Applied Mathematics. 4 Units.
Introduction to ODEs and dynamical systems: existence and uniqueness. Equilibria and periodic solutions. Bifurcation theory. Perturbation methods: approximate solution of differential equations. Multiple scales and WKB. Matched asymptotic. Calculus of variations: direct methods, Euler-Lagrange equation. Second variation and Legendre condition.

MATH 290B. Methods in Applied Mathematics. 4 Units.
Introduction to ODEs and dynamical systems: existence and uniqueness. Equilibria and periodic solutions. Bifurcation theory. Perturbation methods: approximate solution of differential equations. Multiple scales and WKB. Matched asymptotic. Calculus of variations: direct methods, Euler-Lagrange equation. Second variation and Legendre condition.

Prerequisite: MATH 290A.

MATH 290C. Methods in Applied Mathematics. 4 Units.
Introduction to ODEs and dynamical systems: existence and uniqueness. Equilibria and periodic solutions. Bifurcation theory. Perturbation methods: approximate solution of differential equations. Multiple scales and WKB. Matched asymptotic. Calculus of variations: direct methods, Euler-Lagrange equation. Second variation and Legendre condition.

Prerequisite: MATH 290B.

MATH 291C. Topics in Applied and Computational Math. 4 Units.
Studies in selected areas of applied and computational mathematics. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

MATH 295A. Partial Differential Equations. 4 Units.
Theory and techniques for linear and nonlinear partial differential equations. Local and global theory of partial differential equations: analytic, geometric, and functional analytic methods.

Prerequisite: MATH 210C and MATH 112B and MATH 112C.

MATH 295B. Partial Differential Equations. 4 Units.
Theory and techniques for linear and nonlinear partial differential equations. Local and global theory of partial differential equations: analytic, geometric, and functional analytic methods.

Prerequisite: MATH 295A.

MATH 295C. Partial Differential Equations. 4 Units.
Theory and techniques for linear and nonlinear partial differential equations. Local and global theory of partial differential equations: analytic, geometric, and functional analytic methods.

Prerequisite: MATH 295B.

MATH 296. Topics in Partial Differential Equations. 4 Units.
Studies in selected areas of partial differential equations, a continuation of MATH 295A-MATH 295B-MATH 295C. Topics addressed vary each quarter.

Prerequisite: MATH 295C.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

MATH 297. Mathematics Colloquium. 1 Unit.
Weekly colloquia on topics of current interest in mathematics.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MATH 298A. Seminar . 1-3 Units.
Seminars organized for detailed discussion of research problems of current interest in the Department. The format, content, frequency, and course value are variable.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

MATH 298B. Seminar . 2 Units.
Seminars organized for detailed discussion of research problems of current interest in the Department. The format, content, frequency, and course value are variable.

Prerequisite: MATH 298A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

MATH 298C. Seminar . 2 Units.
Seminars organized for detailed discussion of research problems of current interest in the Department. The format, content, frequency, and course value are variable.

Prerequisite: MATH 298B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

MATH 299A. Supervised Reading and Research. 1-12 Units.
Supervised reading and research with Mathematics faculty.

Repeatability: May be repeated for credit unlimited times.

MATH 299B. Supervised Reading and Research. 1-12 Units.
Supervised reading and research with Mathematics faculty.

Prerequisite: MATH 299A.

Repeatability: May be repeated for credit unlimited times.

MATH 299C. Supervised Reading and Research. 1-12 Units.
Supervised reading and research with Mathematics faculty.

Prerequisite: MATH 299B.

Repeatability: May be repeated for credit unlimited times.

MATH 399. University Teaching. 1-4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Physical Science Courses

PHY SCI 5. California Teach 1: Introduction to Science and Mathematics Teaching. 3 Units.
First in a series for students interested in becoming middle or high school teachers of mathematics or science. Students gain an understanding of effective, research-based teaching strategies. Includes supervised field experience in a K-12 classroom.

Same as BIO SCI 14.

Restriction: School of Physical Sciences, School of Biological Sciences, School of Information and Computer Sciences, and School of Engineering majors have first consideration for enrollment.

PHY SCI 105. California Teach 2: Middle School Science and Mathematics Teaching. 3 Units.
Second in a series for students interested in becoming middle or high school teachers of mathematics or science. Students gain an understanding of effective, research-based teaching strategies for grades 6-8. Includes supervised field experience in a middle school classroom.

Prerequisite: PHY SCI 5.

Same as BIO SCI 101.

Restriction: School of Physical Sciences, School of Biological Sciences, School of Information and Computer Sciences, and School of Engineering majors have first consideration for enrollment.

PHY SCI 106. California Teach 3: High School Science and Mathematics Teaching. 2 Units.
Capstone of a series of three seminars for students interested in becoming secondary mathematics or science teachers. Meets six times for students to understand effective, research-based teaching strategies. Includes an opportunity to experience teaching in a high school.

Prerequisite: (PHY SCI 5 or BIO SCI 14) and (PHY SCI 105 or BIO SCI 101).

Same as BIO SCI 102.

Restriction: School of Physical Sciences, School of Biological Sciences, School of Information and Computer Sciences, and School of Engineering majors have first consideration for enrollment.

PHY SCI 139W. Technical Writing and Communication Skills. 4 Units.
Workshop in writing technical reports, journal articles, proposals. Oral presentations. Communicating with the public. May not be used in satisfaction of any School or departmental requirement.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. School of Physical Sciences majors have first consideration for enrollment.

(Ib)

PHY SCI 220. Science Communication Skills. 2 Units.
Development of effective communication skills, oral and written presentations. Topics range from the art of creating keynote slides to strategically crafting a personal story, culminating in a live presentation to an invited audience.

Physics Courses

PHYSICS 2. Introduction to Mathematical Methods for Physics. 4 Units.
Provides the applied mathematics and problem solving/presentation skills necessary for success in an introductory physics sequence. Focuses on practical exercises in problem solving. Covers kinematics in one and two dimensions in detail. Additional topics include vectors, differentiation, and integration.

Corequisite: MATH 2A.
Prerequisite: Passing score on the UCI Physics Placement Exam.

PHYSICS 3A. Basic Physics. 4 Units.
Vectors; motion, force, and energy. Course may be offered online.

Corequisite: MATH 2A.

(II, Va)

PHYSICS 3B. Basic Physics. 4 Units.
Fluids; heat; electricity and magnetism.

Prerequisite: PHYSICS 3A.

(II, Va)

PHYSICS 3C. Basic Physics. 4 Units.
Waves and sound; optics; quantum ideas; atomic and nuclear physics; relativity.

Corequisite: MATH 2B.
Prerequisite: PHYSICS 3B.

(II, Va)

PHYSICS 3LB. Basic Physics Laboratory. 1.5 Unit.
Practical applications of electronics and classical physics to biology. Goals include skill to use oscilloscope and other basic instrumentation. Materials fee.

PHYSICS 3LC. Basic Physics Laboratory. 1.5 Unit.
Practical applications of physics to medical imaging. Topics include optics, radioactivity, and acoustics. Materials fee.

PHYSICS 7C. Classical Physics. 4 Units.
Topics include force; energy; momentum; rotation and gravity.

Corequisite: PHYSICS 7LC and MATH 2B.
Prerequisite: MATH 2A and ((PHYSICS 2 or (Math 2D and CHEM 1C or CHEM H2C or CHEM M3C)) or passing score on the UCI Physics Placement Exam). PHYSICS 2 with a grade of C or better.

Restriction: Physics majors have first consideration for enrollment in one section of this course. PHYSICS 7C may not be taken for credit after PHYSICS 7A and PHYSICS 7B.

(II, Va)

PHYSICS 7D. Classical Physics. 4 Units.
Electricity and magnetism.

Corequisite: PHYSICS 7LD and MATH 2D.
Prerequisite: PHYSICS 7C and MATH 2B.

Restriction: Physics majors have first consideration for enrollment in one section of this course.

(II, Va)

PHYSICS 7E. Classical Physics. 4 Units.
Fluids; oscillations; waves; and optics. Course may be offered online.

Prerequisite: PHYSICS 7C and MATH 2B.

Restriction: Physics majors have first consideration for enrollment in one section of this course.

(II, Va)

PHYSICS 7LC. Classical Physics Laboratory. 1 Unit.
Experiments related to lecture topics in Physics 7C. Materials fee.

Corequisite: PHYSICS 7C.

Overlaps with PHYSICS 7LA, PHYSICS 7LB.

Restriction: Physics majors have first consideration for enrollment.

PHYSICS 7LD. Classical Physics Laboratory. 1 Unit.
Electricity and magnetism.

Corequisite: PHYSICS 7D.

Restriction: Physics majors have first consideration for enrollment in select section(s) of this course.

PHYSICS 12. Science Fiction and Science Fact. 4 Units.
An introduction to fundamental physics principles, the scientific process, and the mathematical language of science, used to analyze topics drawn from superheroes, science fiction works, and current science news to distinguish science fiction and science fact. Course may be offered online.

Overlaps with PHYSICS 21.

(II, Va)

PHYSICS 14. Physics of Energy and the Environment. 4 Units.
The physics of society's energy production and consumption, and of their influences on the environment. Topics include fossil and renewable energy resources; nuclear power; prospects for a hydrogen economy; efficient and environmentally benign transportation; efficient home and commercial energy usage.

Restriction: Non-School of Physical Sciences majors only. Non-Physics majors only.

(II)

PHYSICS 15. Physics of Music. 4 Units.
Introduces basic physical principles underlying generation and properties of music, including basic properties of sound waves, musical scales and temperament, musical instruments, and acoustics of music halls. No mathematics background required, but high school algebra is recommended.

(II)

PHYSICS 17. Physics of Athletics. 4 Units.
Introduces basic physical principles behind motion. Examples are drawn from a range of athletic endeavors (such as ice skating, baseball, diving, and dance). No mathematics background required, but high school algebra is recommended.

(II)

PHYSICS 18. How Things Work. 4 Units.
Survey of the physical basis of modern technology, with an emphasis on electronics and materials. Topics include power generation and distribution, communication (radio, TV, telephone, computers, tape recorders, CD players), imaging (optics, x-rays, MRI), and modern materials (alloys, semiconductors, superconductors). Course may be offered online.

(II)

PHYSICS 19. Great Ideas of Physics. 4 Units.
Introduces nonscience majors to physics, examining important breakthroughs and controversies. Potential topics: Einstein's Relativity; Heisenberg's Uncertainty Principle; black holes; extra-dimensions; antimatter. Case studies illustrate the essential nature of scientific review and independent confirmation of results. No mathematics background required.

(II)

PHYSICS 20A. Introduction to Astronomy. 4 Units.
History of astronomy. Underlying physics. Objects in the solar system and how they are studied. Properties of stars: their formation, structure, and evolution. Pulsars and black holes. Galaxies and quasars. Course may be offered online.

(II, Va)

PHYSICS 20B. Cosmology: Man's Place in the Universe. 4 Units.
"Cook's Tour" of the universe. Ancient world models. Evidence for universal expansion; the size and age of the universe and how it all began. The long-range future and how to decide the right model. Anthropic principle. Course may be offered online.

(II, Va)

PHYSICS 20C. Observational Astronomy. 4 Units.
Basics of observing the night sky. Includes using UCI Observatory telescopes. Discusses fundamental observational techniques used to determine orbits and masses of objects, identify asteroids, classify stars, derive star cluster ages, measure the Universe's expansion rate and dark matter content. Course may be offered online.

Prerequisite: PHYSICS 20A or PHYSICS 20B or MATH 1B or MATH 2A.

(II, Va)

PHYSICS 20D. Space Science. 4 Units.
Motions of planets, satellites, and rockets. Propulsion mechanisms and space flight. The solar radiation field and its influence on planets. The interplanetary medium, solar wind, and solar-terrestrial relations. Course may be offered online.

(II, Va)

PHYSICS 20E. Life in the Universe. 4 Units.
An overview of the scientific quest to discover life elsewhere in the universe. Topics include the origin of life on Earth, Mars, extra-solar planets, interstellar travel, and extra-terrestrial intelligence.

(II, Va)

PHYSICS 21. Special Topics in Physics. 4 Units.
Topics addressed vary each quarter. Past topics have included physics and music, Newton, planetary science. Lectures on areas of special interest in physics used to introduce students to scientific method, fundamental laws of science, qualitative and quantitative analysis of data.

Repeatability: Unlimited as topics vary.

Overlaps with PHYSICS 12, PHYSICS XI12.

(II)

PHYSICS 50. Mathematical Methods for Physical Science. 4 Units.
Mathematica and its applications to linear algebra, differential equations, and complex functions. Fourier series and Fourier transforms. Other topics in integral transforms. Course may be offered online.

Corequisite: MATH 2E.
Prerequisite: MATH 2J or MATH 3A.

Overlaps with PHYSICS 100.

PHYSICS 51A. Modern Physics. 4 Units.
Wave-particle duality; quantum mechanics; special relativity; statistical mechanics.

Prerequisite: (PHYSICS 7E or PHYSICS 3C) and MATH 2D.

Overlaps with PHYSICS 61A.

Restriction: Non-Physics majors only.

PHYSICS 51B. Modern Physics. 4 Units.
Atoms; molecules; solids; nuclei; elementary particles.

Prerequisite: PHYSICS 51A or PHYSICS 61A.

Overlaps with PHYSICS 61B.

Restriction: Non-Physics majors only.

PHYSICS 52A. Fundamentals of Experimental Physics. 2 Units.
Optics: lenses, mirrors, polarization, lasers, optical fibers, interference, spectra. Materials fee.

Corequisite: PHYSICS 7E or PHYSICS 3C.

Restriction: Physics majors have first consideration for enrollment in select section(s) of this course.

PHYSICS 52B. Fundamentals of Experimental Physics. 2 Units.
Circuits: oscilloscope, meters, DC and AC circuits. Materials fee.

Prerequisite: PHYSICS 7D or PHYSICS 3B.

Restriction: Physics majors have first consideration for enrollment in select section(s) of this course.

PHYSICS 52C. Fundamentals of Experimental Physics. 2 Units.
Data analysis: random and systematic errors, curve fitting; nuclear counting; quantum experiments. Error analysis: random and systematic errors, curve fitting, nuclear counting, and quantum experiments. Materials fee.

Prerequisite: PHYSICS 51A or PHYSICS 61A.

Restriction: Physics majors have first consideration for enrollment in select section(s) of this course.

PHYSICS 53. Introduction to C and Numerical Analysis. 4 Units.
Introduction to structured programming; in-depth training in C. Elementary numerical methods applied to physics problems.

Prerequisite: (MATH 2J or MATH 3A) and MATH 3D.

PHYSICS 60. Thermal Physics. 4 Units.
Introduction to thermodynamics and systems of many particles. Topics include first and second laws of thermodynamics, ideal gas laws, kinetic theory, heat engines and refrigerators, thermodynamic potentials, phase transitions, dilute solutions, chemical equilibrium, and basic statistical distributions.

Prerequisite: (PHYSICS 7E or PHYSICS 3C) and MATH 2D.

Restriction: Physics majors only.

PHYSICS 61A. Modern Physics for Majors. 4 Units.
Wave-particle duality; Schrödinger equation; angular momentum.

Prerequisite: (PHYSICS 7E or PHYSICS 3C) and MATH 2D.

Overlaps with PHYSICS 51A.

Restriction: Physics majors only.

PHYSICS 61B. Modern Physics for Majors. 4 Units.
Atomic transitions; molecules; solids; nuclei; elementary particles; cosmological models.

Prerequisite: PHYSICS 61A or PHYSICS 51A.

Overlaps with PHYSICS 51B.

Restriction: Physics majors only.

PHYSICS H90. The Idiom and Practice of Science. 4 Units.
A series of fundamental and applied scientific problems of social relevance. Possible topics include Newton's Law, calculus, earthquake physics, and radiation.

Restriction: Campuswide Honors Program students only.

(II, Va)

PHYSICS 99. General Physics Seminar. 1 Unit.
Designed to introduce undergraduate students to current topics in physics. Focus is discussion of selected readings on current research issues.

Repeatability: Unlimited as topics vary.

PHYSICS 100. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Overlaps with PHYSICS 50.

Concurrent with PHYSICS 229A.

PHYSICS 106. Laboratory Skills. 4-6 Units.
Introduces students to a variety of practical laboratory techniques, including lock-in, boxcar, coincidence counting, noise filtering, PID control, properties of common transducers, computer interfacing to instruments, vacuum technology, laboratory safety, basic mechanical design, and shop skills.

Concurrent with PHYSICS 206 and CHEM 206.

PHYSICS 111A. Classical Mechanics. 4 Units.
One-dimensional motion and oscillations; three-dimensional motion, non-inertial coordinates, conservation laws, and Lagrangian and Hamiltonian dynamics; rigid body motion and relativity.

Prerequisite: (PHYSICS 7E or PHYSICS 3C) and PHYSICS 50.

PHYSICS 111B. Classical Mechanics. 4 Units.
One-dimensional motion and oscillations; three-dimensional motion, non-inertial coordinates, conservation laws, and Lagrangian and Hamiltonian dynamics; rigid body motion and relativity.

Prerequisite: PHYSICS 111A.

PHYSICS 112A. Electromagnetic Theory. 4 Units.
Electric, magnetic, and gravitational fields and potentials; electrodynamics; mechanical and electromagnetic waves and radiation.

Prerequisite: (PHYSICS 7D or PHYSICS 3B) and PHYSICS 50.

PHYSICS 112B. Electromagnetic Theory. 4 Units.
Electric, magnetic, and gravitational fields and potentials; electrodynamics; mechanical and electromagnetic waves and radiation.

Prerequisite: PHYSICS 7E and PHYSICS 112A.

PHYSICS 113A. Quantum Physics. 4 Units.
Inadequacy of classical physics; time independent and time dependent Schrodinger equation; systems in one, two, and three dimensions; matrices; Hermitian operators; symmetries; angular momentum; perturbation theory; scattering theory; applications to atomic structure; emphasis on phenomenology.

Prerequisite: (PHYSICS 51A or PHYSICS 61A) and PHYSICS 50.

PHYSICS 113B. Quantum Physics. 4 Units.
Inadequacy of classical physics; time independent and time dependent Schrodinger equation; systems in one, two, and three dimensions; matrices; Hermitian operators; symmetries; angular momentum; perturbation theory; scattering theory; applications to atomic structure; emphasis on phenomenology.

Prerequisite: PHYSICS 111B and PHYSICS 112B and PHYSICS 113A.

PHYSICS 113C. Quantum Physics. 4 Units.
Inadequacy of classical physics; time independent and time dependent Schrodinger equation; systems in one, two, and three dimensions; matrices; Hermitian operators; symmetries; angular momentum; perturbation theory; scattering theory; applications to atomic structure; emphasis on phenomenology.

Prerequisite: PHYSICS 111B and PHYSICS 112B and PHYSICS 113B.

PHYSICS 115A. Statistical Physics. 4 Units.
Microscopic theory of temperature, heat, and entropy; kinetic theory; multicomponent systems; quantum statistics.

Prerequisite: PHYSICS 50 and PHYSICS 60.

PHYSICS 115B. Thermodynamics. 4 Units.
Macroscopic theory of temperature, heat, and entropy; mathematical relationships of thermodynamics; heat engines; phase transitions.

Prerequisite: PHYSICS 115A.

PHYSICS 116. Relativity and Black Holes. 4 Units.
Introduces students to both special and general relativity; includes the formalism of four-vectors, equivalence principle, curved space-time, and modern issues with black holes.

Corequisite: PHYSICS 111A.
Prerequisite: PHYSICS 50.

PHYSICS 120. Electronics for Scientists. 4 Units.
Applications of modern semiconductor devices to physical instrumentation. Characteristics of semiconductor devices, integrated circuits, analog and digital circuits. Materials fee.

Prerequisite: PHYSICS 52B.

Concurrent with PHYSICS 220.

PHYSICS 121W. Advanced Laboratory. 4 Units.
Experiments in atomic, condensed matter, nuclear, particle, and plasma physics. Introduction to instrumentation and a first experience in the research laboratory.

Prerequisite: (PHYSICS 51B or PHYSICS 61B) and (PHYSICS 52C or PHYSICS 193) and (PHYSICS 194 or EDUC 143BW).

Repeatability: May be taken for credit 3 times.

Restriction: Physics majors only.

(Ib)

PHYSICS 125A. Mathematical Physics. 4 Units.
Complex variables; Legendre and Bessel functions; complete sets of orthogonal functions; partial differential equations; integral equations; calculus of variations; coordinate transformations; special functions and series.

Prerequisite: PHYSICS 50 and MATH 3D.

PHYSICS 125B. Mathematical Physics. 4 Units.
Complex variables; Legendre and Bessel functions; complete sets of orthogonal functions; partial differential equations; integral equations; calculus of variations; coordinate transformations; special functions and series.

Prerequisite: PHYSICS 125A and PHYSICS 113A.

PHYSICS 133. Introduction to Condensed Matter Physics. 4 Units.
Phenomena of solids and their interpretation in terms of quantum theory.

Prerequisite: PHYSICS 113B and PHYSICS 115A.

PHYSICS 134A. Physical and Geometrical Optics. 4 Units.
Focuses on the practical aspects of optics and optical engineering, starting at the fundamentals. Topics include geometrical optics, ray tracing, polarization optics, interferometers, and diffractive optics.

Corequisite: PHYSICS 112B.
Prerequisite: PHYSICS 112A.

Concurrent with CBEMS 242A and CHEM 242A.

PHYSICS 135. Plasma Physics. 4 Units.
Basic concepts, orbits, kinetic and fluid equations, Coulomb collisions, fluctuations, scattering, radiation.

Prerequisite: PHYSICS 112B.

Concurrent with PHYSICS 239A.

PHYSICS 136. Introduction to Particle Physics. 4 Units.
Experimental techniques and theoretical concepts of high-energy phenomena: accelerators and detectors; classification of particles and interactions; particle properties; symmetries and mass multiplets; production and decay mechanisms.

Prerequisite: PHYSICS 113B.

PHYSICS 137. Introduction to Cosmology. 4 Units.
Solution of the differential equations governing the expansion of the Universe. Observational determinations of the parameters governing the expansion. Big Bang inflation, primordial nucleosynthesis, and cosmic microwave background. Dark matter, dark energy, and large-scale structure of the Universe.

Prerequisite: PHYSICS 111A.

PHYSICS 138. Extragalactic Astrophysics. 4 Units.
Introduction to the solar neighborhood, Milky Way, and other galaxies. Interstellar medium. Star formation. Stellar populations. Evolution of spiral, elliptical, and irregular galaxies. Supermassive black holes, quasars, and active galaxies. Galaxies as probes of the expansion rate of the Universe.

Prerequisite: PHYSICS 111A.

PHYSICS 139. Observational Astrophysics. 4 Units.
Telescopes and astronomical observations, imaging with CCD detectors and image processing techniques. Photometry and spectroscopy of stars, galaxies, and quasars. Advanced imaging techniques such as deconvolution, adaptive optics, and interferometry.

Prerequisite: PHYSICS 52A and PHYSICS 52B and PHYSICS 52C and PHYSICS 53.

PHYSICS 144. Stellar Astrophysics. 4 Units.
Stars: their structure and evolution; physical state of the interior; the Hertzprung- Russell diagram, stellar classification, and physical principles responsible for the classification; star formation; nuclear burning; giant and dwarf stars; neutron stars and black holes.

Prerequisite: (PHYSICS 51A or PHYSICS 61A) and PHYSICS 111A and PHYSICS 112A.

PHYSICS 145. High-Energy Astrophysics. 4 Units.
Production of radiation by high-energy particles, white dwarfs, neutron stars, and black holes. Evolution of galactic nuclei, radio galaxies, quasars, and pulsars. Cosmic rays and the cosmic background radiation.

Prerequisite: (PHYSICS 51A or PHYSICS 61A) and PHYSICS 111A and PHYSICS 112A.

PHYSICS 146A. Biophysics of Molecules and Molecular Machines. 4 Units.
Physical concepts and experimental and computational techniques used to study the structure and function of biological molecules and molecular machines with examples from enzyme action, protein folding, molecular motors, photobiology, chemotaxis, and vision.

Prerequisite: PHYSICS 115A.

Concurrent with PHYSICS 230A.

PHYSICS 146B. Biophysics of Molecules and Molecular Machines. 4 Units.
Physical concepts and experimental and computational techniques used to study the structure and function of biological molecules and molecular machines with examples from enzyme action, protein folding, molecular motors, photobiology, chemotaxis, and vision.

Prerequisite: PHYSICS 115A.

Concurrent with PHYSICS 230B.

PHYSICS 147A. Principles of Imaging. 4 Units.
Linear systems, probability and random processes, image processing, projection imaging, tomographic imaging.

Prerequisite: PHYSICS 50.

Concurrent with PHYSICS 233A and EECS 202A.

PHYSICS 147B. Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging. 4 Units.
Ionizing radiation, planar and tomographic radiographic and nuclear imaging, magnetism, NMR, MRI imaging.

Prerequisite: PHYSICS 147A.

Concurrent with PHYSICS 233B and EECS 202B.

PHYSICS 147C. Techniques in Medical Imaging II: Ultrasound, Electrophysiological, Optical. 4 Units.
Sound and ultrasound, ultrasonic imaging, physiological electromagnetism, EEG, MEG, ECG, MCG, optical properties of tissues, fluorescence and bioluminescence, MR impedance imaging, MR spectroscopy, electron spin resonance and ESR imaging.

Prerequisite: PHYSICS 147B.

Concurrent with PHYSICS 233C and EECS 202C.

PHYSICS 150. Special Topics in Physics and Astronomy. 4 Units.
Current topics in physics. Includes topics from nano-science, biological sciences, astrophysics, and the common use of estimation across subdisciplines within physics.

Repeatability: Unlimited as topics vary.

PHYSICS 191. Field Experience in Physics Education. 1-4 Units.
Students develop and perform physics assemblies at neighboring public schools.

Prerequisite: PHYSICS 7C and PHYSICS 7D and PHYSICS 7E.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

PHYSICS 192. Tutoring in Physics. 1-2 Units.
Formalizes the already existing free tutoring for the lower-division physics courses that is provided by the Society of Physics Students (SPS). Includes instructions on tutoring techniques.

Prerequisite: PHYSICS 7E.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 12 units.

Restriction: Society of Physics Students (SPS) tutoring program students only.

PHYSICS 193. Research Methods. 4 Units.
Explores tools of inquiry for developing and implementing science research projects. Students undertake independent projects requiring data collection, analysis, and modeling, and the organization and presentation of results. Additional topics include ethical issues and role of scientific literature.

Prerequisite: BIO SCI 14 or PHY SCI 5.

Same as BIO SCI 108, CHEM 193.

PHYSICS 194. Research Communication for Physics Majors. 2 Units.
Students learn the fundamentals of communicating about research. Topics include preparing abstracts, proposals, and literature reviews. Provides preparation for presentation of independent research projects in PHYSICS 121 and PHYSICS 196.

Prerequisite: PHYSICS 61B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Physics majors only.

PHYSICS 195. Undergraduate Research. 4 Units.
Independent research under the guidance of a Physics faculty member.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Juniors only. Physics majors only.

PHYSICS 196A. Thesis in Physics I. 2 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Corequisite: PHYSICS 194.

Overlaps with PHYSICS H196A.

Restriction: Physics majors only.

PHYSICS 196B. Thesis in Physics II. 4 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Prerequisite: PHYSICS 196A.

Overlaps with PHYSICS H196B.

Restriction: Physics majors only.

PHYSICS 196C. Thesis in Physics III. 4 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Prerequisite: PHYSICS 196B.

Overlaps with PHYSICS H196C, PHYSICS 197.

Restriction: Physics majors only.

PHYSICS H196A. Honors Thesis in Physics I. 2 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Corequisite: PHYSICS 194.

Overlaps with PHYSICS 196A.

Restriction: Physics majors only. Honors Program in Physics students only. Campuswide Honors Program students only.

PHYSICS H196B. Honors Thesis in Physics II. 4 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Prerequisite: PHYSICS H196A.

Overlaps with PHYSICS 196B.

Restriction: Physics majors only. Honors Program in Physics students only. Campuswide Honors Program students only.

PHYSICS H196C. Honors Thesis in Physics III. 4 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Prerequisite: PHYSICS H196B.

Overlaps with PHYSICS 196C.

Restriction: Physics majors only. Honors Program in Physics students only. Campuswide Honors Program students only.

PHYSICS 199. Readings on Special Topics. 1-4 Units.
Readings in selected areas of Physics. Topics addressed vary each quarter.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 206. Laboratory Skills. 4-6 Units.
Introduces students to a variety of practical laboratory techniques, including lock-in, boxcar, coincidence counting, noise filtering, PID control, properties of common transducers, computer interfacing to instruments, vacuum technology, laboratory safety, basic mechanical design, and shop skills. Materials fee.

Same as CHEM 206.

Concurrent with PHYSICS 106.

PHYSICS 207. Chemistry for Physicists. 4 Units.
Introduction to fundamental concepts in molecular structure and reactivity: theory of bonding, valence and molecular orbitals; structure and reactivity in inorganic chemistry; elements in molecular group theory; nomenclature in organic chemistry; and survey of macromolecules.

Same as CHEM 207.

PHYSICS 208. Mathematics for Chemists. 4 Units.
Applications of mathematics to physical and chemical problems. Calculus of special functions, complex variables and vectors; linear vector spaces and eigenvalue problems. Differential equations.

Same as CHEM 208.

PHYSICS 211. Classical Mechanics. 4 Units.
Variational principles, Lagrange's equations; applications to two body problems, small oscillation theory, and other phenomena. Hamilton's equations. Hamilton-Jacobi theory. Canonical transformations.

Restriction: Graduate students only.

PHYSICS 212A. Mathematical Physics. 4 Units.
Complex variables and integration; ordinary and partial differential equations; the eigenvalue problem.

Restriction: Graduate students only.

PHYSICS 213A. Electromagnetic Theory. 4 Units.
Electrostatics; magnetostatics; relativity; classical electron theory; fields in vacuum and matter; retardation; radiation and absorption; dispersion; propagation of light; diffraction; geometric optics; theories of the electric and magnetic properties of materials; scattering.

PHYSICS 213B. Electromagnetic Theory. 4 Units.
Electrostatics; magnetostatics; relativity; classical electron theory; fields in vacuum and matter; retardation; radiation and absorption; dispersion; propagation of light; diffraction; geometric optics; theories of the electric and magnetic properties of materials; scattering.

Prerequisite: Physics 213A.

PHYSICS 214A. Statistical Physics. 4 Units.
Maxwell-Boltzmann, Bose-Einstein, Fermi-Dirac statistics; ideal and imperfect gases; thermodynamic properties of solids; transport theory.

Restriction: Graduate students only.

PHYSICS 214B. Statistical Physics. 4 Units.
Phase transitions; critical phenomena; cooperative phenomena; fluctuations.

Prerequisite: PHYSICS 214A.

Restriction: Graduate students only.

PHYSICS 214C. Many Body Theory. 4 Units.
Application of field theory methods, perturbative and non-perturbative, to many particle systems; second quantization, Feynman diagrams, linear response theory, and functional integral methods applied to the ground state and at finite temperature.

Prerequisite: PHYSICS 214A and PHYSICS 215A and PHYSICS 215B.

Restriction: Graduate students only.

PHYSICS 215A. Quantum Mechanics. 4 Units.
Foundations; Dirac notation; basic operators and their eigenstates; perturbation theory; spin.

Restriction: Graduate students only.

PHYSICS 215B. Quantum Mechanics. 4 Units.
Atomic physics; scattering theory, formal collision theory; semi-classical radiation theory; many body systems.

Prerequisite: PHYSICS 215A.

Restriction: Graduate students only.

PHYSICS 220. Electronics for Scientists. 4 Units.
Applications of modern semiconductor devices to physical instrumentation. Characteristics of semiconductor devices, integrated circuits, analog and digital circuits.

Restriction: Graduate students only.

Concurrent with PHYSICS 120.

PHYSICS 222. Continuum Mechanics. 4 Units.
Introduction to the continuum limit and stress and strain tensors. Hydrodynamics of perfect fluids; two-dimensional problems, motion of incompressible viscous fluids, Navier Stokes equations. Basic elasticity theory. Description of viscoelastic materials. Introduction to nonlinear behavior instabilities.

PHYSICS 223. Numerical Methods. 4 Units.
Introduction to theory and practice of modern numerical methods. Techniques are drawn from topics such as solution of differential equations, Monte Carlo methods, Fast Fourier transforms, and evaluation of special functions.

PHYSICS 228. Electromagnetism. 4 Units.
Maxwell's equations, electrodynamics, electromagnetic waves and radiation, wave propagation in media, interference and quantum optics, coherent and incoherent radiation, with practical applications in interferometry, lasers, waveguides, and optical instrumentation.

Same as CHEM 228.

PHYSICS 229A. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Same as CHEM 229A.

Concurrent with PHYSICS 100.

PHYSICS 229B. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Same as CHEM 229B.

PHYSICS 230A. Biophysics of Molecules and Molecular Machines. 4 Units.
Physical concepts and experimental and computational techniques used to study the structure and function of biological molecules and molecular machines with examples from enzyme action, protein folding, molecular motors, photobiology, chemotaxis, and vision.

Concurrent with PHYSICS 146A.

PHYSICS 230B. Biophysics of Molecules and Molecular Machines. 4 Units.
Physical concepts and experimental and computational techniques used to study the structure and function of biological molecules and molecular machines with examples from enzyme action, protein folding, molecular motors, photobiology, chemotaxis, and vision.

Concurrent with PHYSICS 146B.

PHYSICS 231. Special Topics in Computational Physics. 4 Units.
Modern symbolic and numerical techniques on state-of-the-art computers for solving problems in classical and quantum mechanics, fluids, electromagnetism, and mathematical physics.

Prerequisite: PHYSICS 223 or PHYSICS 229A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 233A. Principles of Imaging. 4 Units.
Linear systems, probability and random processes, image processing, projecting imaging, tomographic imaging.

Prerequisite: PHYSICS 51B or PHYSICS 61B.

Same as EECS 202A.

Restriction: Graduate students only.

Concurrent with PHYSICS 147A.

PHYSICS 233B. Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging. 4 Units.
Ionizing radiation, planar and tomographic radiographic and nuclear imaging, magnetism, NMR, MRI imaging.

Prerequisite: EECS 202A.

Same as EECS 202B.

Restriction: Graduate students only.

Concurrent with PHYSICS 147B.

PHYSICS 233C. Techniques in Medical Imaging II: Ultrasound, Electrophysiological, Optical. 4 Units.
Sound and ultrasound, ultrasonic imaging, physiological electromagnetism, EEG, MEG, ECG, MCG, optical properties of tissues, fluorescence and bioluminescence, MR impedance imaging, MR spectroscopy, electron spin resonance and ESR imaging.

Prerequisite: EECS 202B.

Same as EECS 202C.

Restriction: Graduate students only.

Concurrent with PHYSICS 147C.

PHYSICS 234A. Elementary Particle Physics. 4 Units.
Overview of Standard Model theory and phenomenology. Electromagnetic, strong and weak forces, quark model, interactions with matter, particle detectors and accelerators.

Prerequisite: PHYSICS 215B.

PHYSICS 234B. Advanced Elementary Particle Physics. 4 Units.
SU(3)xSU(2)xU(1) model of strong, weak, and electromagnetic interactions. K-meson system and CP violation, neutrino masses and mixing, grand-unified theories, supersymmetry, introduction to cosmology and its connection to particle physics.

Prerequisite: PHYSICS 234A and PHYSICS 235A.

PHYSICS 234C. Advanced Elementary Particle Physics. 4 Units.
SU(3)xSU(2)xU(1) model of strong, weak, and electromagnetic interactions. K-meson system and CP violation, neutrino masses and mixing, grand-unified theories, supersymmetry, introduction to cosmology and its connection to particle physics.

Prerequisite: PHYSICS 234A and PHYSICS 235A.

PHYSICS 235A. Quantum Field Theory. 4 Units.
Canonical quantization, scalar field theory, Feynman diagrams, tree-level quantum electrodynamics.

Prerequisite: PHYSICS 215B.

Restriction: Graduate students only.

PHYSICS 235B. Advanced Quantum Field Theory. 4 Units.
Pathintegral techniques, loop diagrams, regularization and renormalization, anomalies.

Prerequisite: PHYSICS 235A.

Restriction: Graduate students only.

PHYSICS 238A. Condensed Matter Physics. 4 Units.
Bonding in solids; crystal symmetry and group theory, elastic properties of crystals; lattice vibrations, interaction of radiation with matter; cohesion of solids; the electron gas; electron energy bands in solids; ferromagnetism; transport theory; semiconductors and superconductors; many-body perturbation theory.

Prerequisite: PHYSICS 133 and (PHYSICS 214A or CHEM 232A) and (PHYSICS 215B or CHEM 231B).

PHYSICS 238B. Condensed Matter Physics. 4 Units.
Bonding in solids; crystal symmetry and group theory, elastic properties of crystals; lattice vibrations, interaction of radiation with matter; cohesion of solids; the electron gas; electron energy bands in solids; ferromagnetism; transport theory; semiconductors and superconductors; many-body perturbation theory.

Prerequisite: PHYSICS 238A.

PHYSICS 238C. Condensed Matter Physics. 4 Units.
Bonding in solids; crystal symmetry and group theory, elastic properties of crystals; lattice vibrations, interaction of radiation with matter; cohesion of solids; the electron gas; electron energy bands in solids; ferromagnetism; transport theory; semiconductors and superconductors; many-body perturbation theory.

Prerequisite: PHYSICS 238B.

PHYSICS 239A. Plasma Physics. 4 Units.
Basic concepts, orbits, kinetic and fluid equations, Coulomb collisions, fluctuations, scattering, radiation.

Restriction: Graduate students only.

PHYSICS 239B. Plasma Physics. 4 Units.
Magnetic confinement, MHD equilibrium and stability, collisional transport.

Prerequisite: PHYSICS 239A.

Restriction: Graduate students only.

PHYSICS 239C. Plasma Physics. 4 Units.
Linear waves and instabilities, uniform un-magnetized and magnetized plasmas, non-uniform plasmas.

Prerequisite: PHYSICS 239B.

Restriction: Graduate students only.

PHYSICS 239D. Plasma Physics. 4 Units.
Nonlinear plasma physics, quasilinear theory, large-amplitude coherent waves, resonance broadening, strong turbulence.

Prerequisite: PHYSICS 239C.

Restriction: Graduate students only.

PHYSICS 240A. Galactic Astrophysics. 4 Units.
The morphology, kinematics, and evolution of our Milky Way and other galaxies. Topics include stellar formation and stellar evolution, end states of stars (supernovae, neutron stars), the distribution of stars, interstellar gas and mass in galaxies. The Local Group.

PHYSICS 240B. Cosmology. 4 Units.
An introduction to modern cosmology set within the context of general relativity. Topics include the expansion history of the Universe, inflation, the cosmic microwave background, density fluctuations, structure formation, dark matter, dark energy, and gravitational lensing.

PHYSICS 240C. Radiative Processes in Astrophysics. 4 Units.
Exploration of radiation mechanisms (electron scattering, synchrotron emission, collisional excitation, and more) and radiative transfer through matter including absorption and emission. Includes such observational astrophysics topics as spectroscopic study of atoms and nuclei, X-rays, and cosmic rays.

PHYSICS 241B. Stellar Astrophysics. 4 Units.
Physics of stellar interiors and equations of stellar structure. Stellar atmospheres and absorption processes. Introduction to stellar winds. Thermonuclear reactions, nucleosynthesis, and solar neutrinos. Binary stars and mass accretion. White dwarfs, supernovae, neutron stars, and black holes.

Prerequisite: PHYSICS 211 and PHYSICS 240A.

PHYSICS 241C. Extragalactic Astrophysics. 4 Units.
The physics and phenomenology of galaxies; star formation, interstellar medium, and intergalactic medium. Galaxy structure and dynamics. Galaxy evolution, stellar populations, and scaling relations; the relationship between galaxy properties and environment. Galaxy clusters and active galactic nuclei.

Prerequisite: PHYSICS 211 and PHYSICS 240A.

PHYSICS 241D. Early Universe Physics. 4 Units.
Includes a thorough quantum treatment of the generation of perturbations during inflation and various topics related to kinetic theory in an expanding Universe. Other topics include the astrophysics and cosmology of weakly interacting particles.

Prerequisite: PHYSICS 234A and (PHYSICS 240B or PHYSICS 255).

PHYSICS 246. Special Topics in Astrophysics. 4 Units.
Outlines and emphasizes a subarea of astrophysics that is undergoing rapid development.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 247. Special Topics in Particle Physics. 4 Units.
Current topics in particle non-accelerator-based research fields.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 248. Special Topics in Condensed Matter Physics. 4 Units.
Outlines and emphasizes a subarea of condensed matter physics that is undergoing rapid development.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PHYSICS 249. Special Topics in Plasma Physics. 4 Units.
Outlines and emphasizes a subarea of plasma physics that is undergoing rapid development.

Prerequisite: PHYSICS 239A and PHYSICS 239B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 255. General Relativity. 4 Units.
An introduction to Einstein's theory of gravitation. Tensor analysis, Einstein's field equations, astronomical tests of Einstein's theory, gravitational waves.

PHYSICS 260A. Seminar in Condensed Matter Physics. 1 Unit.
Seminar designed to acquaint students with recent advances in solid state physics. Lecturers from the Department of Physics and Astronomy (both faculty and graduate students), other UCI departments, and other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 260B. Seminar in Condensed Matter Physics. 1 Unit.
Seminar designed to acquaint students with recent advances in solid state physics. Lecturers from the Department of Physics and Astronomy (both faculty and graduate students), other UCI departments, and other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 260C. Seminar in Condensed Matter Physics. 1 Unit.
Seminar designed to acquaint students with recent advances in solid state physics. Lecturers from the Department of Physics and Astronomy (both faculty and graduate students), other UCI departments, and other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 261A. Seminar in Plasma Physics. 1 Unit.
Advanced topics in plasma physics: wave propagation, nonlinear effects, kinetic theory and turbulence, stability problems, transport coefficients, containment, and diagnostics. Applications to controlled fusion and astrophysics.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PHYSICS 261B. Seminar in Plasma Physics. 1 Unit.
Advanced topics in plasma physics: wave propagation, nonlinear effects, kinetic theory and turbulence, stability problems, transport coefficients, containment, and diagnostics. Applications to controlled fusion and astrophysics.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PHYSICS 261C. Seminar in Plasma Physics. 1 Unit.
Advanced topics in plasma physics: wave propagation, nonlinear effects, kinetic theory and turbulence, stability problems, transport coefficients, containment, and diagnostics. Applications to controlled fusion and astrophysics.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PHYSICS 263A. Seminar in Particle Physics. 1 Unit.
Discussion of advanced topics and reports of current research results in theoretical and experimental particle physics and cosmic rays.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 263B. Seminar in Particle Physics. 1 Unit.
Discussion of advanced topics and reports of current research results in theoretical and experimental particle physics and cosmic rays.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate student only.

PHYSICS 263C. Seminar in Particle Physics. 1 Unit.
Discussion of advanced topics and reports of current research results in theoretical and experimental particle physics and cosmic rays.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 265A. Seminar in Astrophysics. 1 Unit.
Acquaints students with current research in astrophysics. Lecturers from the Department of Physics and Astronomy and from other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 265B. Seminar in Astrophysics. 1 Unit.
Acquaints students with current research in astrophysics. Lecturers from the Department of Physics and Astronomy and from other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 265C. Seminar in Astrophysics. 1 Unit.
Acquaints students with current research in astrophysics. Lecturers from the Department of Physics and Astronomy and from other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 266. Current Topics in Chemical and Materials Physics. 1 Unit.
The subjects covered vary from year to year. Connection between fundamental principles and implementations in practice in science, industry, and technology.

Repeatability: May be repeated for credit unlimited times.

Same as CHEM 266.

PHYSICS 267A. Current Problems in Particle Physics. 4 Units.
Presentation and discussion of current research and theory in particle physics. Lectures given by staff and students.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 267B. Current Problems in Particle Physics. 4 Units.
Presentation and discussion of current research and theory in particle physics. Lectures given by staff and students.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 267C. Current Problems in Particle Physics. 4 Units.
Presentation and discussion of current research and theory in particle physics. Lectures given by staff and students.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 269. Seminar in Teaching Physics. 2 Units.
Techniques for effective teaching. Covers active listening and student engagement, problem-solving skills, peer instruction and collaborative learning, and evaluation. Required of all new Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

PHYSICS 273. Technical Communication Skills. 2 Units.
Development of effective communication skills, oral and written presentations, through examples and practice.

Grading Option: Satisfactory/unsatisfactory only.

Same as CHEM 273.

PHYSICS 291. Research Seminar. 1-4 Units.
Detailed discussion of research problems of current interest in the Department. Format, content, and frequency of the course are variable.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 295. Experimental Research. 4-12 Units.
With the approval of a faculty member, a student may pursue a research program in experimental physics. Typical areas include astrophysics, condensed matter physics, elementary particle physics, and plasma physics.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Physical Sciences majors only. Graduate students only.

PHYSICS 296. Theoretical Research. 4-12 Units.
With approval of a faculty member, a student may pursue a research program in theoretical physics. Typical areas include astrophysics, condensed matter physics, elementary particle physics, and plasma physics.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Physical Sciences majors only. Graduate students only.

PHYSICS 298. Physics Colloquium. 1 Unit.
Seminar held each week, in which a current research topic is explored. Frequently, off-campus researchers are invited to present the seminar, and on occasion a faculty member or researcher from the Department will speak.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Physical Sciences majors only.

PHYSICS 299. Reading of Special Topic. 4-12 Units.
With special consent from a faculty member who will agree to supervise the program, a student may receive course credit for individual study of some area of physics.

Restriction: Graduate students only.

PHYSICS 395. Laboratory Teaching. 1 Unit.
Required of and limited to teaching assistants of undergraduate laboratory courses. Designed to teach the necessary skills required of teaching assistants for these courses.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 399. University Teaching. 1-4 Units.
Required of and limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Department of Chemistry

1120 Natural Sciences II; 949-824-6018
http://www.chem.uci.edu/
Reginald M. Penner, **Department Chair**

Undergraduate Program

The major in Chemistry is elected by students planning careers in the chemical sciences and frequently also by those whose interests lie in biology, medicine, earth sciences, secondary education, business, and law. The curriculum of the Department is designed to satisfy the diverse needs of these students and others who may have occasion to study chemistry. The year-long course CHEM 1A-CHEM 1B-CHEM M3C (or the Honors sequence CHEM H2A-CHEM H2B-CHEM H2C) is prerequisite to all study in the Department at more advanced levels. The subject matter of this course serves also as a thorough introduction to the varied aspects of modern chemistry for students who do not wish to pursue their studies beyond the introductory level.

One year of high school chemistry is strongly recommended for enrollment in CHEM 1A. Refer to the Guidelines for General Chemistry course placement located on the Testing Office (http://www.testingcenter.uci.edu/chemistry.html) website. A preparatory course, Chemistry 1P, is offered in summer and fall for those who have not taken a high school chemistry course, or who need additional preparation prior to entering CHEM 1A. A grade of C- or better in CHEM 1P automatically qualifies the student for CHEM 1A.

Completion of a one-year sequence in organic chemistry is required for Chemistry majors and for students of the life sciences. Certain advanced courses required of Chemistry majors may also be of interest to others.

The undergraduate program of the Chemistry Department emphasizes close contact with research. Chemistry majors are urged to engage in research or independent study under the direction of a faculty member. Information describing the procedures for arranging an undergraduate research opportunity is available on the Chemistry Department (http://www.chem.uci.edu/undergrad) website.

Much of the important chemical literature is being and has been printed in foreign languages, principally German, Russian, Japanese, Chinese, and French. Reading competence in one or more of these languages is desirable, and Chemistry majors are encouraged to acquire this competence.

Chemistry majors who are interested in teaching chemistry at the secondary level are urged to consider completing the optional concentration in Chemistry Education. A two-year post-baccalaureate program for the M.S. in Chemistry and a California Secondary Teaching Credential is described in the Chemistry Graduate Program section. Chemistry majors who plan subsequent study in medical, dental, or other professional schools should request information concerning admission requirements directly from the schools which they seek to enter. Counseling about preparation for a career in the health sciences is provided by the health science advisors in the Francisco J. Ayala School of Biological Sciences. Those intending to pursue graduate studies in chemistry should discuss their plans with a faculty member no later than the fall quarter of their senior year.

Admission to the Major

Students may be admitted to the Chemistry major upon entering the University as freshmen, via change of major, or as transfer students from other colleges and universities. Information about change of major policies is available in the Physical Sciences Student Affairs Office and at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. For transfer student admission, preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following required courses: one year of general chemistry with laboratory and one year of approved calculus. Completion of one year of organic chemistry is strongly recommended.

Requirements for the B.S. Degree in Chemistry

All students must meet the University Requirements (p. 71)**.**
School Requirements: None.

Departmental Requirements [1]

Basic Requirements	
MATH 2A- 2B- 2D	Single-Variable Calculus and Single-Variable Calculus and Multivariable Calculus
PHYSICS 7C- 7D- 7E	Classical Physics and Classical Physics and Classical Physics
PHYSICS 7LC- 7LD	Classical Physics Laboratory and Classical Physics Laboratory
Select one of the following sequences and accompanying labs:	
CHEM 1A- 1B	General Chemistry and General Chemistry
CHEM M3C	Majors Quantitative Analytical Chemistry
CHEM M2LA- M2LB	Majors General Chemistry Laboratory and Majors General Chemistry Laboratory
CHEM M3LC	Majors Quantitative Analytical Chemistry Laboratory
or	
CHEM H2A- H2B- H2C	Honors General Chemistry and Honors General Chemistry and Honors General Chemistry
CHEM H2LA- H2LB- H2LC	Honors General Chemistry Laboratory and Honors General Chemistry Laboratory and Honors General Chemistry Laboratory
Select one of the following organic chemistry sequences and accompanying labs:	
CHEM 51A- 51B- 51C	Organic Chemistry and Organic Chemistry and Organic Chemistry
CHEM M52LA- M52LB- M52LC	Majors Organic Chemistry Laboratory and Majors Organic Chemistry Laboratory and Majors Organic Chemistry Laboratory
or	
CHEM H52A- H52B- H52C	Honors Organic Chemistry and Honors Organic Chemistry and Honors Organic Chemistry
CHEM H52LA- H52LB- H52LC	Honors Organic Chemistry Laboratory and Honors Organic Chemistry Laboratory and Honors Organic Chemistry Laboratory
Complete:	
CHEM 5	Scientific Computing Skills
CHEM 107- 107L	Inorganic Chemistry and Inorganic Chemistry Laboratory
CHEM 131A- 131B- 131C	Quantum Principles and Molecular Structure and Elementary Statistical Mechanics and Thermodynamics and Chemical Dynamics
Elective Requirements [2]	
Select at least five electives from the following lists, including at least two courses selected from the lecture list and two courses selected from the laboratory list:	
Lectures:	
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
CBEMS 110	Reaction Kinetics and Reactor Design

CBEMS 112	Introduction to Biochemical Engineering
CBEMS 130	Separation Processes
CBEMS 135	Chemical Process Control
CBEMS 154	Polymer Science and Engineering
CHEM 125	Advanced Organic Chemistry
CHEM 127	Inorganic Chemistry II
CHEM 128	Introduction to Chemical Biology
CHEM 137	Computational Chemistry
CHEM 138	Introduction to Computational Organic Chemistry
CHEM 177	Medicinal Chemistry
Chemistry courses numbered 201–205, 213–249	
CHEM 271	Structural X-Ray Cystallography
EARTHSS 122	Atmospheric Dynamics
EARTHSS 142	Atmospheric Chemistry
EARTHSS 144	Marine Geochemistry and Biogeochemistry
PHYSICS 111A- 111B	Classical Mechanics and Classical Mechanics
PHYSICS 112A- 112B	Electromagnetic Theory and Electromagnetic Theory
Laboratories:	
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
CBEMS 140A- 140B	Chemical Engineering Laboratory I and Chemical Engineering Laboratory II
CHEM 128L	Introduction to Chemical Biology Laboratory Techniques
CHEM 152	Advanced Analytical Chemistry
CHEM 153	Physical Chemistry Laboratory
CHEM 156	Advanced Laboratory in Chemistry and Synthesis of Materials
CHEM 160	Organic Synthesis Laboratory
CHEM 170	Radioisotope Techniques
CHEM 177L	Medicinal Chemistry Laboratory
CHEM 180	Undergraduate Research [3]
PHYSICS 120- 121W	Electronics for Scientists and Advanced Laboratory

1 Courses must be taken for a letter grade.

2 At least three of the courses used to satisfy the Elective Requirement must be courses offered by the Chemistry Department, including at least one lecture course and one laboratory course.

3 CHEM 180 and CHEM H180 can be counted toward this requirement no more than once.

Optional American Chemical Society Certification

For ACS Certification, the program must include:

CHEM 128	Introduction to Chemical Biology
or BIO SCI 98	Biochemistry
Select two additional laboratory courses from the following list:	
CHEM 128L	Introduction to Chemical Biology Laboratory Techniques
CHEM 152	Advanced Analytical Chemistry
CHEM 153	Physical Chemistry Laboratory
CHEM 156	Advanced Laboratory in Chemistry and Synthesis of Materials
CHEM 160	Organic Synthesis Laboratory
CHEM 180	Undergraduate Research (or CHEM H180)

These courses may not overlap with the upper-division laboratory elective requirement. A maximum of one quarter of CHEM 180 or Chemistry H180 may be used. Courses must be taken for a letter grade.

Optional Concentration in Biochemistry

BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
CHEM 128	Introduction to Chemical Biology
CHEM 128L	Introduction to Chemical Biology Laboratory Techniques
Select three advanced biology electives from the following:	
BIO SCI D103	Cell Biology
BIO SCI D104	Developmental Biology
BIO SCI D111L	Developmental and Cell Biology Laboratory
BIO SCI D137	Eukaryotic and Human Genetics
BIO SCI D153	Molecular and Cellular Basis of Disease
BIO SCI M114	Advanced Biochemistry
BIO SCI M114L	Biochemistry Laboratory
BIO SCI M116	Advanced Molecular Biology
BIO SCI M116L	Molecular Biology Laboratory
BIO SCI M118L	Experimental Microbiology Laboratory
BIO SCI M121	Immunology with Hematology
BIO SCI M121L	Advanced Immunology Laboratory
BIO SCI M122	General Microbiology
BIO SCI M122L	Advanced Microbiology Laboratory
BIO SCI M123	Introduction to Computational Biology
BIO SCI M124A	Virology
BIO SCI M124B	Viral Pathogenesis and Immunity
BIO SCI M124L	Virus Engineering Laboratory
BIO SCI M125	Molecular Biology of Cancer
BIO SCI M133	High-Resolution Structures: NMR and X-ray
BIO SCI M137	Microbial Genetics
BIO SCI M144	Cell Organelles and Membranes
BIO SCI M160	Structure-Function Relationships of Integral Membrane Proteins
BIO SCI N110	Neurobiology and Behavior
PHRMSCI 170A	Molecular Pharmacology I
PHRMSCI 170B	Molecular Pharmacology II

Optional Concentration in Chemistry Education

CHEM 193	Research Methods
EDUC 55	Knowing and Learning in Mathematics and Science
PHY SCI 5	California Teach 1: Introduction to Science and Mathematics Teaching
PHY SCI 105	California Teach 2: Middle School Science and Mathematics Teaching

Students interested in teaching at the high school level are encouraged to complete PHY SCI 106.

Secondary Teaching Certification Option

With *additional* course work and field experience offered through the UCI Cal Teach program, students who complete the concentration in Chemistry Education can also earn a California Preliminary Single Subject Teaching Credential. Completing the bachelor's degree, concentration, and teacher certification in four years is possible with careful, early planning. Additional courses required for teacher certification are:

EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms
EDUC 143AW- 143BW	Classroom Interactions I and Classroom Interactions II
EDUC 148	Complex Pedagogical Design

EDUC 158	Student Teaching Mathematics and Science in Middle/High School (two quarters)
LPS 60	The Making of Modern Science

Successful completion of EDUC 143AW-EDUC 143BW and EDUC 148 will be accepted in lieu of two electives (from the above Elective Requirements list) for students pursuing the concentration in Chemistry Education. For additional information about teacher certification requirements and enrollment procedures, see Preparation for Teaching Science and Mathematics (p. 1220). Interested students are strongly encouraged to contact the Cal Teach Resource and Advising Center or the Physical Sciences Student Affairs Office.

Honors Program in Chemistry

The Honors Program in Chemistry is a research-based program offered to selected Chemistry majors during their final year. Applicants to the program must have completed their junior year with a grade point average of at least 3.3 overall and in their Chemistry courses. They must also have demonstrated the potential of carrying out research of honors quality, as judged by the Chemistry faculty member who will supervise their research. Students in this program enroll in Honors Research in Chemistry (CHEM H180A-CHEM H180B-CHEM H180C) throughout their senior year and submit a formal thesis late in the spring quarter. They also enroll in the Honors Seminar in Chemistry (CHEM H181W), in which they receive instruction in scientific writing and present a formal research seminar. Successful completion of CHEM H181W satisfies the UCI upper-division writing requirement. NOTE: Students enrolled in the Honors Research in Chemistry (CHEM H180A-B-C) do not enroll in CHEM 180 (Undergraduate Research).

Students who complete these requirements, whose grade point average remains above the 3.3 standard, and whose research is judged to be of honors quality will graduate with Departmental Honors in Chemistry.

The Department also offers an Honors General Chemistry sequence, CHEM H2A-CHEM H2B-CHEM H2C. This course in general chemistry is designed for members of the Campuswide Honors Program (CHP) and other highly qualified students. It covers the same material as CHEM 1A-CHEM 1B-CHEM M3C, but in greater depth.

Additional information is available from the Chemistry Undergraduate Program Office.

Planning a Program of Study

The departmental requirements leave the student a great deal of latitude in choice of courses; the student can choose to pursue interests ranging from biochemistry on the one hand to chemical physics on the other. Many of the basic requirements above coincide with those of the School of Biological Sciences. For this reason a double major in Chemistry and Biological Sciences is popular. The Department is approved by the American Chemical Society to offer an undergraduate degree certified by the Society as suitable background for a career in chemistry or for graduate study in chemistry. While it is not mandatory, it is desirable for students to pursue a course of study that the Department judges to merit a certified degree. Specifically, the following courses must be included in the program of study and must be taken for a letter grade:

CHEM 128	Introduction to Chemical Biology
or BIO SCI 98	Biochemistry
and two laboratory courses from the list of upper-division laboratory courses that are not already required for the major from the following:	
CHEM 128L	Introduction to Chemical Biology Laboratory Techniques
CHEM 152	Advanced Analytical Chemistry
CHEM 153	Physical Chemistry Laboratory
CHEM 156	Advanced Laboratory in Chemistry and Synthesis of Materials
CHEM 160	Organic Synthesis Laboratory
CHEM 170	Radioisotope Techniques
CHEM 177L	Medicinal Chemistry Laboratory
CHEM 180	Undergraduate Research (or CHEM H180)

Students should consult with their academic advisors on courses of study. A Chemistry major normally takes CHEM 1A-CHEM 1B and CHEM M3C and CHEM M2LA-CHEM M2LB and CHEM M3LC (or CHEM H2A-CHEM H2B-CHEM H2C and CHEM H2LA-CHEM H2LB-CHEM H2LC), MATH 2A-MATH 2B-MATH 2D, and required writing courses during the freshman year. Students are encouraged to enroll in at least one freshman seminar during the freshman year; freshman seminars probe timely scientific topics and allow students to interact with faculty in an intimate environment. The sophomore year should include CHEM 5, CHEM 51A-CHEM 51B-CHEM 51C, and CHEM M52LA-CHEM M52LB-CHEM M52LC (or equivalent) or CHEM H52A-CHEM H52B-CHEM H52C and CHEM H52LA-CHEM H52LB-CHEM H52LC; the Physics 7 sequence should be completed no later than the fall quarter of the junior year. The balance of the freshman and sophomore program can be chosen at the student's discretion with consideration given to progress toward completion of the UCI general education requirement.

In the junior year all Chemistry majors should enroll in a year sequence of physical chemistry (fall), CHEM 107 (fall), CHEM 107L (winter or spring), and CHEM 131A-CHEM 131B-CHEM 131C.

During the junior and senior years the Chemistry Department electives requirement should be fulfilled, as should other University and departmental requirements.

Sample programs for Chemistry majors, American Chemical Society-certified Chemistry majors, the Biochemistry concentration, the Chemistry Education concentration, and Chemistry-Biological Sciences double majors are shown in the accompanying charts. Sample programs for Chemistry majors wishing to emphasize chemical physics, computational or theoretical chemistry, chemical synthesis and reactivity, or materials or polymer science in their undergraduate programs are also available. All sample programs can be viewed on the Chemistry Department (http://www.chem.uci.edu/undergrad) website.

The faculty encourages Chemistry majors to enhance their education by studying abroad for one or more quarters, or during the summer. In most cases, the Chemistry EAP advisor can help students plan a program of study that will not extend the time it takes to graduate. Also, study abroad can enhance students' applications for admission to graduate and professional schools. For more information, visit the Study Abroad Center (http://www.studyabroad.uci.edu) website or visit the Physical Sciences Student Affairs Office.

Sample Program — Chemistry Majors [1]

Items in parentheses are recommended choices or alternatives.

Freshman		
Fall	**Winter**	**Spring**
CHEM 1A- M2LA (CHEM H2A, CHEM H2LA)	CHEM 1B- M2LB (CHEM H2B, CHEM H2LB)	CHEM M3C- M3LC (CHEM H2C, CHEM H2LC)
MATH 2A	MATH 2B	MATH 2D
Gen. Ed.	Gen. Ed.	Gen. Ed.
Gen. Ed.		
Sophomore		
Fall	**Winter**	**Spring**
CHEM 51A- M52LA (CHEM H52A, CHEM H52LA)	CHEM 51B- M52LB (CHEM H52B, CHEM H52LB)	CHEM 51C- M52LC (CHEM H52C, CHEM H52LC)
CHEM 5	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
(PHYSICS 2)	Gen. Ed.	Gen. Ed.
Junior		
Fall	**Winter**	**Spring**
CHEM 131A	CHEM 131B	CHEM 131C
PHYSICS 7E	CHEM 107L	Chemistry Elective
CHEM 107	Gen. Ed./Elective	
Gen. Ed./Elective		
Senior		
Fall	**Winter**	**Spring**
Chemistry Elective	Chemistry Elective	Chemistry Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective

1 For ACS Certification, the program must include CHEM 128 or BIO SCI 98; and two additional laboratory courses from the following list: CHEM 128L, CHEM 152, CHEM 153, CHEM 156, CHEM 160, CHEM 180, or Chemistry H180. These courses may not overlap with the upper-division laboratory elective requirement. A maximum of one quarter of CHEM 180 or Chemistry H180 may be used. All courses must be taken for a letter grade.

Sample Program — Concentration in Biochemistry

Items in parentheses are recommended choices or alternatives.

Freshman		
Fall	**Winter**	**Spring**
CHEM 1A- M2LA (CHEM H2A, CHEM H2LA)	CHEM 1B- M2LB (CHEM H2B, CHEM H2LB)	CHEM M3C- M3LC (CHEM H2C, CHEM H2LC)
MATH 2A	MATH 2B	MATH 2D
Gen. Ed.	Gen. Ed.	Gen. Ed.
Gen. Ed.		
Sophomore		
Fall	**Winter**	**Spring**
CHEM 51A- M52LA (CHEM H52A, CHEM H52LA)	CHEM 51B- M52LB (CHEM H52B, CHEM H52LB)	CHEM 51C- M52LC (CHEM H52C, CHEM H52LC)
CHEM 5	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
(PHYSICS 2)	BIO SCI 98	BIO SCI 99
BIO SCI 97		

Junior		
Fall	**Winter**	**Spring**
CHEM 131A	CHEM 131B	CHEM 131C
PHYSICS 7E	CHEM 128	CHEM 107L
CHEM 107	CHEM 128L	
Senior		
Fall	**Winter**	**Spring**
Advanced Bio. Elective	Advanced Bio. Elective	Chemistry Elective
Gen. Ed./Elective	Gen. Ed./Elective	Advanced Bio. Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
		Gen. Ed./Elective

Sample Program — Concentration in Chemistry Education (with Secondary Teaching Certification option)

Items in parentheses are recommended choices or alternatives.

Freshman		
Fall	**Winter**	**Spring**
CHEM 1A- M2LA (CHEM H2A, CHEM H2LA)	CHEM 1B- M2LB (CHEM H2B, CHEM H2LB)	CHEM M3C- M3LC (CHEM H2C, CHEM H2LC)
MATH 2A	MATH 2B	MATH 2D
PHY SCI 5	Gen. Ed.	Gen. Ed.
Sophomore		
Fall	**Winter**	**Spring**
CHEM 51A- M52LA (CHEM H52C, CHEM H52LA)	CHEM 51B- M52LB (CHEM H52B, CHEM H52LB)	CHEM 51C- M52LC (CHEM H52C, CHEM H52LC)
CHEM 5	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
PHY SCI 105	(PHY SCI 106)	LPS 60
(PHYSICS 2)	CHEM 193	Gen. Ed.
Junior		
Fall	**Winter**	**Spring**
CHEM 131A	CHEM 131B	CHEM 131C
CHEM 107	CHEM 107L	Gen. Ed.
EDUC 55	Chemistry Elective	EDUC 148
PHYSICS 7E	EDUC 143AW	
Senior		
Fall	**Winter**	**Spring**
Chemistry Elective	Gen. Ed.	Gen. Ed.
EDUC 143BW	EDUC 109	EDUC 158
Gen. Ed.	EDUC 158	
Chemistry Elective		

Sample Program — Chemistry-Biological Sciences Double Majors

Items in parentheses are recommended choices or alternatives.

Freshman		
Fall	**Winter**	**Spring**
CHEM 1A- M2LA (CHEM H2A, CHEM H2LA)	CHEM 1B- M2LB (CHEM H2B, CHEM H2LB)	CHEM M3C- M3LC (CHEM H2C, CHEM H2LC)
MATH 2A	MATH 2B	MATH 2D
BIO SCI 93	BIO SCI 94	Gen. Ed.
Gen. Ed.	Gen. Ed.	
BIO SCI 2A		
Sophomore		
Fall	**Winter**	**Spring**
CHEM 51A- M52LA (CHEM H52A, CHEM H52LA)	CHEM 51B- M52LB (CHEM H52B, CHEM H52LB)	CHEM 51C- M52LC (CHEM H52C, CHEM H52LC)
CHEM 5	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
(Physics 2)	BIO SCI 98	BIO SCI 99
BIO SCI 97	Gen. Ed./Elective	BIO SCI 194S
Junior		
Fall	**Winter**	**Spring**
CHEM 131A	CHEM 131B	CHEM 131C
PHYSICS 7E	CHEM 107L	Bio. Sci. major course
CHEM 107	Gen. Ed./Elective	
BIO SCI 100		

Senior		
Fall	**Winter**	**Spring**
Bio. Sci. major course	Chemistry Elective	Chemistry Elective
Bio. Sci. Lab	Bio. Sci. Elective	Chemistry Elective
Gen. Ed./Elective	Bio. Sci. Lab	Bio. Sci. Lab
	Gen. Ed./Elective	Gen. Ed./Elective

Graduate Program

The Department offers the M.S. and Ph.D. degrees in Chemistry. The Ph.D. degree is granted in recognition of breadth and depth of knowledge of the facts and theories of modern chemistry and an ability to carry out independent chemical research demonstrated through submission of an acceptable doctoral dissertation. The M.S. degree may be earned either through submission of an acceptable Master's thesis (Plan I) or through an approved program of graduate course work and a comprehensive oral examination (Plan II). A Master's degree is not a prerequisite for admission to the Ph.D. program.

Students in the Ph.D. and M.S. Plan I (Thesis) programs are required to complete a minimum of seven approved courses (28 units), including six graduate-level courses (24 units), in chemistry. The M.S. Plan II (Non-Thesis) program requires that the student complete 10 graduate-level chemistry courses (40 units) and a comprehensive oral examination. Graduate students are expected to attain grades of B or better to remain in good academic standing. The comprehensive oral examination assesses the competence of the candidate in the areas of chemistry covered by the chosen course work, with unanimous agreement among the three examination committee members required for satisfactory completion.

Progress toward the Ph.D. degree during the first year is assessed by a written examination administered after completion of the first year of study. This examination covers either research accomplishments during the first year or comprehensive knowledge acquired in course work. The time and content of the examination depends upon the student's specific area of interest.

Training in teaching is an integral part of each graduate program, and all graduate degree candidates are expected to participate in the teaching program for at least four quarters during their graduate career.

Participants in the Ph.D. program take an oral examination for formal Advancement to Candidacy. This examination consists of an oral defense before a faculty committee of the student's dissertation research project, and an original research proposition conceived, developed, and documented by the student. The committee may examine the student at this time on any subject it deems relevant to the independent pursuit of chemical research. The normative time for advancement to candidacy is three years.

The most important component of the Ph.D. program is the doctoral dissertation, which must describe the results of original research performed by the student under the supervision of a faculty member of the Department. The criterion for acceptability of the dissertation is that its contents be of a quality suitable for publication in a scientific journal of high editorial standards. Each Ph.D. candidate is expected to present the work described in the completed dissertation in a seminar before the Department, following which the candidate will be examined on the contents of the dissertation by a committee of the faculty. A Master's thesis presented in partial fulfillment of the requirements for the M.S. under Plan I must also describe the results of a student's original research performed under the direction of a faculty member. However, no public oral defense of the Master's thesis is required.

Residency requirements specify a minimum of six quarters in residence at UCI for Ph.D. candidates and three quarters for M.S. candidates.

The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.

Master of Science in Chemistry with a Teaching Credential

In cooperation with the UCI School of Education, the Chemistry Department sponsors a coordinated two-year program for the M.S. degree in Chemistry and the California Single Subject Teaching Credential. The M.S. degree may be obtained under either Plan I or Plan II described below. Prospective graduate students interested in this program should so indicate on their graduate application and should request a detailed description of the program from the Chemistry Department Graduate Affairs Office or the School of Education.

The following lists specify requirements for each of the graduate programs offered by the Department of Chemistry.

Master of Science in Chemistry Plan I (Thesis Plan)

- Completion of a minimum of seven approved courses (or 28 units), including six graduate-level courses (or 24 units) in chemistry (as specified by the Department and excluding CHEM 280, CHEM 290, CHEM 291, and CHEM 399) with maintenance of an average grade of B or better in all course work undertaken.
- Completion of the teaching requirement.
- Completion of three quarters in residence at UCI.
- Submission of an acceptable Master's thesis.

Master of Science in Chemistry Plan II (Non-Thesis Plan)

- Completion of 10 graduate-level courses (or 40 units) in chemistry (excluding CHEM 290, CHEM 291, and CHEM 399 and counting CHEM 280 no more than once) with an average grade of B or better.
- Maintenance of an average grade of B or better in all course work undertaken.
- Completion of the teaching requirement.
- Completion of three quarters in residence at UCI.
- Satisfactory completion of a comprehensive oral examination.

Doctor of Philosophy in Chemistry

- Completion of a minimum of seven approved courses (28 units), including six graduate-level courses (24 units) in chemistry (as specified by the Department and excluding CHEM 280, CHEM 290, CHEM 291, and CHEM 399) with maintenance of an average grade of B or better in all course work undertaken. In addition, all students will be required to take a “Conduct of Research” course.
- Completion of the second-year Examination requirement.
- Completion of the Oral Examination requirement for Advancement to Candidacy.
- Completion of the teaching requirement.
- Completion of six quarters in residence at UCI.
- Submission of an acceptable doctoral dissertation.

Concentration in Chemical and Materials Physics

This is an interdisciplinary program between condensed matter physics and physical chemistry, which is designed to eliminate the barrier between these two disciplines. Students with B.S. degrees in Physics, Chemistry, or Materials Science and Engineering, are encouraged to apply to the program. The goal of the concentration in Chemical and Materials Physics (ChaMP) is to provide students with a broad interdisciplinary education in the applied physical sciences that emphasizes modern laboratory and computational skills. The program accepts students for both the M.S. and the Ph.D. degrees. Upon admission to the program, students are assigned two faculty advisors, one from the Department of Physics and Astronomy, and one from the Department of Chemistry, to provide guidance on curriculum and career planning.

The curriculum for the M.S. program includes a summer session to assimilate students with different undergraduate backgrounds; formal shop, laboratory, and computational courses; a sequence on current topics to bridge the gap between fundamental principles and applied technology; and a course to develop communication skills. The required courses include thirteen core courses and three electives (subject to advisor approval) as follows:

Core	
CHEM 206	Laboratory Skills
CHEM 208	Mathematics for Chemists
CHEM 229A	Computational Methods
CHEM 231A	Fundamentals of Quantum Mechanics
or PHYSICS 215A	Quantum Mechanics
CHEM 231B	Applications of Quantum Mechanics
or PHYSICS 215B	Quantum Mechanics
CHEM 231C	Molecular Spectroscopy
CHEM 232A- 232B	Thermodynamics and Introduction to Statistical Mechanics and Advanced Topics in Statistical Mechanics
CHEM 266	Current Topics in Chemical and Materials Physics
CHEM 273	Technical Communication Skills
or PHYSICS 273	Technical Communication Skills
Select two of the following:	
CHEM 228	Electromagnetism
CHEM 230	Classical Mechanics and Electromagnetic Theory
PHYSICS 211	Classical Mechanics
PHYSICS 222	Continuum Mechanics
Select one of the following:	
CHEM 236	Forces Between Molecules
PHYSICS 133	Introduction to Condensed Matter Physics
PHYSICS 238A	Condensed Matter Physics
Electives	
CHEM 213	Chemical Kinetics

CHEM 225	Polymer Chemistry: Synthesis and Characterization of Polymers
CHEM 229B	Computational Methods
CHEM 232C	Non-Equilibrium Statistical Mechanics
CHEM 233	Nuclear and Radiochemistry
CHEM 243	Advanced Instrumental Analysis
CHEM 248	Electrochemistry
CHEM 249	Analytical Spectroscopy
EECS 285B	Lasers and Photonics
ENGRMSE 259	Transmission Electron Microscopy
PHYSICS 134A	Physical and Geometrical Optics
PHYSICS 223	Numerical Methods
PHYSICS 229B	Computational Methods
PHYSICS 233A- 233B	Principles of Imaging and Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging
PHYSICS 238A- 238B- 238C	Condensed Matter Physics and Condensed Matter Physics and Condensed Matter Physics

In addition to the required courses, M.S. students complete a master's thesis. Students are required to advance to candidacy for the master's degree at least one quarter prior to filing the master's thesis. There is no examination associated with this advancement, but the thesis committee needs to be selected and appropriate forms need to be filed. The M.S. program prepares students to compete for high-tech jobs or to begin research toward a Ph.D. degree.

Successful completion of the M.S. degree requirements qualifies students for the Ph.D. program but, although recommended, a written master's thesis is not required in addition to the Ph.D. dissertation for students obtaining a Ph.D. in Chemistry. Progress toward the Ph.D. degree is assessed by a written comprehensive examination administered in the summer after completion of the first year of study. This examination covers comprehensive knowledge acquired in course work, and the content of the examination depends upon the student's specific area of interest.

Participants in the Ph.D. program take an examination for formal advancement to candidacy. It is typically taken within one year of successful completion of the comprehensive examination. To satisfy normative progress toward the degree, it must be taken by the end of the student's third year. The examination is comprised of two parts: (a) a written report on a topic to be determined in consultation with the research advisor and (b) an oral report on research accomplished and plans for completion of the Ph.D. dissertation.

Graduate Gateway Program in Medicinal Chemistry and Pharmacology (MCP)

The one-year graduate Gateway Program in Medicinal Chemistry and Pharmacology (MCP) is designed to function in concert with selected department programs, including the Ph.D. in Chemistry. Detailed information is available in the Department of Pharmaceutical Sciences (p. 1214) section and at Pharmaceutical Sciences (http://www.pharmsci.uci.edu) website.

Faculty

Ioan Andricioaei, Ph.D. Boston University, *Professor of Chemistry* (chemical biology, physical chemistry and chemical physics, theoretical and computational)

Ara Apkarian, Ph.D. Northwestern University, *Professor of Chemistry* (physical chemistry and chemical physics)

Ramesh D. Arasasingham, Ph.D. University of California, Davis, *Senior Lecturer of Chemistry* (chemical education and inorganic chemistry)

Shane Ardo, Ph.D. Johns Hopkins University, *Assistant Professor of Chemistry; Chemical Engineering and Materials Science* (inorganic and organometallic, physical chemistry and chemical physics, polymer, materials, nanoscience)

Donald R. Blake, Ph.D. University of California, Irvine, *UCI Distinguished Professor of Chemistry* (analytical, atmospheric, environmental)

Suzanne A. Blum, Ph.D. University of California, Berkeley, *Associate Professor of Chemistry; Chemistry* (inorganic and organometallic, organic and synthetic, physical chemistry and chemical physics, polymer, materials, nanoscience)

Andrew Borovik, Ph.D. University of North Carolina at Chapel Hill, *Vice Chair and Professor of Chemistry* (inorganic and organometallic, organic and synthetic)

David A. Brant, Ph.D. University of Wisconsin-Madison, *Professor Emeritus of Chemistry* (biophysical)

Amanda J. Brindley, Ph.D. University of California, Irvine, *Lecturer with Potential Security of Employment of Chemistry* (chemistry)

Kieron Burke, Ph.D. University of California, Santa Barbara, *Professor of Chemistry; Physics and Astronomy* (physical chemistry and chemical physics, polymer, materials, nanoscience, theoretical and computational)

A. Richard Chamberlin, Ph.D. University of California, San Diego, *Department Chair and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (chemical biology, organic and synthetic)

Robert Corn, Ph.D. University of California, Berkeley, *Professor of Chemistry; Biomedical Engineering* (analytical, chemical biology, physical chemistry and chemical physics, polymer, materials, nanoscience)

Robert J. Doedens, Ph.D. University of Wisconsin-Madison, *Professor Emeritus of Chemistry* (inorganic and organometallic)

Vy M. Dong, Ph.D. California Institute of Technology, *Professor of Chemistry* (organic and synthetic)

Kimberly D. Edwards, Ph.D. University of California, Irvine, *Lecturer with Security of Employment of Chemistry* (general chemistry)

Aaron P. Esser-Kahn, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Biomedical Engineering; Chemical Engineering and Materials Science* (chemical biology, organic and synthetic, polymer, materials, nanoscience)

William J. Evans, Ph.D. University of California, Los Angeles, *Professor of Chemistry* (inorganic and organometallic)

Barbara J. Finlayson-Pitts, Ph.D. University of California, Riverside, *Director of AirUCI and UCI Distinguished Professor of Chemistry; Chemistry* (chemistry, analytical, atmospheric and environmental, physical chemistry and chemical physics)

Fillmore Freeman, Ph.D. Michigan State University, *Professor of Chemistry* (organic and synthetic, theoretical and computational)

Filipp Furche, Ph.D. University of Karlsruhe, *Professor of Chemistry* (physical chemistry and chemical physics, theoretical and computational)

Nien-Hui Ge, Ph.D. University of California, Berkeley, *Associate Professor of Chemistry* (analytical, chemical biology, physical chemistry and chemical physics, polymer, materials, nanoscience)

Robert B. Gerber, Ph.D. Oxford University, *Professor of Chemistry* (atmospheric and environmental, physical chemistry and chemical physics, theoretical and computational)

Alon A. Gorodetsky, Ph.D. California Institute of Technology, *Assistant Professor of Chemical Engineering and Materials Science; Chemistry* (organic photovoltaics, electrical biosensors, nanotechnology, DNA, materials chemistry)

Zhibin Guan, Ph.D. University of North Carolina at Chapel Hill, *Professor of Chemistry; Biomedical Engineering* (chemical biology, organic and synthetic, polymer, materials, nanoscience)

Stephen Hanessian, Ph.D. Ohio State University, *Director of Medicinal Chemistry and Pharmacology Graduate Program and Professor of Pharmaceutical Sciences; Chemistry; Pharmacology* (organic chemistry)

Warren J. Hehre, Ph.D. Carnegie Mellon University, *Professor Emeritus of Chemistry* (physical theoretical chemistry)

John C. Hemminger, Ph.D. Harvard University, *Vice Chancellor for Research and Professor of Chemistry* (analytical, atmospheric and environmental, physical chemistry and chemical physics, polymer, materials, nanoscience)

Alan F. Heyduk, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Chemistry* (chemical biology, inorganic and organometallic)

Wilson Ho, Ph.D. University of Pennsylvania, *Donald Bren Professor* and *Professor of Physics and Astronomy; Chemistry* (physical chemistry and chemical physics, polymer, materials, nanoscience)

Allon I. Hochbaum, Ph.D. University of California, Berkeley, *Assistant Professor of Chemical Engineering and Materials Science; Chemistry* (nanoscale materials and hybrid bio-inorganic devices for applications in clean energy)

Kenneth C. Janda, Ph.D. Harvard University, *Dean of the School of Physical Sciences and Professor of Chemistry* (physical chemistry and chemical physics)

Elizabeth R. Jarvo, Ph.D. Boston College, *Associate Professor of Chemistry* (inorganic and organometallic, organic and synthetic)

Susan M. King, Ph.D. Massachusetts Institute of Technology, *Senior Lecturer of Chemistry* (organic chemistry)

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Chang C. Liu, Ph.D. Scripps Research Institute, *Assistant Professor of Biomedical Engineering; Chemistry* (genetic engineering, directed evolution, synthetic biology, chemical biology)

Andrej Luptak, Ph.D. Yale University, *Vice Chair of Graduate Programs in Pharmaceutical Sciences and Associate Professor of Pharmaceutical Sciences; Chemistry; Molecular Biology and Biochemistry* (chemical biology)

Vladimir A. Mandelshtam, Ph.D. Russian Academy of Sciences, *Professor of Chemistry* (physical chemistry and chemical physics, theoretical and computational)

Craig C. Martens, Ph.D. Cornell University, *Professor of Chemistry* (physical chemistry and chemical physics, polymer, materials, nanoscience, theoretical and computational)

Rachel Martin, Ph.D. Yale University, *Associate Professor of Chemistry; Molecular Biology and Biochemistry* (analytical, chemical biology, physical chemistry and chemical physics)

Robert McIver, Ph.D. Stanford University, *Professor Emeritus of Chemistry*

George E. Miller, Ph.D. Oxford University, *Senior Lecturer with Security of Employment Emeritus of Chemistry* (analytical and radioanalytical chemistry and chemical education)

David L. Mobley, Ph.D. University of California, Davis, *Associate Professor of Pharmaceutical Sciences; Chemistry* (chemical biology, physical chemistry and chemical physics, theoretical and computational)

Harold W. Moore, Ph.D. University of Illinois at Urbana-Champaign, *Professor Emeritus of Chemistry* (organic and synthetic)

Shaul Mukamel, Ph.D. Tel Aviv University, *UCI Distinguished Professor of Chemistry* (physical chemistry and chemical physics, polymer, materials, nanoscience, theoretical and computational)

Craig Murray, Ph.D. University of Edinburgh, *Assistant Professor of Chemistry* (atmospheric and environmental, physical chemistry and chemical physics)

Sergey Nizkorodov, Ph.D. University of Basel, *Professor of Chemistry* (analytical, atmospheric and environmental, physical chemistry and chemical physics)

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Reginald M. Penner, Ph.D. Texas A&M University, *Department Chair and UCI Chancellor's Professor of Chemistry; Chemical Engineering and Materials Science* (analytical, physical chemistry and chemical physics, polymer, materials, nanoscience)

Eric Potma, Ph.D. University of Groningen, *Department Vice Chair and Associate Professor of Chemistry* (analytical, chemical biology, physical chemistry and chemical physics)

Thomas L. Poulos, Ph.D. University of California, San Diego, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences; Physiology and Biophysics* (chemical biology)

Jennifer A. Prescher, Ph.D. University of California, Berkeley, *Assistant Professor of Chemistry; Molecular Biology and Biochemistry; Pharmaceutical Sciences* (chemical biology, organic and synthetic)

Sergey V. Pronin, Ph.D. University of Chicago, *Assistant Professor of Chemistry* (organic chemistry)

Peter M. Rentzepis, Ph.D. Cambridge University, *UC Presidential Chair* and *Professor of Chemistry; Chemical Engineering and Materials Science* (physical chemistry and chemical physics)

Markus W. Ribbe, Ph.D. University of Bayreuth, *UCI Chancellor's Professor of Molecular Biology and Biochemistry; Chemistry* (chemical biology, inorganic and organometallic)

Scott D. Rychnovsky, Ph.D. Columbia University, *Professor of Chemistry* (chemical biology, organic and synthetic)

Eric S. Saltzman, Ph.D. University of Miami, *Professor of Earth System Science; Chemistry* (analytical, atmospheric and environmental)

A. J. Shaka, Ph.D. Oxford University, *Professor of Chemistry* (chemical biology, physical chemistry and chemical physics)

Kenneth J. Shea, Ph.D. Pennsylvania State University, *Professor of Chemistry; Chemical Engineering and Materials Science* (analytical, chemical biology, organic and synthetic, polymer, materials, nanoscience)

Zuzanna S. Siwy, Ph.D. Silesian University of Technology, *Professor of Physics and Astronomy; Biomedical Engineering; Chemistry* (biosensing, nanotechnology, condensed matter physics)

Douglas J. Tobias, Ph.D. Carnegie Mellon University, *Professor of Chemistry* (atmospheric and environmental, chemical biology, physical chemistry and chemical physics, theoretical and computational)

Ivan V. Tomov, Ph.D. , *Associate Specialist of Chemistry*

Shiou-Chuan (Sheryl) Tsai, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Molecular Biology and Biochemistry; Chemistry; Pharmaceutical Sciences*

David Van Vranken, Ph.D. Stanford University, *Professor of Chemistry* (chemical biology, organic and synthetic)

Christopher Vanderwal, Ph.D. Scripps Research Institute, *Professor of Chemistry* (organic and synthetic)

Gregory A. Weiss, Ph.D. Harvard University, *Professor of Chemistry; Molecular Biology and Biochemistry* (analytical, chemical biology, organic and synthetic, polymer, materials, nanoscience)

Max Wolfsberg, Ph.D. Washington University, *Professor Emeritus of Chemistry* (physical chemistry and chemical physics, theoretical and computational)

Jenny Y. Yang, Ph.D. Massachusetts Institute of Technology, *Assistant Professor of Chemistry* (inorganic and organometallic, organic and synthetic, polymer, materials, nanoscience)

Albert Fan Yee, Ph.D. University of California, Berkeley, *Professor of Chemical Engineering and Materials Science; Biomedical Engineering; Chemistry* (materials science aspects of polymers and soft materials, particularly on how they are used to impact nanotechnology)

Courses

CHEM 1A. General Chemistry. 4 Units.
Atomic structure; general properties of the elements; covalent, ionic, and metallic bonding; intermolecular forces; mass relationships.

Prerequisite: MATH 2A or PHYSICS 7C or CHEM 1P or placement via a score of 600 or higher on the SAT Mathematics Reasoning test, or a score of 27 or higher on the ACT Mathematics test, or a score of 700 or higher on the SAT Chemistry subject exam, or a score of 3 on the AP Chemistry exam, or a score of 4 on the AP Calc AB Exam, or a score of 3 on the AP Calc BC Exam. CHEM 1P with a grade of C- or better.

Overlaps with CHEM H2A, ENGR 1A.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

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CHEM 1B. General Chemistry. 4 Units.
Properties of gases, liquids, solids; changes of state; properties of solutions; stoichiometry; thermochemistry; and thermodynamics.

Corequisite: CHEM M2LB. CHEM M2LB for Chemistry majors only. No co-requisite for other majors.
Prerequisite: CHEM 1A or ENGR 1A or a score of 4 or higher on the AP Chemistry exam. CHEM 1A with a grade of C- or better. ENGR 1A with a grade of C- or better.

Overlaps with CHEM H2B.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

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CHEM 1C. General Chemistry. 4 Units.
Equilibria, aqueous acid-base equilibria, solubility equilibria, oxidation reduction reactions, electrochemistry; kinetics; special topics.

Corequisite: CHEM 1LC.
Prerequisite: CHEM 1B. CHEM 1B with a grade of C- or better.

Overlaps with CHEM H2C.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

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CHEM 1LC. General Chemistry Laboratory. 2 Units.
Training and experience in basic laboratory techniques. Chemical practice and principles illustrated through experiments related to lecture topics of CHEM 1A-B-C. Materials fee.

Corequisite: CHEM 1C.
Prerequisite: CHEM 1B. CHEM 1B with a grade of C- or better.

Overlaps with CHEM 1LE, CHEM H2LB, CHEM M2LB.

Restriction: No credit for CHEM 1LC if taken after CHEM H2LB or CHEM M2LB. Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 1LD. General Chemistry Laboratory. 2 Units.
Training and experience in basic laboratory techniques. Chemical practice and principles illustrated through experiments related to lecture topics in CHEM 1A-B-C. Materials fee.

Prerequisite: CHEM 1C and CHEM 1LC or CHEM 1LE. CHEM 1C with a grade of C- or better. CHEM 1LC with a grade of C- or better. CHEM 1LE with a grade of C- or better.

Overlaps with CHEM H2LB, CHEM M2LB.

Restriction: No credit for CHEM M2LA if taken after CHEM 1LD. Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 1LE. Accelerated General Chemistry Lab. 3 Units.
Lecture and experiments covering chemical concepts for accelerated students who do not plan to take organic chemistry. Properties of gases, liquids, solutions, and solids; chemical equilibrium, chemical thermodynamics; atomic and molecular structure; chemical kinetics; electrochemistry. Materials fee.

Corequisite: CHEM 1A or CHEM 1B or ENGR 1A.

Overlaps with CHEM 1LC.

Restriction: Majors in the School of Engineering and Biomedical Computing majors have first consideration for enrollment.

CHEM 1P. Preparation for General Chemistry Online. 4 Units.
Units of measurement, dimensional analysis, significant figures; elementary concepts of volume, mass, force, pressure, energy, density, temperature, heat, work; fundamentals of atomic and molecular structure; the mole concept, stoichiometry; properties of the states of matter; gas laws; solutions concentrations. Course may be offered online.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Biomedical Computing, Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM H2A. Honors General Chemistry. 4 Units.
Covers the same material as CHEM 1A-B-M3C but in greater depth. Additional topics will also be included as time permits.

Corequisite: CHEM H2LA.
Prerequisite: Membership in the Campuswide Honors Program, or a score of 4 or 5 on the Chemistry Advanced Placement Examination, or a score of 700 or better on the SAT II in Chemistry.

Overlaps with CHEM 1A.

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CHEM H2B. Honors General Chemistry. 4 Units.
Covers the same material as CHEM 1A-B-M3C but in greater. depth. Additional topics will also be included as time permits.

Corequisite: CHEM H2LB.
Prerequisite: CHEM H2A and CHEM H2LA. CHEM H2A with a grade of B or better. CHEM H2LA with a grade of B or better.

Overlaps with CHEM 1B.

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CHEM H2C. Honors General Chemistry. 4 Units.
Covers the same material as CHEM 1A-CHEM 1B-CHEM M3C but in greater depth. Additional topics will also be included as time permits.

Corequisite: CHEM H2LC.
Prerequisite: CHEM H2B and CHEM H2LB. CHEM H2B with a grade of B or better. CHEM H2LB with a grade of B or better.

Overlaps with CHEM 1C.

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CHEM H2LA. Honors General Chemistry Laboratory. 3 Units.
Training and experience in fundamental and analytical laboratory techniques through experiments related to lecture topics in CHEM H2A-CHEM H2B-CHEM H2C. Materials fee.

Corequisite: CHEM H2A.
Prerequisite: Membership in the Campuswide Honors Program, or a score of 4 or 5 on the Chemistry Advanced Placement Examination, or a score of 700 or better on the SAT II in Chemistry.

Overlaps with CHEM M2LA.

CHEM H2LB. Honors General Chemistry Laboratory. 3 Units.
Training and experience in fundamental and analytical laboratory techniques through experiments related to lecture topics in CHEM H2A-CHEM H2B-CHEM H2C. Materials fee.

Corequisite: CHEM H2B.
Prerequisite: CHEM H2A and CHEM H2LA. CHEM H2A with a grade of B or better. CHEM H2LA with a grade of B or better.

Overlaps with CHEM M2LB.

Restriction: No credit for CHEM 1LC if taken after CHEM H2LB or CHEM M2LB.

CHEM H2LC. Honors General Chemistry Laboratory. 3 Units.
Training and experience in fundamental and analytical laboratory techniques through experiments related to lecture topics in CHEM H2A-CHEM H2B-CHEM H2C. Materials fee.

Corequisite: CHEM H2C.
Prerequisite: CHEM H2B and CHEM H2LB. CHEM H2B with a grade of B or better. CHEM H2LB with a grade of B or better.

CHEM M2LA. Majors General Chemistry Laboratory. 3 Units.
Training and experience in basic laboratory techniques through experiments related to lecture topics in CHEM 1A-CHEM 1B-CHEM 1C. Materials fee.

Corequisite: CHEM 1A.
Prerequisite: High school chemistry.

Overlaps with CHEM H2LA, CHEM 1LD.

Restriction: Chemistry majors only. No credit for CHEM M2LA if taken after CHEM 1LD.

CHEM M2LB. Majors General Chemistry Laboratory. 3 Units.
Training and experience in basic laboratory techniques through experiments related to lecture topics in CHEM 1A-CHEM 1B-CHEM 1C. Materials fee.

Corequisite: CHEM 1B.
Prerequisite: CHEM 1A and CHEM M2LA. CHEM 1A with a grade of C- or above. CHEM M2LA with a grade of C- or above.

Overlaps with CHEM H2LB.

Restriction: No credit for CHEM 1LC if taken after CHEM H2LB or CHEM M2LB. Chemistry majors only.

CHEM M3C. Majors Quantitative Analytical Chemistry. 4 Units.
Topics covered are equilibria, aqueous acid-base equilibria, solubility equilibria, oxidation reduction reactions, electrochemistry; and kinetics with a special emphasis on the statistical treatment of data and analytical methods of chemical analysis.

Corequisite: CHEM M3LC.
Prerequisite: (CHEM 1B and CHEM M2LB) or (CHEM H2B and H2LB). CHEM 1B with a grade of C- or better. CHEM M2LB with a grade of C- or better. CHEM H2B with a grade of C- or better. CHEM H2LB with a grade of C- or better.

Restriction: Chemistry majors only.

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CHEM M3LC. Majors Quantitative Analytical Chemistry Laboratory. 3 Units.
Training and experience in analytical laboratory techniques through experiments related to lecture topics in CHEM M3C.

Corequisite: CHEM M3C or CHEM H2C.
Prerequisite: (CHEM 1B or CHEM H2B) and (CHEM M2LB or CHEM H2LB). CHEM 1B with a grade of C- or better. CHEM H2B with a grade of C- or better. CHEM M2LB with a grade of C- or better. CHEM H2LB with a grade of C- or better.

Overlaps with CHEM H2LC.

Restriction: Chemistry majors only.

CHEM 5. Scientific Computing Skills. 4 Units.
Introduces students to the personal computing software used by chemists for managing and processing of data sets, plotting of graphs, symbolic and numerical manipulation of mathematical equations, and representing chemical reactions and chemical formulas.

Corequisite: (CHEM 1C or CHEM H2C or CHEM M3C) and (MATH 2D or MATH H2D).
Prerequisite: CHEM 1B or CHEM H2B and MATH 2B or a score of 4 or 5 on the AP CALCULUS BC.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 12. Chemistry Around Us. 4 Units.
Addresses ways in which chemistry affects everyday life. Topics include pollution, global warming, water supply/demands, biodiesel fuels, foods we eat, natural/synthetic materials, common drugs, drug design. Learn and apply basic chemistry concepts. Use risk/benefit analysis for optimal solutions.

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CHEM 51A. Organic Chemistry. 4 Units.
Fundamental concepts relating to carbon compounds with emphasis on structural theory and the nature of chemical bonding, stereochemistry, reaction mechanisms, and stereoscopic, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM M52LA or CHEM H52LA for Chemistry majors only or completion of or concurrent enrollment in CHEM 1LD for other majors.
Prerequisite: (CHEM 1C and CHEM 1LC) or (CHEM H2C and CHEM H2LC) or (CHEM M3C and CHEM M3LC). CHEM 1C and CHEM 1LC with a grade of C- or better. CHEM H2C and CHEM H2LC with a grade of C- or better. CHEM M3C and CHEM M3LC with a grade of C- or better.

Overlaps with CHEM H52A.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51B. Organic Chemistry. 4 Units.
Fundamental concepts relating to carbon compounds with emphasis on structural theory and the nature of chemical bonding, stereochemistry, reaction mechanisms, and stereoscopic, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM M52LB for Chemistry majors or CHEM H52LB or CHEM 51LB for other majors.
Prerequisite: CHEM 51A and (CHEM 1LD or CHEM M52LA or CHEM H52LA). CHEM 51A with a grade of C- or better. CHEM 1LD with a grade of C- or better. CHEM M52LA or CHEM H52LA with a grade of C- or better.

Overlaps with CHEM H52B.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51C. Organic Chemistry. 4 Units.
Fundamental concepts relating to carbon compounds with emphasis on structural theory and the nature of chemical bonding, stereochemistry, reaction mechanisms, and stereoscopic, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM M52LC for Chemistry majors or CHEM H52LC or CHEM 51LC for other majors.
Prerequisite: CHEM 51B and (CHEM 51LB or CHEM M52LB or CHEM H52LB). CHEM 51B with a grade of C- or better. CHEM 51LB with a grade of C- or better. CHEM M52LB with a grade of C- or better. CHEM H52LB with a grade of C- or better.

Overlaps with CHEM H52C.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51LB. Organic Chemistry Laboratory. 2 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-CHEM 51B-CHEM 51C. Course may be offered online. Materials fee.

Corequisite: CHEM 51B.
Prerequisite: CHEM 51A and CHEM 1LD. CHEM 51A with a grade of C- or better. CHEM 1LD with a grade of C- or better.

Overlaps with CHEM H52LA, CHEM M52LA.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51LC. Organic Chemistry Laboratory. 2 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-B-C. Course may be offered online. Materials fee.

Corequisite: CHEM 51C.
Prerequisite: CHEM 51B and CHEM 51LB. CHEM 51B with a grade of C- or better. CHEM 51LB with a grade of C- or better.

Overlaps with CHEM H52LB, CHEM M52LB.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM 51LD. Organic Chemistry Laboratory. 2 Units.
Modern techniques of organic chemistry using selected experiments to illustrate topics introduced in CHEM 51A-CHEM 51B-CHEM 51C. Course may be offered online. Materials fee.

Prerequisite: CHEM 51C and CHEM 51LC. CHEM 51C with a grade of C- or better. CHEM 51LC with a grade of C- or better.

Overlaps with CHEM H52LC.

Restriction: Majors in the Schools of Physical Sciences, Biological Sciences, and Engineering, and majors in Nursing Science, Pharmaceutical Sciences, Public Health Sciences, and Undecided/Undeclared students have first consideration for enrollment.

CHEM H52A. Honors Organic Chemistry. 4 Units.
Fundamental concepts of the chemistry of carbon compounds. Structural, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM H52LA.
Prerequisite: (CHEM 1A and CHEM 1B and CHEM 1C) or (CHEM H2A and CHEM H2B and CHEM H2C).

Overlaps with CHEM 51A.

CHEM H52B. Honors Organic Chemistry. 4 Units.
Fundamental concepts of the chemistry of carbon compounds. Structural, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM H52LB.
Prerequisite: CHEM H52A and CHEM H52LA. CHEM H52A with a grade of C or better. CHEM H52LA with a grade of C or better.

CHEM H52C. Honors Organic Chemistry. 4 Units.
Fundamental concepts of the chemistry of carbon compounds. Structural, physical, and chemical properties of the principal classes of carbon compounds.

Corequisite: CHEM H52LC.
Prerequisite: CHEM H52B. CHEM H52B with a grade of C or better.

Overlaps with CHEM 51C.

CHEM H52LA. Honors Organic Chemistry Laboratory. 3 Units.
Fundamental techniques of modern experimental organic chemistry. Materials fee.

Corequisite: CHEM 51A.
Prerequisite: (CHEM 1C or CHEM H2C or CHEM M3C) and (CHEM M3LC or CHEM H2LC or CHEM 1LD).

Overlaps with CHEM 51LB, CHEM M52LA.

Restriction: Campuswide Honors Program students only.

CHEM H52LB. Honors Organic Chemistry Laboratory. 3 Units.
Fundamental techniques of modern experimental organic chemistry. Materials fee.

Corequisite: CHEM 51B.
Prerequisite: CHEM 51A and CHEM H52LA. CHEM 51A with a grade of C- or better. CHEM H52LA with a grade of C- or better.

Overlaps with CHEM M52LB, CHEM 51LC.

CHEM H52LC. Honors Organic Chemistry Laboratory. 3 Units.
Fundamental techniques of modern experimental organic chemistry. Materials fee.

Corequisite: CHEM 51C.
Prerequisite: CHEM 51B and CHEM H52LB. CHEM 51B with a grade of C- or better. CHEM H52LB with a grade of C- or better.

Overlaps with CHEM 51LD, CHEM M52LC.

CHEM M52LA. Majors Organic Chemistry Laboratory. 3 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-B-C. Materials fee.

Corequisite: CHEM 51A.
Prerequisite: (CHEM 1C or CHEM H2C or CHEM M3C) and (CHEM H2LC or CHEM M3LC or CHEM 1LD).

Overlaps with CHEM H52LA, CHEM 51LB.

Restriction: Chemistry majors only.

CHEM M52LB. Majors Organic Chemistry Laboratory. 3 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-B-C. Materials fee.

Corequisite: CHEM 51B.
Prerequisite: CHEM 51A and CHEM M52LA. CHEM 51A with a grade of C- or better. CHEM M52LA with a grade of C- or better.

Overlaps with CHEM H52LB, CHEM 51LC.

Restriction: Chemistry majors only.

CHEM M52LC. Majors Organic Chemistry Laboratory. 3 Units.
Modern techniques of organic chemistry, using selected experiments to illustrate topics introduced in CHEM 51A-B-C. Materials fee.

Corequisite: CHEM 51C.
Prerequisite: CHEM 51B and CHEM M52LB. CHEM 51B with a grade of C- or better. CHEM M52LB with a grade of C- or better.

Overlaps with CHEM H52LC, CHEM 51LD.

Restriction: Chemistry majors only.

CHEM H90. The Idiom and Practice of Science. 4 Units.
A series of fundamental and applied problems in the chemical sciences are addressed. Topics may include the periodic table, electronic structure of atoms, chemical bonding, molecular structure, thermodynamics, and kinetics, with applications to energy and the environment, and/or biochemistry.

Restriction: Campuswide Honors Program students only.

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CHEM 107. Inorganic Chemistry. 4 Units.
Introduction to modern inorganic chemistry. Principles of structure, bonding, and chemical reactivity with application to compounds of the main group and transition elements, including organometallic chemistry.

Prerequisite: CHEM 51C or CHEM H52C.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 107L. Inorganic Chemistry Laboratory. 3 Units.
Modern techniques of inorganic and organometallic chemistry including experience with glove box, Schlenk line, and vacuum line methods. Materials fee.

Prerequisite: CHEM 107.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 125. Advanced Organic Chemistry. 4 Units.
Rapid-paced comprehensive treatment of organic chemistry. Focuses on molecular structure, reactivity, stability, scope and mechanisms of organic reactions. Topics include: structure and bonding; theoretical organic chemistry; acidity and basicity; reactive intermediates; pericyclic reactions; stereochemistry; organic synthesis; natural products; organic photochemistry.

Prerequisite: CHEM 51C.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 127. Inorganic Chemistry II. 4 Units.
Advanced treatment of selected fundamental topics in inorganic chemistry, building on material presented in Chemistry 107. Molecular symmetry with applications to electronic structure and spectroscopy. Reaction kinetics and mechanisms; inorganic synthesis and catalysis; bioinorganic chemistry.

Prerequisite: CHEM 107.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 128. Introduction to Chemical Biology. 4 Units.
Introduction to the basic principles of chemical biology: structures and reactivity; chemical mechanisms of enzyme catalysis; chemistry of signalling, biosynthesis, and metabolic pathways.

Prerequisite: (CHEM 1A and CHEM 1B and (CHEM 1C or CHEM H2C or CHEM M3C)) and (CHEM 51A and CHEM 51B and CHEM 51C).

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 128L. Introduction to Chemical Biology Laboratory Techniques. 3 Units.
Introduction to the basic laboratory techniques of chemical biology: electrophoresis, plasmid preparation, PCR, protein expression, isolation, and kinetics. Materials fee.

Corequisite: CHEM 128.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 131A. Quantum Principles. 4 Units.
Principles of quantum chemistry with applications to nuclear motions and the electronic structure of the hydrogen atom.

Corequisite: (CHEM 5 or CBEMS 45C) and (CBEMS 45C or PHYSICS 7E).
Prerequisite: (CHEM 1C or CHEM M3C or CHEM H2C) and MATH 2D and PHYSICS 7D.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 131B. Molecular Structure and Elementary Statistical Mechanics. 4 Units.
Principles of quantum mechanics with application to the elements of atomic structure and energy levels, diatomic molecular spectroscopy and structure determination, and chemical bonding in simple molecules.

Prerequisite: CHEM 131A and (PHYSICS 7E or CBEMS 45C).

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 131C. Thermodynamics and Chemical Dynamics. 4 Units.
Energy, entropy, and the thermodynamic potentials. Chemical equilibrium. Chemical kinetics.

Prerequisite: CHEM 131B.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 137. Computational Chemistry. 4 Units.
Short introduction to programming languages and to representative algorithms employed in chemical research. Students have the opportunity to devise and employ their own codes and also to employ codes which are widely used in various fields of chemistry. Materials fee.

Corequisite: CHEM 131B.
Prerequisite: CHEM 51C and CHEM 131A.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 138. Introduction to Computational Organic Chemistry. 4 Units.
An introduction to the use of computational chemistry to investigate reaction mechanisms, to calculate structures, and to predict properties of molecules. Students have the opportunity to perform calculations employing computational methods which are widely used in various fields of chemistry. Materials fee.

Prerequisite: CHEM 51C.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 152. Advanced Analytical Chemistry. 5 Units.
In-depth treatment of modern instrumental methods for quantitative analysis of real samples and basic principles of instrument design. Laboratory experiments using spectroscopic, chromatographic, mass spectrometric, and other instrumental methods. Materials fee.

Prerequisite: (CHEM 1C or CHEM M3C) and CHEM M3LC.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 153. Physical Chemistry Laboratory. 4 Units.
Introduction to the modern experimental approaches and software tools used in spectroscopy, kinetics, electrochemistry, and other physical chemistry experiments. Basics of interfacing with instruments using LabView. Materials fee.

Corequisite: CHEM 131C.
Prerequisite: CHEM 1C OR (CHEM M3C and CHEM M3LC) and CHEM 131B.

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 156. Advanced Laboratory in Chemistry and Synthesis of Materials. 4 Units.
Synthesis and characterization of organic and inorganic materials including polymers and oxides. Techniques include electron and scanning probe microscopy, gel permeation chromatography, X-ray diffraction, porosimetry, and thermal analysis. Materials fee.

Prerequisite: CHEM 131B or ENGR 54 or PHRMSCI 171.

Same as CBEMS 160.

Restriction: Chemistry majors and Materials Science Engineering majors have first consideration for enrollment.

CHEM 160. Organic Synthesis Laboratory. 4 Units.
Modern experimental techniques in organic synthesis including experience with thin-layer chromatography, liquid chromatography, and gas chromatography. Modern methods of structure elucidation including FT NMR are employed in the characterization of products. Materials fee.

Prerequisite: CHEM 51C and (CHEM 51LC or CHEM H52LC or CHEM M52LC).

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 170. Radioisotope Techniques. 4 Units.
Basic theory and practice of production, separation, safe handling, counting, applications of radioactive isotopes with emphasis on applications in chemistry, biology, and medicine. Materials fee.

Prerequisite: (CHEM 1C or CHEM M3C or CHEM H2C) and (CHEM 1LC or CHEM M3LC or CHEM H2LC).

Restriction: Chemistry majors have first consideration for enrollment.

CHEM 177. Medicinal Chemistry. 4 Units.
An introduction of the basics of drug activity and mechanisms. Strategies used to identify lead compounds such as natural product chemistry, combinatorial chemistry, molecular modeling, and high-through put screening. Relationship of molecular structure to pharmacological activity.

Prerequisite: CHEM 51A and CHEM 51B and CHEM 51C and (BIO SCI 98 or CHEM 128).

Same as PHRMSCI 177.

Restriction: Pharmaceutical Science majors have first consideration for enrollment.

CHEM 177L. Medicinal Chemistry Laboratory. 2 Units.
An introduction of the basics of drug activity and mechanisms. Strategies used to identify lead compounds such as natural product chemistry, combinatorial chemistry, molecular modeling, and high-through put screening. Relationship of molecular structure to pharmacological activity. Materials fee.

Corequisite: PHRMSCI 177.
Prerequisite: CHEM 51A and CHEM 51B and CHEM 51C and BIO SCI 100 and (BIO SCI 98 or CHEM 128).

Same as PHRMSCI 177L.

Restriction: Pharmaceutical Science majors have first consideration for enrollment.

CHEM 177LW. Medicinal Chemistry Lab. 2 Units.
An introduction of the basics of drug activity and mechanisms. Strategies used to identify lead compounds such as natural product chemistry, combinatorial chemistry, molecular modeling, and high-through put screening. Relationship of molecular structure to pharmacological activity.

Corequisite: CHEM 177.
Prerequisite: CHEM 51A and CHEM 51B and CHEM 51C and (BIO SCI 98 or CHEM 128) and BIO SCI 100.

Same as PHRMSCI 177LW.

(Ib)

CHEM 180. Undergraduate Research. 4 Units.
Research for credit arranged with a faculty member to sponsor and supervise work. Student time commitment of 10 to 15 hours per week is expected, and a written research report is required at the end of each quarter of enrollment.

Repeatability: May be repeated for credit unlimited times.

CHEM H180A. Honors Research in Chemistry. 4 Units.
Undergraduate honors research in Chemistry. A student time commitment of 10-15 hours per week is required.

Restriction: Chemistry Honors program students and Chemistry majors participating in the Campuswide Honors Program only.

CHEM H180B. Honors Research in Chemistry. 4 Units.
Undergraduate honors research in Chemistry. A student time commitment of 10-15 hours per week is required.

Prerequisite: CHEM H180A.

Restriction: Campuswide Honors Program students only.

CHEM H180C. Honors Research in Chemistry. 4 Units.
Undergraduate honors research in Chemistry. A student time committment of 10-15 hours per week is required.

Prerequisite: CHEM H180B.

Restriction: Chemistry majors participating in the Campuswide Honors Program students only. Chemistry Honors Program students only.

CHEM H181W. Honors Seminar in Chemistry. 2 Units.
Students will receive guidance in the preparation of oral and written research presentations. A written thesis will be prepared and a formal research seminar will be presented.

Corequisite: CHEM H180C.
Prerequisite: CHEM H180A and CHEM H180B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

CHEM 191. Chemistry Outreach Program. 2 Units.
Involves intensive participation in the UCI Chemistry Outreach Program, which performs Chemistry demonstrations at local high schools.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 6 times.

CHEM 192. Tutoring in Chemistry. 2 Units.
Enrollment limited to participants in the Chemistry Peer Tutoring Program.

Repeatability: May be taken for credit 9 times.

Restriction: The first eight may be taken for a letter grade. The remaining ten units must be taken Pass/Not Pass only. NOTE: No more than eight units may be counted toward the 180 units required for graduation. Satisfies no degree requirement other than contribution to the 180-unit total.

CHEM 193. Research Methods. 4 Units.
Explores tools of inquiry for developing and implementing science research projects. Students undertake independent projects requiring data collection, analysis, and modeling, and the organization and presentation of results. Additional topics include ethical issues and role of scientific literature.

Prerequisite: BIO SCI 14 or PHY SCI 5.

Same as BIO SCI 108, PHYSICS 193.

CHEM 197. Professional Internship. 4 Units.
Internship program that provides students with opportunity to develop professional skills necessary for competitive placement in their chosen chemical inspired industry. Students gain new and field-specific skills outside the classroom while participating in a supervised internship totaling 100 hours.

Prerequisite: Enrollment requires completion of an application form. Student selection is made by a selection committee.

Restriction: Upper-division students only.

CHEM 199. Independent Study in Chemistry. 1-4 Units.
Independent research with Chemistry faculty. Student time commitment of three to four hours per week per unit is expected, and a written report on the independent study is required at the end of each quarter of enrollment.

Repeatability: Unlimited as topics vary.

CHEM 200. Conduct of Research . 2 Units.
Introduces new graduate students to ethical conduct of scientific research, mentoring, and current research in the Department of chemistry.

Repeatability: May be taken for credit 2 times.

CHEM 201. Organic Reaction Mechanisms I. 4 Units.
Advanced treatment of basic mechanistic principles of modern organic chemistry. Topics include molecular orbital theory, orbital symmetry control of organic reactions, aromaticity, carbonium ion chemistry, free radical chemistry, the chemistry of carbenes and carbanions, photochemistry, electrophilic substitutions, aromatic chemistry.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 202. Organic Reaction Mechanisms II. 4 Units.
Topics include more in-depth treatment of mechanistic concepts, kinetics, conformational analysis, computational methods, stereoelectronics, and both solution and enzymatic catalysis.

Prerequisite: CHEM 201.

CHEM 203. Organic Spectroscopy. 4 Units.
Modern methods used in structure determination of organic molecules. Topics include mass spectrometry; ultraviolet, chiroptical, infrared, and nuclear magnetic resonance spectroscopy.

Prerequisite: (CHEM 51A and CHEM 51B and CHEM 51C) or (CHEM H52A and CHEM H52B and CHEM H52C).

Restriction: Graduate students only.

CHEM 204. Organic Synthesis I. 4 Units.
Fundamentals of modern synthetic organic chemistry will be developed. Major emphasis is on carbon-carbon bond forming methodology. Topics include carbonyl annelations, cycloadditions, sigmatropic rearrangements, and organometallic methods.

Corequisite: CHEM 202.

CHEM 205. Organic Synthesis II. 4 Units.
Fundamentals of modern synthetic organic chemistry will be developed. Major emphasis this quarter is on natural product total synthesis and retrosynthetic (antithetic) analysis.

Prerequisite: CHEM 204.

CHEM 206. Laboratory Skills. 4-6 Units.
Introduces students to a variety of practical laboratory techniques, including lock-in, boxcar, coincidence counting, noise filtering, PID control, properties of common transducers, computer interfacing to instruments, vacuum technology, laboratory safety, basic mechanical design, and shop skills. Materials fee.

Same as PHYSICS 206.

Concurrent with PHYSICS 106.

CHEM 207. Chemistry for Physicists. 4 Units.
Introduction to fundamental concepts in molecular structure and reactivity: theory of bonding, valence and molecular orbitals; structure and reactivity in inorganic chemistry; elements in molecular group theory; nomenclature in organic chemistry; and survey of macromolecules.

Same as PHYSICS 207.

CHEM 208. Mathematics for Chemists. 4 Units.
Applications of mathematics to physical and chemical problems. Calculus of special functions, complex variables and vectors; linear vector spaces and eigenvalue problems. Differential equations.

Same as PHYSICS 208.

CHEM 209. Physics for Chemists. 4 Units.
An introduction to concepts of electrodynamics with special emphasis on applications to chemistry: vector analysis, electrostatics, magnetostatics, electrodynamics, electromagnetic waves, classical radiation theory, special relativity.

CHEM 213. Chemical Kinetics. 4 Units.
Surveys gas phase and organic reaction mechanisms and their relationship to kinetic rate laws; treats the basic theory of elementary reaction rates. A brief presentation of modern cross-sectional kinetics is included.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 215. Inorganic Chemistry I. 4 Units.
Principles of modern inorganic chemistry with applications to chemical systems of current interest. Inorganic phenomena are organized into general patterns which rationalize observed structures, stabilities, and physical properties.

Prerequisite: CHEM 107 and (CHEM 131A and CHEM 131B and CHEM 131C).

Restriction: Graduate students only.

CHEM 216. Organometallic Chemistry. 4 Units.
Synthesis and reactivity of organometallic complexes with an emphasis on mechanisms. Topics include bonding and fluxional properties; metal-carbon single and multiple bonds; metal š-complexes. Applications to homogenous catalysis and organic synthesis are incorporated throughout the course.

Prerequisite: CHEM 107 or CHEM 215.

CHEM 217. Physical Inorganic Chemistry. 4 Units.
General principles of the spectroscopy and magnetism of inorganic compounds. Characterization of inorganic complexes by infrared, near-infrared, visible, ultraviolet, NMR, EPR, EXAFS, and Mossbauer spectroscopies. Some necessary group theory developed.

Prerequisite: CHEM 215.

CHEM 218. Metallobiochemistry. 4 Units.
A review of the biochemistry of metallic elements emphasizing: methods for studying metals in biological systems; the chemical basis for nature's exploitation of specific elements; structures of active sites; mechanisms; solid-state structures and devices; metals in medicine.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 219. Chemical Biology. 4 Units.
A survey of the organic chemistry underlying biological function. Introduction to chemical genetics, receptor-ligand interactions, small molecule agonists and antagonists, combinatorial synthesis, high throughput assays, molecular evolution, protein and small molecule design.

Restriction: Graduate students only.

CHEM 220. Bioorganic Chemistry. 4 Units.
Structure and function of biologically important macromolecules. Introduction to nucleic acid, protein structure, principles of molecular recognition, enzyme function, modelling, and engineering.

Prerequisite: (CHEM 51A and CHEM 51B and CHEM 51C).

CHEM 221A. Fundamentals of Molecular Biophysics. 4 Units.
An overview of the principles and concepts in molecular biophysics. Topics covered include energy and entropy in biology, non-equilibrium reaction kinetics, random walks and molecular diffusion, molecular forces in biology.

Prerequisite: Undergraduate courses in physical chemistry and biochemistry.

Repeatability: May be taken for credit 3 times.

CHEM 223. Biological Macromolecules. 4 Units.
Introduction to nucleic acid and protein structure, dynamics, and function. Topics include analytical methods, molecular evolution, folding, and catalysis.

Same as PHRMSCI 223.

CHEM 224. Molecular and Cellular Biophotonics. 4 Units.
Principles underlying the application of photonic technologies to biomolecular and cellular systems. Sample technologies Optical Tweezers, Linear and Nonlinear Optical Microscopy and Fluorescence Lifetime and Correlation Methods and their use to investigate emergent problems in Molecular, Cellular, and Developmental Biology.

(Design units: 0)

Same as CBEMS 224.

Restriction: Graduate students only.

CHEM 225. Polymer Chemistry: Synthesis and Characterization of Polymers. 4 Units.
Structure of synthetic and natural polymers. Survey of modern polymer synthetic methods. Molecular weight and molecular weight distribution. Chain conformation and stereochemistry. Introduction to polymer characterization, chain models, and solution behavior.

Prerequisite: Undergraduate courses in organic and physical chemistry.

CHEM 228. Electromagnetism. 4 Units.
Maxwell’s equations, electrodynamics, electromagnetic waves and radiation, wave propagation in media, interference and quantum optics, coherent and incoherent radiation, with practical applications in interferometry, lasers, waveguides, and optical instrumentation.

Same as PHYSICS 228.

CHEM 229A. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Same as PHYSICS 229A.

Concurrent with PHYSICS 100.

CHEM 229B. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Same as PHYSICS 229B.

CHEM 230. Classical Mechanics and Electromagnetic Theory. 4 Units.
Fundamentals of classical mechanics and electromagnetic theory are developed with specific application to molecular systems. Newtonian, Lagrangian, and Hamiltonian mechanics are developed. Boundary value problems in electrostatics are investigated. Multipole expansion and macroscopic media are discussed from a molecular viewpoint.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 231A. Fundamentals of Quantum Mechanics. 4 Units.
The postulates of quantum mechanics are discussed and applied to a variety of model problems.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 231B. Applications of Quantum Mechanics. 4 Units.
Approximate methods for solving atomic and molecular structure problems are developed, and the application of quantum mechanics to spectroscopy is introduced.

Prerequisite: CHEM 231A.

CHEM 231C. Molecular Spectroscopy. 4 Units.
Theory and techniques of spectroscopy as used for the study of molecular and condensed phase properties. Coherent time domain spectroscopies are covered.

Prerequisite: CHEM 231B.

CHEM 232A. Thermodynamics and Introduction to Statistical Mechanics. 4 Units.
A detailed discussion from an advanced point of view of the principles of classical thermodynamics. The fundamentals of statistical mechanics. Topics include an introduction to ensemble theory, Boltzmann statistics, classical statistical mechanics, and the statistical mechanics of ideal gas systems.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 232B. Advanced Topics in Statistical Mechanics. 4 Units.
Continued discussion of the principles of statistical mechanics. Applications to topics of chemical interest including imperfect gases, liquids, solutions, and crystals. Modern techniques such as the use of autocorrelation function methods.

Prerequisite: CHEM 232A.

CHEM 232C. Non-Equilibrium Statistical Mechanics. 4 Units.
Phenomenology of material processes, including: kinetic theories of transport and continuum, linear response theory, critical phenomena of phase transition, self-assembly, and nucleation.

CHEM 233. Nuclear and Radiochemistry. 4 Units.
Advanced treatment of nuclear structure, nuclear reactions, and radioactive-decay processes. Introduction to nuclear activation analysis, isotope effects, radiation chemistry, hot-atom chemistry, nuclear age-dating methods, nuclear reactors, and nuclear power.

Same as CBEMS 233.

Concurrent with CBEMS 133.

CHEM 234. Advanced Chemical Kinetics. 4 Units.
Topics and format vary.

Prerequisite: CHEM 213.

Repeatability: Unlimited as topics vary.

CHEM 235. Molecular Quantum Mechanics. 4 Units.
Application of quantum mechanics to calculation of molecular properties. Electronic structure of molecules.

Prerequisite: CHEM 231A.

CHEM 236. Forces Between Molecules. 4 Units.
The nature and effects of non-covalent interactions between molecular systems. The focus is on properties of these interactions in condensed phases: macromolecular systems; particle-surface interactions.

CHEM 237. Mathematical Methods in Chemistry. 4 Units.
Survey of essential math methods in chemistry. Topics may include series and limits, complex analysis, Fourier and Laplace transforms, linear algebra and operators (theory and algorithms), differential equations, and probability concepts for stochastic processes.

CHEM 241. Current Issues Related to Tropospheric and Stratosheric Processes. 4 Units.
Examination of current issues related to the atmosphere, including energy usage; toxicology; effects on humans, forests, plants, and ecosystems; particulate matter (PM10); combustion; modeling and meteorology; airborne toxic chemicals and risk assessment; application of science to development of public policies.

Prerequisite: ENGRMAE 164 or ENGRMAE 261 or CHEM 245 or EARTHSS 240.

Same as ENGRMAE 260.

CHEM 242A. Physical and Geometrical Optics. 4 Units.
Focuses on the practical aspects of optics and optical engineering, starting at the fundamentals. Topics include geometrical optics, ray tracing, polarization optics, interferometers, and diffractive optics.

Same as CBEMS 242A.

Restriction: Graduate students only.

Concurrent with PHYSICS 134A.

CHEM 242B. Applied Optics. 4 Units.
Focuses on the treatment of a wide variety of tools and techniques used in optics, particularly in research. Subjects include an introduction to lasers, optical detection, coherent optics, spectroscopic techniques, and selected topics corresponding to the interest of the students.

Prerequisite: CHEM 242A.

Same as CBEMS 242B.

CHEM 243. Advanced Instrumental Analysis. 4 Units.
Theory and applications of modern advanced instrumental methods of analysis. Includes data acquisition, storage, retrieval and analysis; Fourier transform methods; vacuum technologies; magnetic sector; quadrupole and ion trap mass spectrometry; surface science spectroscopic methods; lasers and optics.

Prerequisite: CHEM 152 and (CHEM 131A and CHEM 131B and CHEM 131C).

CHEM 245. Atmospheric Chemistry of the Natural and Polluted Troposphere. 4 Units.
Kinetics, mechanisms and photochemistry of tropospheric reactions in the gas, liquid, and solid phases, and methods of analysis. Chemistry of photochemical oxidant formation and acid deposition, and applications to control strategies. Chemistry of toxic chemicals and indoor air pollution.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 246. Separations and Chromatography. 4 Units.
Introduction to modern separation techniques such as gas chromatography, high-performance liquid chromatography, supercritical fluid chromatography, capillary electrophoresis, and field flow fractionation. Applications of these separation strategies are discussed.

CHEM 247. Current Problems in Analytical Chemistry. 4 Units.
Surveys current research challenges in analytical chemistry. Topics include electrochemistry, chromatography, spectroscopy, and mass spectrometry.

CHEM 248. Electrochemistry. 4 Units.
Fundamentals of electrochemistry including thermodynamics and the electrochemical potential, charge transfer kinetics, and mass transfer. Methods based on controlled potential and controlled current are described; the effects of slow heterogeneous kinetics and the perturbation caused by homogeneous chemistry are discussed.

CHEM 249. Analytical Spectroscopy. 4 Units.
Advanced treatment of spectroscopic techniques and instrumentation. Atomic and molecular absorption, emission, and scattering processes and their application to quantitative chemical analysis are outlined. Puts different spectroscopic techniques in perspective and demonstrates most appropriate applications to analytical problems.

CHEM 251. Special Topics in Organic Chemistry. 1-4 Units.
Advanced topics in organic chemistry.

Repeatability: Unlimited as topics vary.

CHEM 252. Special Topics in Physical Chemistry. 1-4 Units.
Advanced topics in physical chemistry. Materials fee.

Repeatability: Unlimited as topics vary.

CHEM 253. Special Topics in Inorganic Chemistry. 4 Units.
Advanced topics in inorganic chemistry.

Prerequisite: CHEM 215.

Repeatability: Unlimited as topics vary.

CHEM 254. Special Topics in Computational and Theoretical Chemistry. 4 Units.
Subjects covered vary from year to year.

Repeatability: Unlimited as topics vary.

CHEM 263. Materials Chemistry . 4 Units.
An introduction to crystalline solids, descriptive crystal chemistry, solid-state synthesis and characterization techniques, x-ray and electron diffraction, phase diagrams, electronic band structure of extended solids, semi conductors, and nanoscale inorganic materials.

CHEM 266. Current Topics in Chemical and Materials Physics. 1 Unit.
The subjects covered vary from year to year. Connection between fundamental principles and implementations in practice in science, industry, and technology.

Repeatability: May be repeated for credit unlimited times.

Same as PHYSICS 266.

CHEM 271. Structural X-Ray Cystallography. 4 Units.
The principles and practice of the determination of structures by single crystal X-Ray diffraction techniques. Crystal symmetry, diffraction, structure solution and refinement. Opportunities for hands-on experience in structure determination.

Prerequisite: CHEM 131A and CHEM 131B and CHEM 131C.

CHEM 272. Industrial Chemistry. 4 Units.
Scientific, economic environmental aspects of the top 50 industrially produced chemicals, including: how they are obtained, and used; present and future sources of energy and raw materials, and the effects of chemical manufacturing on the price structure of our economy.

CHEM 273. Technical Communication Skills. 2 Units.
Development of effective communication skills, oral and written presentations, through examples and practice.

Grading Option: Satisfactory/unsatisfactory only.

Same as PHYSICS 273.

CHEM 280. Research. 2-12 Units.
Supervised original research toward the preparation of a Ph.D dissertation or M.S. thesis.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CHEM 290. Seminar. 1 Unit.
Weekly seminars and discussions on general and varied topics of current interest in chemistry.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CHEM 291. Research Seminar. 4 Units.
Detailed discussion of research problems of current interest in the Department. Format, content, and frequency of the course are variable.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

CHEM 292. Graduate Symposium. 2 Units.
Students present public seminars on literature-based research topics in contemporary chemistry. Topics to be chosen by student and approved by instructor.

Repeatability: May be repeated for credit unlimited times.

CHEM 299. Independent Study. 1-4 Units.
Independent research with Chemistry faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CHEM 399. University Teaching. 1-4 Units.
Required of and limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Department of Earth System Science

3200 Croul Hall; 949-824-8794
http://www.ess.uci.edu/
Gudrun Magnusdottir, **Chair**

Understanding global environmental issues such as global warming, stratospheric ozone depletion, and worldwide air pollution requires the cooperation of scientists across many fields. Global change is projected to accelerate through the twenty-first century and will impact the ecosystems that preserve the habitability of the planet. The Department of Earth System Science focuses on the atmosphere, land, and oceans, how these interact as a system, and how the Earth will change over a human lifetime. Earth System Science (ESS) is inherently interdisciplinary in scope, linking oceanography, atmospheric and terrestrial sciences, climatology, hydrology, biology, physics, and chemistry to understand the environment. ESS faculty includes chemists, biologists, ecologists, physicists, hydrologists, geologists, meteorologists, engineers, applied mathematicians, and oceanographers. The wide-ranging expertise of ESS faculty and teaching assistants allows students to learn valuable scientific skills in the classroom, laboratory, and field experiences.

Degrees

Department(s)	Degree(s)
Earth System Science	B.S., M.S.[1], Ph.D.
Environmental Science	B.A.

1 Emphasis at the graduate level is on the Ph.D. degree; the master's degree may be awarded to Ph.D. students after fulfillment of the requirements.

Undergraduate Programs

B.S. Earth System Science (p. 1320)

B.A. Environmental Science (p. 1325)

Bachelor of Science Major in Earth System Science

http://ess.uci.edu/undergrad/bs

Earth System Science is an interdisciplinary field of study that combines oceanography, atmospheric science, meteorology, geography, geology, hydrology, and environmental science. ESS students gain an understanding of how individual aspects of the environment interact, including the influence of humans on this complex system.

Examples of important questions in Earth System Science include, but are not limited to, the influence of atmospheric chemistry on climate and air quality, biological controls on the chemistry of the oceans, and physical controls on atmosphere and ocean circulation.

The Earth System Science (B.S.) program provides students with a fundamental understanding of the oceanographic, atmospheric, and terrestrial sciences. This program of study prepares students for careers in science, research, or technical fields. Students learn to apply basic sciences (physics, chemistry, mathematics, and biology) to understand the major processes and systems governing the Earth's climate, biogeochemical cycles, and global change. Central to the B.S. program is an understanding of relevant scientific literature, methods to collect/analyze data, and interpret results in the context of scientific theory. Students will learn to work collaboratively to understand and address complex problems and communicate scientific knowledge.

Through the core course work, students will learn to explain the current and projected future state of the Earth system in the context of past climate change and current human activities. Once the core course work is complete, students are encouraged to focus on a particular area within Earth System Science and to choose electives that build a coherent core of knowledge. Focus areas include but are not limited to climatology, biogeochemical cycles, oceanography, hydrology, terrestrial sciences, and atmospheric sciences. Optional specializations are available in Atmospheric Science, Hydrology and Terrestrial Ecosystems, and Oceanography.

Earth System Science students are encouraged to become directly involved in research. The Department provides excellent opportunities to learn from and work with recognized experts in the field, while fulfilling degree requirements. EARTHSS 198W may satisfy Department and UCI upper-division writing requirements.

Careers for the Earth System Science Major

Some students go on to graduate school in physical sciences, engineering, or related areas. Others begin careers as research scientists in academic, public, or private institutions (may require a graduate-level degree). Options that may be available are scientist positions in the following roles: environmental policy and planning, environmental consulting, air quality monitoring and assessment, laboratory analysis, scientific research, science education, natural resource management, wildlife management, conservation and environmental protection, and water resource management.

Special Programs

Earth System Science Honors Program. In the year-long honors course sequence, students admitted into the ESS Honors Program pursue research with faculty in the Department, and prepare a written thesis of their work. Visit the Earth System Science Honors Program (http://ess.uci.edu/undergrad/honors) website for more information.

Teaching Certification. Earth System Science students interested in teaching careers can earn a bachelor's degree concurrently with a California Preliminary Single Subject Teaching Credential. See the Concentration in Geosciences Education with Secondary Teaching Certification section below for more information.

Admission to the Earth System Science Major

Students may be admitted to the Earth System Science major upon entering the University as freshmen, via change of major, or as transfer students from other colleges and universities. Information about change of major policies is available in the Physical Sciences Student Affairs Office and at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. For transfer student admission, preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following required courses: one year of approved calculus and one year of *either* general chemistry with laboratory (preferred) or one-year of calculus-based physics with laboratory.

NOTE: The major is open to all students except Environmental Science majors and Earth and Atmospheric Sciences minors.

Requirements for the B.S. Degree in Earth System Science

All students must meet the University Requirements (p. 71)**.**
School Requirements: None.

Major Requirements

A. Complete:	
EARTHSS 1	Introduction to Earth System Science
or EARTHSS 3	Oceanography
or EARTHSS 5	The Atmosphere
EARTHSS 51	Land Interactions
EARTHSS 53	Ocean Biogeochemistry
EARTHSS 55	Earth's Atmosphere
EARTHSS 114	Earth System Science Laboratory and Field Methods
EARTHSS 116	Data Analysis for Earth Sciences
EARTHSS 191	Title Introduction to Research in Earth System Science
EARTHSS 192	Careers in Earth System Science

MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
or MATH 3A	Introduction to Linear Algebra
Select one of the following sequences and accompanying labs:	
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM 1LC- 1LD	General Chemistry Laboratory and General Chemistry Laboratory
or	
CHEM H2A- H2B- H2C	Honors General Chemistry and Honors General Chemistry and Honors General Chemistry
CHEM H2LA- H2LB- H2LC	Honors General Chemistry Laboratory and Honors General Chemistry Laboratory and Honors General Chemistry Laboratory
Select one of the following sequences and accompanying labs:	
PHYSICS 3A- 3B- 3C	Basic Physics and Basic Physics and Basic Physics
PHYSICS 3LB- 3LC	Basic Physics Laboratory and Basic Physics Laboratory
or	
PHYSICS 7C- 7E	Classical Physics and Classical Physics
PHYSICS 7LC	Classical Physics Laboratory
B. Select seven electives from the following (at least four must be Earth System Science courses):	
All 4-unit upper-division EARTHSS courses except EARTHSS 114, EARTHSS 116, EARTHSS 190C, and EARTHSS 198 or EARTHSS H198 (EARTHSS 199 or one quarter of H199A-B-C may count only once toward the elective requirement)	
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
BIO SCI 98	Biochemistry
BIO SCI D105	Cell, Developmental, and Molecular Biology of Plants
BIO SCI E106	Processes in Ecology and Evolution
BIO SCI E179	Limnology and Freshwater Biology
BIO SCI E179L	Field Freshwater Ecology
BIO SCI E186	Population and Community Ecology
BIO SCI E189	Environmental Ethics
BIO SCI M133	High-Resolution Structures: NMR and X-ray
CHEM 51A	Organic Chemistry
CHEM 51B- 51LB	Organic Chemistry and Organic Chemistry Laboratory
CHEM 51C- 51LC	Organic Chemistry and Organic Chemistry Laboratory
CHEM H52A- H52LA	Honors Organic Chemistry and Honors Organic Chemistry Laboratory
CHEM H52B- H52LB	Honors Organic Chemistry and Honors Organic Chemistry Laboratory
CHEM H52C	Honors Organic Chemistry
CHEM 131A	Quantum Principles
CHEM 131B	Molecular Structure and Elementary Statistical Mechanics
CHEM 131C	Thermodynamics and Chemical Dynamics
CRM/LAW C148	Geographic Information Systems
ENGRCEE 156	Foundation Design

ENGRCEE 162	Introduction to Environmental Chemistry
ENGRCEE 171	Water Resources Engineering
ENGRCEE 172	Groundwater Hydrology
ENGRCEE 176	Hydrology
ENGRCEE 178	Fluid Mechanics of Open Channels
ENGRMAE 60	Electric Circuits
ENGRMAE 91	Introduction to Thermodynamics
ENGRMAE 130A	Introduction to Fluid Mechanics
ENGRMAE 164	Air Pollution and Control
ENGRMAE 185	Numerical Analysis in Mechanical Engineering
MATH 2D	Multivariable Calculus (may be counted only once; or MATH 3A, may be counted only once)
MATH 3D	Elementary Differential Equations
MATH 105A	Numerical Analysis
MATH 112A	Introduction to Partial Differential Equations and Applications
MATH 115	Mathematical Modeling
PHYSICS 51A	Modern Physics
PHYSICS 51B	Modern Physics
PHYSICS 115A	Statistical Physics
PHYSICS 120	Electronics for Scientists
PHYSICS 134A	Physical and Geometrical Optics
PHYSICS 137	Introduction to Cosmology
PHYSICS 144	Stellar Astrophysics
PHYSICS 145	High-Energy Astrophysics
PP&D 139	Water Resource Policy
PUBHLTH 161	Environmental Geology
Computing Skills (one of the following may be counted toward degree): EECS 10, ENGRMAE 10, I&C SCI 31, PHYSICS 53, or an approved programming course.	

Optional Specializations

Three optional specializations are available: Atmospheric Science, Hydrology and Terrestrial Ecosystems, and Oceanography. The specializations require the completion of at least five courses from the following lists (four science courses plus one advanced tools course).

Specialization in Atmospheric Science

Requirements	
Four courses selected from the following:	
EARTHSS 101	Paleoclimatology
EARTHSS 112	Global Climate Change and Impacts
EARTHSS 122	Atmospheric Dynamics
EARTHSS 124	Weather Analysis
EARTHSS 142	Atmospheric Chemistry
EARTHSS 199	Undergraduate Research (one 4-unit course focused on atmospheric research selected from EARTHSS 199, 198, H198, H199A-H199B-H199C)
One advanced tools courses selected from the following:	
EARTHSS 118	Advanced Data Analysis and Modeling
EARTHSS 138	Satellite Remote Sensing for Earth System Science
EARTHSS 150	Laboratory Methods in Earth Systems Science
(These courses may overlap in Major Requirements, Section B.)	

Specialization in Hydrology and Terrestrial Ecosystems

Requirements	
Four courses selected from the following:	
EARTHSS 132	Terrestrial Hydrology
EARTHSS 140	Advanced Geology

EARTHSS 164	Ecosystem Ecology
EARTHSS 168	Physiological Plant Ecology
EARTHSS 174	Ice in the Climate System
EARTHSS 199	Undergraduate Research (one 4-unit course focused on terrestrial research selected from EARTHSS 199, 198, H198, H199A-H199B-H199C)
One advanced tools course selected from the following:	
EARTHSS 118	Advanced Data Analysis and Modeling
EARTHSS 134	Fundamentals of GIS for Environmental Sciences
EARTHSS 138	Satellite Remote Sensing for Earth System Science
EARTHSS 150	Laboratory Methods in Earth Systems Science
(These courses may overlap in Major Requirements, Section B.)	

Specialization in Oceanography

Requirements

Four courses selected from the following:	
EARTHSS 101	Paleoclimatology
EARTHSS 112	Global Climate Change and Impacts
EARTHSS 130	Physical Oceanography
EARTHSS 144	Marine Geochemistry and Biogeochemistry
EARTHSS 148	Marine Ecosystems and Global Change
EARTHSS 170	Environmental Microbiology
EARTHSS 199	Undergraduate Research (one 4-unit course focused on oceanographic research selected from EARTHSS 199, 198, H198, H199A-H199B-H199C)
One advanced tools course selected from the following:	
EARTHSS 118	Advanced Data Analysis and Modeling
EARTHSS 138	Satellite Remote Sensing for Earth System Science
EARTHSS 150	Laboratory Methods in Earth Systems Science
(These courses may overlap in Major Requirements, Section B.)	

Sample Program — Earth System Science

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D or 3A
CHEM 1A	CHEM 1B	CHEM 1C- 1LC
EARTHSS 1	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Sophomore		
Fall	**Winter**	**Spring**
EARTHSS 51	EARTHSS 53	EARTHSS 55
PHYSICS 3A	PHYSICS 3B- 3LB	PHYSICS 3C- 3LC
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
CHEM 1LD	Gen. Ed./Elective	Gen. Ed./Elective
Junior		
Fall	**Winter**	**Spring**
EARTHSS 116	ESS Elective	EARTHSS 114
EARTHSS 191	Approved Elective	ESS Elective
Gen. Ed./Elective	Gen. Ed./Elective	Elective
Elective	Elective	Elective
Senior		
Fall	**Winter**	**Spring**
ESS Elective	ESS Elective	ESS Elective
Approved Elective	Elective	Elective
EARTHSS 192	Elective	Elective
Elective	Elective	Elective

Some students (particularly transfer students) take EARTHSS 51, EARTHSS 53, and EARTHSS 55 in the junior year.

Concentration in Geosciences Education with Secondary Teaching Certification

This concentration allows students pursuing the B.S. in Earth System Science to earn a bachelor's degree and complete the required course work and field experience for a California Preliminary Single Subject Teaching Credential at the same time. In addition to the requirements listed above, students must complete the following courses:

CHEM 193	Research Methods
or PHYSICS 193	Research Methods
EARTHSS 7	Physical Geology [1]
or EARTHSS 140	Advanced Geology
EDUC 55	Knowing and Learning in Mathematics and Science
EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II
EDUC 148	Complex Pedagogical Design
EDUC 158	Student Teaching Mathematics and Science in Middle/High School (two quarters)
LPS 60	The Making of Modern Science
PHY SCI 5	California Teach 1: Introduction to Science and Mathematics Teaching
PHY SCI 105	California Teach 2: Middle School Science and Mathematics Teaching
PHYSICS 20A	Introduction to Astronomy
or PHYSICS 20B	Cosmology: Man's Place in the Universe

1 EARTHSS 140 may overlap with the major requirement in section B.

With careful, early planning, it is possible for students to complete the bachelor's degree and the secondary teaching certification in four years.

For additional information about teacher certification requirements and enrollment procedures, visit the Cal Teach (http://www.gse.uci.edu/calteach) website. Interested students are strongly encouraged to contact the Cal Teach Resource and Advising Center or the Physical Sciences Student Affairs Office.

Sample Program – Concentration in Geosciences Education with Secondary Teaching Certification

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D or 3A
CHEM 1A	CHEM 1B	CHEM 1C- 1LC
EARTHSS 1	PHYSICS 20A	Gen. Ed.
Elective	PHY SCI 5	Elective
Sophomore		
Fall	**Winter**	**Spring**
EARTHSS 51	EARTHSS 53	EARTHSS 55
PHYSICS 3A	PHYSICS 3B- 3LB	PHYSICS 3C- 3LC
CHEM 1LD	CHEM 193	LPS 60
PHY SCI 105		Gen. Ed.
Junior		
Fall	**Winter**	**Spring**
EARTHSS 116	ESS Elective	EARTHSS 114
EARTHSS 191	Approved Elective	ESS Elective
EDUC 55	EDUC 143AW	EDUC 148
Gen. Ed.	Elective	
Senior		
Fall	**Winter**	**Spring**
EDUC 143BW	EDUC 109	EDUC 158
EARTHSS 140	EDUC 158	ESS Elective
EARTHSS 192	ESS Elective	Approved Elective
Gen. Ed.		

Bachelor of Arts Major in Environmental Science

http://ess.uci.edu/undergrad/ba

The Gulf Oil Spill. Global Climate Change. Drought and Water Supply. Each of these topics illustrates the continuing need for environmental professionals with training in the natural sciences, social sciences, economics, and public policy. The Environmental Science B.A. degree program prepares students interested in environmental problem solving by linking an understanding of natural science with socioeconomic factors and public policy. The curriculum combines a quantitative understanding of environmental science, chemistry, and biology with studies of social science, policy, and macro- and microeconomics to provide a foundation for careers in environmental policy, resource management, education, environmental law, and related fields.

The Environmental Science program provides students with a solid foundation to recognize the impacts of human activities on the environment, and in turn the impacts of environmental change on society. Students will understand the mechanisms by which key institutions, policies, and regulations impact ecosystems and the physical environment. Once the core course work is complete, students are encouraged to focus on a particular area within Environmental Science and to choose electives that build a coherent core of knowledge. Focus areas include, but are not limited to planning, policy and design, sociology, economics, climatology, water resources, water quality, air pollution, resource management, and atmospheric sciences.

Careers for the Environmental Science Major

Some students may find career opportunities in roles such as policy advisor, data analyst (may require a graduate-level degree), scientific journalist, or technical writer. Other options that may be available are scientist positions in the following roles: environmental policy and planning, environmental consulting, air quality monitoring and assessment, natural resource management, wildlife management, conservation and environmental protection.

Special Programs

Environmental Science Honors Program. In the year-long honors course sequence, Environmental Science students admitted into the ESS Honors Program pursue research with faculty in the Department, and prepare a written thesis of their work. Visit the Environmental Science Honors Program (http://ess.uci.edu/undergrad/honors) website for more information.

Teaching Certification. Environmental Science students interested in teaching careers can earn a bachelor's degree concurrently with a California Preliminary Single Subject Teaching Credential. See the Concentration in Geosciences Education with Secondary Teaching Certification section below for more information.

Admission to the Environmental Science Major

Students may be admitted to the Environmental Science major upon entering the University as freshmen, via change of major, or as transfer students from other colleges and universities. Information about change of major policies is available in the Physical Sciences Student Affairs Office and at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. For transfer student admission, preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed *either* one year of general chemistry with laboratory (preferred) or one year of biology with laboratory. One year of economics or sociology is recommended.

NOTE: The major is open to all students except Earth System Science B.S. majors and Earth and Atmospheric Sciences minors.

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Requirements for the B.A. Degree in Environmental Science

All students must meet the University Requirements (p. 71)**.**
School Requirements: None.

Major Requirements

A. Select one of the following:	
EARTHSS 1	Introduction to Earth System Science
EARTHSS 3	Oceanography
EARTHSS 5	The Atmosphere
EARTHSS 7	Physical Geology
EARTHSS 11	Climate Change and Policy
EARTHSS 13	Global-Change Biology
EARTHSS 15	Introduction to Global Climate Change
EARTHSS 17	Hurricanes, Tsunamis, and other Catastrophes
EARTHSS 21	On Thin Ice: Climate Change and the Cryosphere
EARTHSS 23	Air Pollution: From Urban Smog to Global Change
Complete:	
EARTHSS 60A- 60B- 60C	Fundamental Processes in Earth and Environmental Studies and Local and Regional Environmental Issues and Global Environmental Issues
EARTHSS 114	Earth System Science Laboratory and Field Methods

EARTHSS 180	Environmental Sustainability I
EARTHSS 182	Environmental Sustainability II
EARTHSS 192	Careers in Earth System Science
B. Select one of the following sequences and accompanying labs:	
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM 1LC- 1LD	General Chemistry Laboratory and General Chemistry Laboratory
or	
CHEM H2A- H2B- H2C	Honors General Chemistry and Honors General Chemistry and Honors General Chemistry
CHEM H2LA- H2LB- H2LC	Honors General Chemistry Laboratory and Honors General Chemistry Laboratory and Honors General Chemistry Laboratory
Complete:	
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
C. Select three courses from the following:	
EARTHSS 19	Introduction to Modeling the Earth System
EARTHSS 116	Data Analysis for Earth Sciences
EARTHSS 134	Fundamentals of GIS for Environmental Sciences
ECON 15A- 15B	Probability and Statistics in Economics I and Probability and Statistics in Economics II
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 4	Mathematics for Economists
SOC SCI 9A- 9B- 9C	General Statistics and Probability I and General Statistics and Probability II and General Statistics and Probability III
SOC SCI 10A- 10B- 10C	Probability and Statistics in Social Sciences I and Probability & Statistics in Social Sciences II and Probability & Statistics in Social Sciences III
STATS 7	Basic Statistics
D. Select four courses from the following:	
BIO SCI E189	Environmental Ethics
EARTHSS 110	Environmental Controversies
EARTHSS 178	Solving the Energy-Carbon-Climate Problem
ECON 13	Global Economy
LPS 60	The Making of Modern Science
ECON 20A- 20B	Basic Economics I and Basic Economics II
PP&D 4	Introduction to Urban Studies
PP&D 134	Human Ecology
PP&D 139	Water Resource Policy
PP&D 140	Ethics and International Relations
PP&D 151	Environmental Psychology
SOCIOL 1	Introduction to Sociology
SOCIOL 2	Globalization and Social Change
SOCIOL 3	Social Problems
E. Select two electives each from the following three categories:	

1. Select any upper-division, 4-unit course in EARTHSS (199/H199 may count only once; the combination of EARTHSS 190A and EARTHSS 190B may be used as one elective requirement); courses may not be used as electives if counted toward degree requirements.

2.	
BIO SCI 20	California Natural History
BIO SCI 55	Introduction to Ecology
BIO SCI 65	Biodiversity & Conservation
BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
BIO SCI E106	Processes in Ecology and Evolution
BIO SCI E138	Comparative Animal Physiology
BIO SCI E140	Evolution and the Environment
BIO SCI E150	Conservation Biology
BIO SCI E151	Population Dynamics in Ecology, Epidemiology, and Medicine
BIO SCI E160	Biology of Birds
BIO SCI E161L	Biology of Birds Lab
BIO SCI E172	Plant Diversity in a Changing World
BIO SCI E175	Restoration Ecology
BIO SCI E176	Evolution of Infectious Disease
BIO SCI E179	Limnology and Freshwater Biology
BIO SCI E179L	Field Freshwater Ecology
BIO SCI E181	Conservation in the American West
BIO SCI E182	Mediterranean Ecosystems: Biodiversity and Conservation
BIO SCI E184	Ecology and Diversity of Insects
BIO SCI E186	Population and Community Ecology
BIO SCI E189	Environmental Ethics
CHEM 51A	Organic Chemistry
CHEM 51B- 51LB	Organic Chemistry and Organic Chemistry Laboratory
CHEM 51C- 51LC	Organic Chemistry and Organic Chemistry Laboratory
CHEM H52A- H52LA	Honors Organic Chemistry and Honors Organic Chemistry Laboratory
CHEM H52B- H52LB	Honors Organic Chemistry and Honors Organic Chemistry Laboratory
CHEM H52C	Honors Organic Chemistry
PHYSICS 3A	Basic Physics
PHYSICS 3B	Basic Physics
PHYSICS 3C	Basic Physics
PHYSICS 7C	Classical Physics
PHYSICS 14	Physics of Energy and the Environment
PHYSICS 20A	Introduction to Astronomy
PHYSICS 20B	Cosmology: Man's Place in the Universe
PHYSICS 20C	Observational Astronomy
PHYSICS 20D	Space Science
3.	
ECON 100A- 100B- 100C	Intermediate Economics I and Intermediate Economic II and Intermediate Economic III
ECON 142A- 142B- 142CW	Industrial Organization I and Industrial Organization II and Industrial Organization III
ECON 144A- 144B- 144CW	Urban Economics I and Urban Economics II and Urban Economics III
ECON 145E	Economics of the Environment

ECON 145L	Economics of Law
SOCIOL 31	Self-Identity and Society
SOCIOL 43	City and Community
SOCIOL 44	Births, Deaths, and Migration
SOCIOL 110	Research Methods
SOCIOL 141	Organizations
SOCIOL 147A	Cities and Social Change
SOCIOL 171	Environment and Society
Other courses may be substituted for approved electives by petition.	

Sample Program – Environmental Science

Freshman		
Fall	**Winter**	**Spring**
EARTHSS 1	MATH 2A	STATS 7
CHEM 1A	CHEM 1B	CHEM 1C- 1LC
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
	Gen. Ed./Elective	Gen. Ed./Elective
Sophomore		
Fall	**Winter**	**Spring**
EARTHSS 60A	EARTHSS 60B	EARTHSS 60C
CHEM 1LD	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Junior		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	EARTHSS 114
Approved Elective	EARTHSS 180	EARTHSS 182
EARTHSS 116	Approved Elective	Approved Elective
Elective	Elective	Elective
Senior		
Fall	**Winter**	**Spring**
ESS Elective	ESS Elective	Approved Elective
EARTHSS 192	Approved Elective	Approved Elective
Approved Elective	Elective	Approved Elective
Elective	Elective	Elective

Concentration in Geosciences Education with Secondary Teaching Certification

This concentration allows students pursuing the B.A. in Environmental Science to earn a bachelor's degree and complete the required course work and field experience for a California Preliminary Single Subject Teaching Credential at the same time. With careful, early planning, it is possible for students to complete the bachelor's degree and the secondary teaching certification in four years.

For additional information about teacher certification requirements and enrollment procedures, visit the Cal Teach (http://www.gse.uci.edu/calteach) website. Interested students are strongly encouraged to contact the Cal Teach Resource and Advising Center or the Physical Sciences Student Affairs Office.

Departmental Requirements

A. Select one of the following:

EARTHSS 1	Introduction to Earth System Science
EARTHSS 3	Oceanography
EARTHSS 5	The Atmosphere
EARTHSS 7	Physical Geology
EARTHSS 11	Climate Change and Policy
EARTHSS 13	Global-Change Biology
EARTHSS 15	Introduction to Global Climate Change
EARTHSS 17	Hurricanes, Tsunamis, and other Catastrophes
EARTHSS 21	On Thin Ice: Climate Change and the Cryosphere
EARTHSS 23	Air Pollution: From Urban Smog to Global Change
Complete:	

EARTHSS 7	Physical Geology [1]
or EARTHSS 140	Advanced Geology
EARTHSS 60A- 60B- 60C	Fundamental Processes in Earth and Environmental Studies and Local and Regional Environmental Issues and Global Environmental Issues
EARTHSS 114	Earth System Science Laboratory and Field Methods
EARTHSS 180	Environmental Sustainability I
EARTHSS 182	Environmental Sustainability II
EARTHSS 192	Careers in Earth System Science
PHYSICS 20A	Introduction to Astronomy [2]
or PHYSICS 20B	Cosmology: Man's Place in the Universe
B. Select one of the following sequences and accompanying labs:	
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM 1LC- 1LD	General Chemistry Laboratory and General Chemistry Laboratory
or	
CHEM H2A- H2B- H2C	Honors General Chemistry and Honors General Chemistry and Honors General Chemistry
CHEM H2LA- H2LB- H2LC	Honors General Chemistry Laboratory and Honors General Chemistry Laboratory and Honors General Chemistry Laboratory
Complete:	
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
C. Select three courses from the following:	
EARTHSS 19	Introduction to Modeling the Earth System
EARTHSS 116	Data Analysis for Earth Sciences
EARTHSS 134	Fundamentals of GIS for Environmental Sciences
ECON 15A- 15B	Probability and Statistics in Economics I and Probability and Statistics in Economics II
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 4	Mathematics for Economists
SOC SCI 9A- 9B- 9C	General Statistics and Probability I and General Statistics and Probability II and General Statistics and Probability III
SOC SCI 10A- 10B- 10C	Probability and Statistics in Social Sciences I and Probability & Statistics in Social Sciences II and Probability & Statistics in Social Sciences III
STATS 7	Basic Statistics
D. Select two courses from the following:	
BIO SCI E189	Environmental Ethics
EARTHSS 110	Environmental Controversies
EARTHSS 178	Solving the Energy-Carbon-Climate Problem
ECON 13	Global Economy
ECON 20A- 20B	Basic Economics I and Basic Economics II
LPS 60	The Making of Modern Science
PP&D 4	Introduction to Urban Studies
PP&D 134	Human Ecology
PP&D 139	Water Resource Policy

PP&D 140	Ethics and International Relations
PP&D 151	Environmental Psychology
SOCIOL 1	Introduction to Sociology
SOCIOL 2	Globalization and Social Change
SOCIOL 3	Social Problems

E. Select two electives each from the following three categories:

1. Any upper-division, 4-unit course in EARTHSS or 190A-B (199/H199 may count only once; the combination of 190A and 190B may be used as one elective requirement); courses may not be used as electives if counted toward degree requirements.

2.

BIO SCI 20	California Natural History
BIO SCI 55	Introduction to Ecology
BIO SCI 65	Biodiversity & Conservation
BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
BIO SCI E106	Processes in Ecology and Evolution
BIO SCI E138	Comparative Animal Physiology
BIO SCI E140	Evolution and the Environment
BIO SCI E150	Conservation Biology
BIO SCI E151	Population Dynamics in Ecology, Epidemiology, and Medicine
BIO SCI E160	Biology of Birds
BIO SCI E161L	Biology of Birds Lab
BIO SCI E172	Plant Diversity in a Changing World
BIO SCI E175	Restoration Ecology
BIO SCI E176	Evolution of Infectious Disease
BIO SCI E179	Limnology and Freshwater Biology
BIO SCI E179L	Field Freshwater Ecology
BIO SCI E181	Conservation in the American West
BIO SCI E182	Mediterranean Ecosystems: Biodiversity and Conservation
BIO SCI E184	Ecology and Diversity of Insects
BIO SCI E186	Population and Community Ecology
BIO SCI E189	Environmental Ethics
CHEM 51A	Organic Chemistry
CHEM 51B- 51LB	Organic Chemistry and Organic Chemistry Laboratory
CHEM 51C- 51LC	Organic Chemistry and Organic Chemistry Laboratory
CHEM H52A- H52LA	Honors Organic Chemistry and Honors Organic Chemistry Laboratory
CHEM H52B- H52LB	Honors Organic Chemistry and Honors Organic Chemistry Laboratory
CHEM H52C	Honors Organic Chemistry
PHYSICS 3A	Basic Physics
PHYSICS 3B	Basic Physics
PHYSICS 3C	Basic Physics
PHYSICS 7C	Classical Physics
PHYSICS 14	Physics of Energy and the Environment
PHYSICS 20A	Introduction to Astronomy
PHYSICS 20B	Cosmology: Man's Place in the Universe
PHYSICS 20C	Observational Astronomy
PHYSICS 20D	Space Science

3.

ECON 100A- 100B- 100C	Intermediate Economics I and Intermediate Economic II and Intermediate Economic III
ECON 142A- 142B- 142CW	Industrial Organization I and Industrial Organization II and Industrial Organization III
ECON 144A- 144B- 144B	Urban Economics I and Urban Economics II and Urban Economics II
ECON 145E	Economics of the Environment
ECON 145L	Economics of Law
SOCIOL 31	Self-Identity and Society
SOCIOL 43	City and Community
SOCIOL 44	Births, Deaths, and Migration
SOCIOL 110	Research Methods
SOCIOL 141	Organizations
SOCIOL 147A	Cities and Social Change
SOCIOL 171	Environment and Society
F. Complete:	
CHEM/PHYSICS 193	Research Methods
EDUC 55	Knowing and Learning in Mathematics and Science
EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II
EDUC 148	Complex Pedagogical Design
EDUC 158	Student Teaching Mathematics and Science in Middle/High School (two quarters)
LPS 60	The Making of Modern Science
PHY SCI 5- 105	California Teach 1: Introduction to Science and Mathematics Teaching and California Teach 2: Middle School Science and Mathematics Teaching

1 EARTHSS 140 may overlap with the major requirement in section E1.

2 PHYSICS 20A and PHYSICS 20B may overlap with the major requirement in section E2.

Sample Program — Concentration in Geosciences Education with Secondary Teaching Certification

Freshman		
Fall	**Winter**	**Spring**
CHEM 1A	CHEM 1B	CHEM 1C- 1LC
EARTHSS 1	MATH 2A	STATS 7
PHY SCI 5	PHYSICS 20A	Gen. Ed.
Gen. Ed.		
Sophomore		
Fall	**Winter**	**Spring**
CHEM 1LD	EARTHSS 60B	EARTHSS 60C
EARTHSS 60A	CHEM 193 or PHYSICS 193	LPS 60
PHY SCI 105	General Ed.	Approved Elective
SOCIOL 1		
Junior		
Fall	**Winter**	**Spring**
BIO SCI 93	BIO SCI 94	EARTHSS 114
EARTHSS 116	EDUC 143AW	EARTHSS 182
EARTHSS 140	EARTHSS 180	EDUC 148
EDUC 55	Approved Elective	
Senior		
Fall	**Winter**	**Spring**
EARTHSS 192	EDUC 109	EDUC 158
EDUC 143BW	EDUC 158	Approved Elective

Approved Elective	Gen. Ed.	Gen. Ed.
Approved Elective		

Honors Program in Earth System Science

The Department of Earth System Science awards honors to students who have completed a customized year-long research program in their senior year. ESS honors students engage in advanced research, alongside faculty, research staff, and graduate students within well-equipped laboratories in Earth System Science. The program involves both conducting original research and communicating scientific findings.

The Honors Program in Earth System Science provides an opportunity for selected students majoring in Earth System Science or Environmental Science to pursue research with faculty in the Department during their senior year. Admission to the program is based on an application normally submitted by the sixth week of the spring quarter during the junior year.

To be considered for Departmental Honors, a student must have satisfied the following requirements:

1. Completion of all mathematics, chemistry, and physics requirements for the major;
2. Completion of EARTHSS 51-EARTHSS 53-EARTHSS 55 or EARTHSS 60A-EARTHSS 60B-EARTHSS 60C.
3. Achievement of an overall GPA at UCI of at least 3.3; and
4. Achievement of a GPA in Earth System Science courses of 3.4.

Students must also demonstrate potential for carrying out research of honors quality, as judged by the Earth System Science faculty member who will supervise their research. Application materials are available at the Environmental Science Honors Program (http://ess.uci.edu/undergrad/honors) website.

Once admitted to the program, students will enroll in:

EARTHSS H199A- H199B- H199C	Honors Research in Earth System Science and Honors Research in Earth System Science and Honors Research in Earth System Science
EARTHSS H198	Honors Thesis in Earth System Science

In the Honors Research series, students will commit 10–15 hours a week to conduct research with an ESS faculty. At the end of each quarter, a written report is required.

In the Honors Thesis course, students will prepare and submit a seminar, poster, and written thesis describing their research. The thesis will be written in the style of a scientific manuscript, with separate abstract, introduction, methods, results and discussion sections. If the thesis is deemed honors quality by the ESS faculty and the student's final accumulative GPA is above 3.3, the student will graduate with Departmental Honors.

Minor in Earth and Atmospheric Sciences

The science of the Earth as a system has implications for many fields of study. Students interested in understanding how the Earth's systems work can complete the requirements for a minor in Earth and Atmospheric Sciences. The program is primarily designed for students in the natural sciences and engineering who wish to explore interdisciplinary problems and broaden their studies to include the application of their fields to understanding the Earth system.

NOTE: This minor is not available to students in the Earth System Science (B.S.) or Environmental Science (B.A.) majors.

Requirements for the Minor

Select one of the following series:

EARTHSS 51- 53- 55	Land Interactions and Ocean Biogeochemistry and Earth's Atmosphere
or	
EARTHSS 60A- 60B- 60C	Fundamental Processes in Earth and Environmental Studies and Local and Regional Environmental Issues and Global Environmental Issues

and select four electives from the approved elective list for the B.S. in Earth System Science major, at least two of which must be Earth System Science courses.

Graduate Program

The Earth, as a coupled system of atmosphere, ocean, land, and cryosphere, has changed in our lifetime. The observed depletion of stratospheric ozone at high latitudes has been attributed directly to industrial use of halocarbons. Global warming is likely to result from increases in the atmospheric concentrations of greenhouse gases, such as carbon dioxide and methane, which are released by the use of fossil fuel and agricultural practices.

These examples illustrate the ability of humans to alter the global environment on the time-scale of decades. Understanding the sensitivity of the Earth's climate system requires a broad base of scientific knowledge, which includes detection, quantification, and prediction of the rates of change of chemical, physical, and biological variables.

The Department's doctoral program is aimed at training new research scientists in the field of Earth System Science. The graduate education provides a comprehensive curriculum, along with opportunities to conduct groundbreaking research. The Department's doctoral-level students are expected to become researchers with a global perspective and broad research skills as well as a high level of expertise in specific areas. Active programs of research are underway in atmospheric chemistry, biogeochemical cycles, and physical climate.

NOTE: Students are admitted to the Ph.D. program only; the master's degree is awarded upon progress to the Ph.D.

Course Requirements. Students must complete a minimum of 10 approved graduate-level courses, including the core curriculum, with an average grade of B or better. All courses must be approved by the student's advisor.

Core Curriculum	
EARTHSS 202	Climate Change
EARTHSS 212	Geoscience Modeling and Data Analysis
EARTHSS 224	Ocean Processes
EARTHSS 226	Land Surface Processes
EARTHSS 228	Geophysical Fluid Dynamics
EARTHSS 240	Atmospheric Chemistry and Physics
EARTHSS 266	Global Biogeochemical Cycles
EARTHSS 298	Practicum in Earth System Science

Residency. Academic Senate regulations specify a minimum period of residence of six quarters for Ph.D. candidates. Enrollment in a minimum of 12 units of graduate/upper-division course work per quarter is required. Registration in every regular academic session is necessary until all requirements for the degree have been completed, unless a formal Leave of Absence is granted by the Graduate Division. All Ph.D. requirements must be completed within 15 quarters in residence (five years), excluding summer quarters. Exceptions must be put to a vote of the Earth System Science faculty. The maximum time permitted is seven years.

Comprehensive Examination. Progress toward the degree and readiness to begin research is assessed by a comprehensive examination covering breadth, general knowledge, and the ability to integrate and use information covered in the core curriculum and other course work. At the end of the spring quarter, the ESS Comprehensive Examination Committee administers the written and oral examinations. The oral comprehensive examination is offered after the written examination and provides an opportunity to clarify questions that arise from the student's performance on the written examination.

Teaching and Seminar. Students are required to complete a teaching assistant training program and to have a minimum of two quarters of experience as a teaching assistant, provided opportunities are available. Students can enroll in EARTHSS 399 while serving as a teaching assistant. Students are also expected to participate in the Earth System Science seminar.

Advance to Ph.D. Candidacy. Following completion of the Comprehensive Examination, those students who receive a recommendation to continue Ph.D. work will pursue research on a potential dissertation topic and then take the Advancement to Candidacy Examination. This oral examination is given by a faculty committee, including extra-departmental faculty. The normative time for advancement for candidacy is two years.

Dissertation. After advancing to candidacy, students are expected to be fully involved in research toward writing their Ph.D. dissertation. Students should keep in steady contact/interaction with their Doctoral Committee. A dissertation based on original research and demonstrating critical judgment, intellectual synthesis, creativity, and clarity in written communication is required for the Ph.D. degree. The dissertation must summarize the results of original research performed by the student under the supervision of a faculty member of the Department. The dissertation will be evaluated by the Dissertation Committee, based on suitability for publication in a peer-reviewed journal of high editorial standards. The dissertation may be a compilation of published papers or manuscripts accepted for publication, so long as the candidate has produced a major proportion of the material independently. The Dissertation Committee approves the format and content, which must meet University requirements for style, format, and appearance.

Doctor of Philosophy in Earth System Science

1. Completion of course work (10 courses, including core courses)
2. Six quarters in residence at UCI
3. Completion of the Comprehensive Examination, with recommendation to continue for the Ph.D.
4. Completion of the teaching and seminar requirements
5. Pass the Advancement to Candidacy Examination
6. Presentation of an open research seminar
7. Submission of an acceptable doctoral dissertation and formal defense.

Master of Science in Earth System Science

1. Completion of course work (8 courses, including core courses)
2. Three quarters in residence at UCI
3. Completion of the Comprehensive Examination.

Faculty

Steven D. Allison, Ph.D. Stanford University, *Associate Professor of Ecology and Evolutionary Biology; Earth System Science*

Ralph J. Cicerone, Ph.D. University of Illinois at Urbana-Champaign, *Professor Emeritus of Earth System Science*

Kristen A. Davis, Ph.D. Stanford University, *Assistant Professor of Civil and Environmental Engineering; Earth System Science* (coastal oceanography, fluid mechanics, turbulent flows)

Steven J. Davis, Ph.D. Stanford University, *Assistant Professor of Earth System Science*

Ellen R. Druffel, Ph.D. University of California, San Diego, *Fred Kavli Chair in Earth System Science* and *Professor of Earth System Science*

Todd Dupont, Ph.D. Pennsylvania State University, *Assistant Professor of Earth System Science*

James S. Famiglietti, Ph.D. Princeton University, *Professor of Earth System Science; Civil and Environmental Engineering*

Julie E. Ferguson, Ph.D. Oxford University, *Lecturer with Potential Security of Employment of Earth System Science*

Michael L. Goulden, Ph.D. Stanford University, *Department Vice Chair and Professor of Earth System Science; Ecology and Evolutionary Biology*

Claudia I. Green, Ph.D. Max Planck Institute, *Assistant Professor of Earth System Science*

Kathleen Johnson, Ph.D. University of California, Berkeley, *Assistant Professor of Earth System Science*

Saewung Kim, Ph.D. Georgia Institute of Technology, *Assistant Professor of Earth System Science*

Gudrun Magnusdottir, Ph.D. Colorado State University, *Department Chair and Professor of Earth System Science*

Adam Martiny, Ph.D. Technical University of Denmark, *Associate Professor of Earth System Science; Ecology and Evolutionary Biology*

Jefferson Moore, Ph.D. Oregon State University, *Professor of Earth System Science*

Michael J. Prather, Ph.D. Yale University, *UCI Endowed Chair* and *Professor of Earth System Science*

Francois W. Primeau, Ph.D. Massachusetts Institute of Technology, *Associate Professor of Earth System Science*

Michael S. Pritchard, Ph.D. University of California, San Diego, *Assistant Professor of Earth System Science*

James T. Randerson, Ph.D. Stanford University, *UCI Chancellor's Professor of Earth System Science; Ecology and Evolutionary Biology*

William S. Reeburgh, Ph.D. Johns Hopkins University, *Professor Emeritus of Earth System Science*

Eric Rignot, Ph.D. University of Southern California, *Department Vice Chair and Professor of Earth System Science*

Eric S. Saltzman, Ph.D. University of Miami, *Professor of Earth System Science; Chemistry* (analytical, atmospheric and environmental)

Soroosh Sorooshian, Ph.D. University of California, Los Angeles, *Director of the Center for Hydrometeorology and Remote Sensing and UCI Distinguished Professor of Civil and Environmental Engineering; Earth System Science* (hydrology, hydrometeorology and hydroclimate modeling, remote sensing, water sources management)

Susan E. Trumbore, Ph.D. Columbia University, *Professor of Earth System Science*

Isabella Velicogna, Ph.D. Università degli Studi di Trieste, *Associate Professor of Earth System Science*

Jasper A. Vrugt, Ph.D. University of Amsterdam, *Assistant Professor of Civil and Environmental Engineering; Earth System Science* (surface hydrology and soil physics)

Laurel L. Wilkening, Ph.D. University of California, San Diego, *Professor Emerita of Earth System Science*

Jin Yi Yu, Ph.D. University of Washington, *Professor of Earth System Science*

Charles S. Zender, Ph.D. University of Colorado Boulder, *Professor of Earth System Science; Computer Science*

Courses

EARTHSS 1. Introduction to Earth System Science. 4 Units.
Covers the origin and evolution of the Earth, its atmosphere, and oceans, from the perspective of biogeochemical cycles, energy use, and human impacts on the Earth system.

(II, Va)

EARTHSS 3. Oceanography. 4 Units.
Examines circulation of the world oceans and ocean chemistry as it relates to river, hydrothermal vent, and atmospheric inputs. Geological features, the wide variety of biological organisms, and global climate changes, such as greenhouse warming, are also studied.

(II, Va)

EARTHSS 5. The Atmosphere. 4 Units.
The composition and circulation of the atmosphere with a focus on explaining the fundamentals of weather and climate. Topics include solar and terrestrial radiation, clouds, and weather patterns.

(II, Va)

EARTHSS 7. Physical Geology. 4 Units.
Introduction to Earth materials and processes. Topics include rocks and minerals, plate tectonics, volcanoes, earthquakes, Earth surface processes, Earth resources, geologic time, and Earth history. Laboratory work involves hands-on study of geologic materials, maps, and exercises pertaining to geologic processes. Materials fee.

(II, Va)

EARTHSS 11. Climate Change and Policy. 4 Units.
Develops an understanding of the physical basis behind global climate change; examines how human activities cause it, looks to future rates and impacts of global warming, and reviews the international conventions, protocols, and scientific assessments of climate change.

(II)

EARTHSS 13. Global-Change Biology. 4 Units.
Addresses ways in which humans are altering the global environment, with consequences for the ecology of animals, plants, and microbes. Discussion on how these biologically oriented questions relate to human society, politics, and the economy.

Same as BIO SCI 9K.

(II)

EARTHSS 15. Introduction to Global Climate Change. 4 Units.
Introduction of scientific, technological, environmental, economic, and social aspects underlying the threat and understanding of global climate change. Human and natural drivers of climate. Impacts of climate on natural, managed, and human systems, including their vulnerability and ability to adapt.

(II and (VA or VIII)).

EARTHSS 17. Hurricanes, Tsunamis, and other Catastrophes. 4 Units.
Introduction to the basic science and state of predictability of various natural catastrophic events including earthquakes, volcanic eruptions, tsunamis, landslides, floods, hurricanes, fires, and asteroid impacts and their interactions and implications with human society in the U.S. and globally.

(II and (VA or VIII)).

EARTHSS 19. Introduction to Modeling the Earth System. 4 Units.
Simulate the Earth's system using computer models. Covers the interaction of the air, land, and ocean, and explores how changes to one part of the environment affect the complete Earth system. Utilizes technological tools to understand scientific principles.

(II, Vb)

EARTHSS 21. On Thin Ice: Climate Change and the Cryosphere. 4 Units.
Introduction of the basic science that governs the cryosphere and its interaction with the climate system. Covers some of the significant economic, sociological, and political consequences of the recent melting of the cryosphere driven by anthropogenic climate change.

(II and (VA or VIII)).

EARTHSS 23. Air Pollution: From Urban Smog to Global Change . 4 Units.
Air pollution occurs on regional to global scales. A wide range of air pollution sources and physical, chemical, and meteorological sciences behind air pollution are introduced. The consequences of air pollution to our society are also discussed.

(II and (VA or VIII)).

EARTHSS 51. Land Interactions. 4 Units.
The role of terrestrial processes in the Earth system. Provides an introduction to ecosystem processes that regulate the cycling of energy, water, carbon, and nutrients. Analysis of the impact of human activities.

Prerequisite: CHEM 1C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 53. Ocean Biogeochemistry. 4 Units.
Overview of oceanography for those interested in earth system science. Focus is on physical, chemical, and biological processes that drive biogeochemical cycling in the oceans. Coastal systems also reviewed, with emphasis on California waters.

Prerequisite: CHEM 1C. Prerequisite or corequisite: MATH 2B or AP Calculus BC exam with a minimum score of 4.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 55. Earth's Atmosphere. 4 Units.
Composition, physics, and circulation of Earth's atmosphere with an emphasis on explaining the role of atmospheric processes in shaping the climate system. Topics include: atmospheric composition, the global energy balance, radiative transfer and climate, atmospheric circulation and climate sensitivity.

Corequisite: PHYSICS 3B or PHYSICS 7C.
Prerequisite: MATH 2B or a score of 4 or higher on the AP Calculus BC exam.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 60A. Fundamental Processes in Earth and Environmental Studies. 4 Units.
An introduction to the physical environment, biological systems, and human-environment interactions. Explores physical principles such as fluid transport and reaction rates using environmental examples as well as principles of populations, ecosystems, carrying capacity, and sustainable use of resources.

Corequisite: EARTHSS 1 or UNI STU 13A.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 60B. Local and Regional Environmental Issues. 4 Units.
An introduction to common environmental issues using case studies from Orange County and California. Studies natural hazards as well as human-caused problems with air quality, water quality, coastal pollution, ecosystem degradation, and urban climate.

Prerequisite: EARTHSS 60A and (CHEM 1B or CHEM H2B).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 60C. Global Environmental Issues. 4 Units.
An overview of global environmental changes including climate change, sea level rise, biodiversity loss, land and ocean degradation, and resource depletion. Discusses scientific, cultural, historical, and policy dimensions of these issues as well as possible solutions.

Prerequisite: EARTHSS 60A and (CHEM 1B or CHEM H2B).

EARTHSS H90. The Idiom and Practice of Science. 4 Units.
A series of fundamental and applied scientific problems are addressed, illustrating the pervasive role of mathematical analysis. Topics may include energy utilization, the climate system, the "greenhouse effect," zone depletion and air pollution, ecological consequences of water pollution, nutrient cycles.

Restriction: Campuswide Honors Program students only.

(II, Va)

EARTHSS 101. Paleoclimatology. 4 Units.
Explores past changes in Earth's climate. Topics include tools and techniques used to reconstruct past climate from natural archives; records and mechanisms of past climate changes throughout Earth history; and lessons learned from the paleo-record for predication of future climate.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or (EARTHSS 51 and EARTHSS 53 and EARTHSS 55).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 110. Environmental Controversies. 4 Units.
Examines the roles and strategies of advocacy groups, scientists, lobbyists, celebrities, pundits, politicians, and other opinion-makers in creating and shaping public opinion on controversial environmental issues. Use and misuse of science to influence public opinion is elicited.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or EARTHSS 51 or EARTHSS 53 or EARTHSS 55.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 112. Global Climate Change and Impacts. 4 Units.
Observations over the 20th century show extensive changes in atmospheric composition, climate and weather, and biological systems that have paralleled industrial growth. Evidence of globally driven changes in these biogeochemical systems is studied, including projected impacts over the 21st century.

Prerequisite: (EARTHSS 51 and EARTHSS 53 and EARTHSS 55) or (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 222.

EARTHSS 114. Earth System Science Laboratory and Field Methods. 4 Units.
Introduction to methods used to measure exchange of gases and energy between the atmosphere and terrestrial ecosystems. Laboratories include data acquisition and isotopic and chromatographic analysis. Field measurements at UCI's Marsh Reserve include microclimate, hydrology, trace-gas exchange, and plant growth.

Prerequisite: EARTHSS 51 or EARTHSS 60A.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 116. Data Analysis for Earth Sciences. 4 Units.
Analysis and interpretation of geophysical data, including functional fitting, probability density functions, and multidimensional time-series methods, with applications in atmospheric, oceanic, and biogeochemical sciences.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 118. Advanced Data Analysis and Modeling. 4 Units.
Covers advanced data analysis and modeling techniques for applications within Earth system science. These applications will come from variety of Earth science (writ large) problems. Students will gain programming proficiency by implementing computational methods in MATLAB.

Prerequisite: EARTHSS 116 and (MATH 2B or AP Calculus BC exam with a minimum score of 4).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 122. Atmospheric Dynamics. 4 Units.
Fluid dynamical processes that determine the large-scale flow of the atmosphere and ocean. Most important are interactions between the density stratification and the Coriolis force associated with Earth's rotation. Topics include circulation, vorticity, planetary waves and their role in climate.

Prerequisite: EARTHSS 55 and MATH 2D and PHYSICS 7C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 124. Weather Analysis. 4 Units.
Provides an overview of weather systems in midlatitudes and tropics. The fundamental dynamics possible for these weather systems are described. Elementary weather analysis and forecasting techniques are introduced.

Prerequisite: EARTHSS 55 or EARTHSS 60A.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 130. Physical Oceanography. 4 Units.
Physical processes that determine the distribution of water properties such as salt and temperature. Fluid-dynamical underpinnings of physical oceanography. Wave motions. The wind-driven and thermohaline circulation. Similarities and differences between ocean and atmosphere dynamics.

Prerequisite: MATH 2D and PHYSICS 7C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 132. Terrestrial Hydrology. 4 Units.
Comprehensive treatment of modern conceptual and methodological approaches to hydrological science. Combines qualitative understanding of hydrological processes with quantitative representation, approaches to measurement, and treatment of uncertainty. Components of the hydrological cycle and their linkages within the coupled Earth system.

Prerequisite: EARTHSS 60A or EARTHSS 51.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 232

EARTHSS 134. Fundamentals of GIS for Environmental Sciences. 4 Units.
Introduction to Geographic Information Systems (GIS). Topics include fundamentals of cartography, creating/editing GIS data, linking spatial and tabular data, georeferencing, map projections, geospatial analysis, spatial statistics and the development of GIS models. Examples from hydrology, ecology, and geology.

Prerequisite: EARTHSS 60A or EARTHSS 60C or EARTHSS 51 or EARTHSS 53.

Overlaps with CRM/LAW C148.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 138. Satellite Remote Sensing for Earth System Science. 4 Units.
Satellite remote sensing data are increasingly used to study the Earth system. Provides an overview of the principles behind remote sensing, and the types of satellite data available for study of the oceans, land, and atmosphere.

Prerequisite: EARTHSS 51 or EARTHSS 53 or EARTHSS 60A or EARTHSS 60C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 238.

EARTHSS 140. Advanced Geology. 4 Units.
Introduces students to the geological processes which have formed and continue to shape the Earth. Topics will include geological time, minerals and the rock cycle, plate tectonics and associated geological hazards, earth resources, and earth surface processes.

Prerequisite: EARTHSS 51 or EARTHSS 60A.

Overlaps with EARTHSS 7.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 142. Atmospheric Chemistry. 4 Units.
Chemistry of the troposphere and stratosphere. Topics include: processes controlling the lifetime and reaction pathways of chemicals in the atmosphere, the role of the atmosphere in biogeochemical cycles, and interactions between atmospheric chemistry and the physical climate system.

Prerequisite: (CHEM 1C or CHEM H2C) and (MATH 2B or AP Calculus BC exam with a minimum score of 4).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 144. Marine Geochemistry and Biogeochemistry. 4 Units.
Processes controlling the major and minor element composition of seawater and element distributions in the ocean. Gas exchange, carbon dioxide system, stable isotopes, radionuclides as tracers and chronometers, particle fluxes, organic geochemistry, sediment geochemistry, global cycles of biogeochemically important elements.

Prerequisite: (EARTHSS 53 or EARTHSS 60A) and EARTHSS 60C.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 146. Consequences of Air Pollution. 4 Units.
From public health to the global climate system this course will explore the impacts of air pollution from the beginning of human history to current and emerging issues. Scientific concepts behind air pollution and solutions will be discussed.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or (EARTHSS 51 and EARTHSS 53 and EARTHSS 55).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 148. Marine Ecosystems and Global Change. 4 Units.
Presents an overview of marine ecosystem structure, diversity, and processes in the context of global change, including the impacts of climate warming, ocean acidification, marine fisheries, and anthropogenic additions of nutrients and pollutants.

Prerequisite: EARTHSS 53 or (EARTHSS 60A and EARTHSS 60C).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 248.

EARTHSS 150. Laboratory Methods in Earth Systems Science. 4 Units.
Introduction to analytical methods used in Earth science research. Lectures cover theory and applications of each method. Laboratories cover sample preparation, experimental design, standardization and calibration, operation of analytical instruments (mass spectrometers, gas chromatographs, and spectrophotometers), and analysis of data.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 250.

EARTHSS 164. Ecosystem Ecology. 4 Units.
A mechanistic perspective on ecosystem processes. Covers ecosystem development, element cycling, and interactions with plants and microbes. The role of ecosystems in environmental change is also addressed.

Prerequisite: CHEM 51C.

Same as BIO SCI E118.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 264.

EARTHSS 168. Physiological Plant Ecology. 4 Units.
An examination of the interactions between plants and their environment. Emphasis on the underlying physiological mechanisms of plant function, adaptations and responses to stress, and the basis of the distribution of plants and plant assemblages across the landscape.

Prerequisite: (EARTHSS 51) or (EARTHSS 60A and EARTHSS 60C) or (BIO SCI E106).

Same as BIO SCI E127.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 170. Environmental Microbiology. 4 Units.
Establishes a fundamental understanding of microbes living in the environment, including their distribution, diversity, and biochemistry, and discusses how they attribute to global biogeochemical cycles.

Prerequisite: (EARTHSS 53) or (EARTHSS 60A and EARTHSS 60C) or (BIO SCI E106 and BIO SCI M122).

Same as BIO SCI E163.

Concurrent with EARTHSS 270.

EARTHSS 172. Science Communication and Outreach. 2 Units.
Students learn and practice effective science communication skills useful in public and educational outreach. Topics include research explication, language scaffolding, educational psychology, oral presentation techniques, K-12 science standards, and effective writing styles for op-eds, blogs, and Web sites.

Prerequisite: EARTHSS 51 or EARTHSS 60A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 272.

EARTHSS 174. Ice in the Climate System. 4 Units.
Examines the major components of the Earth's cryosphere. Characteristics, volume, extent, remote sensing observations, long-term trends, mass balance, key physical processes, relevance and importance to the climate system, responses and feedbacks, future evolution, and key uncertainties will be discussed.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or (EARTHSS 51 and EARTHSS 53 and EARTHSS 55).

Restriction: Earth System Science and Environmental Science majors have first consideration for enrollment.

Concurrent with EARTHSS 274.

EARTHSS 178. Solving the Energy-Carbon-Climate Problem. 4 Units.
Why is climate change such a difficult problem? What can we do about it? The course will introduce the global politics of energy and climate, assess options for decreasing energy demand, generating low-carbon energy, sequestering carbon, geoengineering, and adaptation.

Prerequisite: (EARTHSS 60A and EARTHSS 60B and EARTHSS 60C) or (EARTHSS 51 and EARTHSS 53 and EARTHSS 55).

Restriction: Earth System Science majors and Environmental Science majors have first consideration for enrollment.

EARTHSS 180. Environmental Sustainability I. 4 Units.
Provides an introduction to sustainability from different points of view; historical, scientific, political, ethical, and economic.

Same as PP&D 131.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

EARTHSS 182. Environmental Sustainability II. 4 Units.
Investigates how sustainability can be implemented in a variety of contexts including water, energy, non-renewable resources, biodiversity, and urban policy, and also how it could be measured.

Same as PP&D 132.

Restriction: Urban Studies, Social Ecology, Earth System Science, and Environmental Science majors have first consideration for enrollment.

EARTHSS 190A. Senior Seminar on Global Sustainability I. 2 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze forum presentations. Prepare bibliography.

Prerequisite: BIO SCI 65 and ENVIRON E20 and EARTHSS 10.

Grading Option: In progress only.

Same as BIO SCI 191A, SOCECOL 186A.

Restriction: Seniors only.

EARTHSS 190B. Senior Seminar on Global Sustainability II. 2 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze forum presentations. Prepare research proposal.

Prerequisite: BIO SCI 191A or SOCECOL 186A or EARTHSS 190A.

Grading Option: In progress only.

Same as BIO SCI 191B, SOCECOL 186B.

Restriction: Seniors only.

EARTHSS 190CW. Writing/Senior Seminar on Global Sustainability III. 4 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze Forum presentations and to prepare senior research paper. Prepare/write research paper under direction of faculty member.

Prerequisite: BIO SCI 191B or EARTHSS 190B or SOCECOL 186B. Satisfactory completion of the Lower-Division Writing requirement.

Same as BIO SCI 191CW, SOCECOL 186CW.

Restriction: Seniors only.

(Ib)

EARTHSS 191. Title Introduction to Research in Earth System Science. 1 Unit.
Weekly presentations by Earth System Science faculty describing ongoing research in their laboratories. The goals are to introduce students to the range of research topics and methods in Earth System Science and to the research opportunities available within the Department.

Grading Option: Pass/no pass only.

Restriction: Upper-division students only. Earth System Science and Environmental Science majors have first consideration for enrollment. Earth and Atmospheric Sciences minors have first consideration for enrollment.

EARTHSS 192. Careers in Earth System Science. 1 Unit.
A weekly seminar course designed to help students transition to post-graduation career paths. Topics include designing effective resumes, applying to graduate school, and seeking employment. Also includes presentations by faculty, business, and government leaders describing potential environmental science career trajectories.

Grading Option: Pass/no pass only.

Restriction: Seniors only. Earth System Science and Environmental Science majors have first consideration for enrollment.

EARTHSS 197. Independent Study in Earth System Science. 1-4 Units.
Field study, educational outreach, or other independent projects under faculty direction. Interested students should arrange with an ESS faculty member to supervise and support an independent study project. A written summary is required at the end of each quarter.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 12 units.

EARTHSS 198W. Senior Thesis in Earth System Science. 4 Units.
Students receive guidance on the effective oral and written communication of research results. Students prepare and present a seminar, a poster, and a written thesis describing their research in Earth System Science.

Prerequisite: Two quarters of EARTHSS 199. Satisfactory completion of the Lower-Division Writing requirement.

Overlaps with EARTHSS H198.

(Ib)

EARTHSS H198. Honors Thesis in Earth System Science. 4 Units.
Students receive guidance on effective written and oral communication of research results. Students prepare and present a seminar, poster, and written thesis describing their honors research in Earth System Science. Submission of the thesis and successful completion of this course will also satisfy the UCI upper-division writing requirement.

Prerequisite: EARTHSS 199A and EARTHSS 199B

Restriction: Consent of instructor to enroll and Prerequisite required

(Ib)

EARTHSS 199. Undergraduate Research. 1-4 Units.
For junior and senior undergraduates, preferably with majors in science or engineering. Interested students should arrange with an ESS faculty member to supervise and support a research project. A written summary is required at the end of each quarter.

Repeatability: May be taken for credit for 12 units.

Restriction: Juniors and Seniors only.

EARTHSS H199A. Honors Research in Earth System Science. 4 Units.
Undergraduate honors research in Earth System Science. A student commitment of 10-15 hours a week is expected, and a written report is required at the end of the quarter.

Restriction: Earth System Science Honors Program students only. Earth System Science majors only. Campuswide Honors Program students only.

EARTHSS H199B. Honors Research in Earth System Science. 4 Units.
Undergraduate honors research in Earth System Science. A student commitment of 10-15 hours a week is expected, and a written report is required at the end of the quarter.

Restriction: Earth System Science Honors Program students only. Earth System Science majors only. Campuswide Honors Program students only.

EARTHSS H199C. Honors Research in Earth System Science. 4 Units.
Undergraduate honors research in Earth System Science. A student commitment of 10-15 hours a week is expected, and a written report is required at the end of the quarter.

Restriction: Earth System Science Honors Program students only. Earth System Science majors only. Campuswide Honors Program students only.

EARTHSS 200. Global Physical Climatology. 4 Units.
A descriptive overview of Earth’s climate system and energy budget. Large-scale circulations, key physical processes, and climate sensitivity of the atmosphere, ocean, land surface, and cryosphere.

Restriction: Graduate students only.

EARTHSS 202. Climate Change. 4 Units.
Explores past, present, and projected changes in Earth's climate. Topics include paleoclimate records and mechanisms of natural climate variability at a range of timescales (orbital to seasonal); General Circulation Models; and IPCC observations and projections of future climate change.

Restriction: Graduate students only.

EARTHSS 212. Geoscience Modeling and Data Analysis. 4 Units.
Computer-based course. Fundamental statistical techniques needed to analyze Earth system data and models. Basic numerical techniques to solve Earth system models. Focuses on linear and non-linear ordinary differential equations, as well as simple partial differential equations.

Restriction: Graduate students only.

EARTHSS 222. Global Climate Change and Impacts. 4 Units.
Observations over the 20th century show extensive changes in atmospheric composition, climate and weather, and biological systems that have paralleled industrial growth. Evidence of globally driven changes in these biogeochemical systems is studied, including projected impacts over the 21st century.

Concurrent with EARTHSS 112.

EARTHSS 224. Ocean Processes. 4 Units.
Introduction to the physics, chemistry, and biology of the oceans. Offers a mechanistic perspective of the structure and functioning of marine ecosystems, nutrient cycles, and role of ecosystem dynamics in local and global biogeochemistry.

Restriction: Graduate students only.

EARTHSS 226. Land Surface Processes. 4 Units.
Introduction to the physics, chemistry, and biology of the oceans. Offers a mechanistic perspective of the structure and functioning of marine ecosystems, nutrient cycles, and role of ecosystem dynamics in local and global biogeochemistry.

Restriction: Graduate students only.

EARTHSS 228. Geophysical Fluid Dynamics. 4 Units.
Introduces fluid dynamical processes that determine the large-scale flow of the atmosphere and ocean, with particular emphasis on the interactions between the stable density stratification and the Coriolis force associated with Earth's rotation.

Restriction: Graduate students only.

EARTHSS 232. Terrestrial Hydrology. 4 Units.
Comprehensive treatment of modern conceptual and methodological approaches to hydrological science. Combines qualitative understanding of hydrological processes with quantitative representation, approaches to measurement, and treatment of uncertainty. Components of the hydrological cycle and their linkages within the coupled Earth system.

Prerequisite: EARTHSS 60A or EARTHSS 51.

Concurrent with EARTHSS 132

EARTHSS 236. Radiative Processes and Remote Sensing. 4 Units.
Solar and terrestrial radiation and Earth system interaction. Radiative transfer theory. Principles, applications of remote sensing of environment. Planck's law, radiative transfer equation, radiative properties of trace gasses and aerosols, remote sensing techniques, global trends in radiative forcing.

Prerequisite: MATH 2D and PHYSICS 7D.

EARTHSS 238. Satellite Remote Sensing for Earth System Science. 4 Units.
Satellite remote sensing data are increasingly used to study the Earth system. Provides an overview of the principles behind remote sensing, and the types of satellite data available for study of the oceans, land, and atmosphere.

Concurrent with EARTHSS 138.

EARTHSS 240. Atmospheric Chemistry and Physics. 4 Units.
Examines the physical/chemical processes which determine the structure and composition of Earth's atmosphere and its role in the climate system.

Restriction: Graduate students only.

EARTHSS 248. Marine Ecosystems and Global Change. 4 Units.
Presents an overview of marine ecosystem structure, diversity, and processes in the context of global change, including the impacts of climate warming, ocean acidification, marine fisheries, and anthropogenic additions of nutrients and pollutants.

Prerequisite: EARTHSS 224.

Restriction: Graduate students only.

Concurrent with EARTHSS 148.

EARTHSS 250. Laboratory Methods in Earth System Science. 4 Units.
Introduction to analytical methods used in Earth science research. Lectures cover theory and applications of each method. Laboratories cover sample preparation, experimental design, standardization and calibration, operation of analytical instruments (mass spectrometers, gas chromatographs, and spectrophotometers), and analysis of data.

Concurrent with EARTHSS 150.

EARTHSS 264. Ecosystem Ecology . 4 Units.
A mechanistic perspective on ecosystem processes. Covers ecosystem development, element cycling, and interactions with plants and microbes. The role of ecosystems in environmental change is also addressed.

Prerequisite: CHEM 51C.

Concurrent with EARTHSS 164 and BIO SCI E118.

EARTHSS 266. Global Biogeochemical Cycles. 4 Units.
Global biogeochemical cycling of the elements. Topics include global cycling of carbon, nitrogen, oxygen, and sulfur; impact of human activities on biogeochemical processes.

Restriction: Graduate students only.

EARTHSS 270. Environmental Microbiology. 4 Units.
Establishes a fundamental understanding of microbes living in the environment, including their distribution, diversity, and biochemistry, and discusses how they attribute to global biogeochemical cycles.

Prerequisite: (EARTHSS 53 or EARTHSS 60A) and (EARTHSS 60C or BIO SCI E106).

Concurrent with EARTHSS 170 and BIO SCI E163.

EARTHSS 272. Science Communication and Outreach. 2 Units.
Students learn and practice effective science communication skills useful in public and educational outreach. Topics include research explication, language scaffolding, educational psychology, oral presentation techniques, K-12 science standards, and effective writing styles for op-eds, blogs, and Web sites.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Concurrent with EARTHSS 172.

EARTHSS 274. Ice in the Climate System. 4 Units.
Examines the major components of the Earth's cryosphere. Characteristics, volume, extent, remote sensing observations, long-term trends, mass balance, key physical processes, relevance and importance to the climate system, responses and feedbacks, future evolution, and key uncertainties will be discussed.

Concurrent with EARTHSS 174.

EARTHSS 280A. Special Topics in Earth System Science. 1-4 Units.
Each quarter is devoted to current topics in the field of Earth System Science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

EARTHSS 280B. Special Topics in Earth System Science. 1-4 Units.
Each quarter is devoted to current topics in the field of Earth System Science. Topics addressed vary each quarter.

Prerequisite: EARTHSS 280A.

Repeatability: Unlimited as topics vary.

EARTHSS 280C. Special Topics in Earth System Science. 1-4 Units.
Each quarter is devoted to current topics in the field of Earth System Science. Topics addressed vary each quarter.

Prerequisite: EARTHSS 280B.

Repeatability: Unlimited as topics vary.

EARTHSS 282A. Special Topics in Climate. 1-4 Units.
Each quarter is devoted to in-depth analysis of an important and rapidly developing area in the field of climate dynamics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 282B. Special Topics in Climate. 1-4 Units.
Each quarter is devoted to in-depth analysis of an important and rapidly developing area in the field of climate dynamics. Topics addressed vary each quarter.

Prerequisite: EARTHSS 282A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 282C. Special Topics in Climate. 1-4 Units.
Each quarter is devoted to in-depth analysis of an important and rapidly developing area in the field of climate dynamics. Topics addressed vary each quarter.

Prerequisite: EARTHSS 282B.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 284A. Special Topics in Atmospheric Chemistry. 1-4 Units.
Each quarter is devoted to current topics in the field of Atmospheric Chemistry. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

EARTHSS 284B. Special Topics in Atmospheric Chemistry. 1-4 Units.
Each quarter in devoted to current topics in the field of Atmospheric Chemistry. Topics addressed vary each quarter.

Prerequisite: EARTHSS 284A.

Repeatability: Unlimited as topics vary.

EARTHSS 284C. Special Topics in Atmospheric Chemistry. 1-4 Units.
Each quarter is devoted to current topics in the field of Atmospheric Chemistry. Topics addressed vary each quarter.

Prerequisite: EARTHSS 284B.

Repeatability: Unlimited as topics vary.

EARTHSS 286A. Special Topics in Biogeochemistry. 1-4 Units.
Each quarter is devoted to in-depth analysis of a subarea in biogeochemistry which is undergoing rapid development. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 286B. Special Topics in Biogeochemistry. 1-4 Units.
Each quarter is devoted to in-depth analysis of a subarea in biogeochemistry which is undergoing rapid development. Topics addressed vary each quarter.

Prerequisite: EARTHSS 286A.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 286C. Special Topics in Biogeochemistry. 1-4 Units.
Each quarter is devoted to in-depth analysis of a subarea in biogeochemistry which is undergoing rapid development. Topics addressed vary each quarter.

Prerequisite: EARTHSS 286B.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 288A. Special Topics in Ecosystems. 1-4 Units.
Each quarter is devoted to current topics relating to Ecosystems. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

EARTHSS 288B. Special Topics in Ecosystems. 1-4 Units.
Each quarter is devoted to current topics relating to Ecosystems. Topics addressed vary each quarter.

Prerequisite: EARTHSS 288A.

Repeatability: Unlimited as topics vary.

EARTHSS 288C. Special Topics in Ecosystems. 1-4 Units.
Each quarter is devoted to current topics relating to Ecosystems. Topics addressed vary each quarter.

Prerequisite: EARTHSS 288B.

Repeatability: Unlimited as topics vary.

EARTHSS 290. Seminar. 1 Unit.
Weekly seminars and discussions on topics of general and current interest in Earth System Science. Topics addressed vary each quarter.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

EARTHSS 291. Research Seminar. 1-4 Units.
Detailed discussions of ongoing research in earth system science. Format, content, and frequency of the course are variable.

Repeatability: May be repeated for credit unlimited times.

EARTHSS 298. Practicum in Earth System Science. 4 Units.
Designed to introduce first-year graduate students to research. Students explore research opportunities and develop a proposal for a summer research project under the direction of a faculty mentor.

Restriction: Graduate students only.

EARTHSS 299. Research. 2-12 Units.
Supervised original research in areas of Earth System Science.

Repeatability: May be repeated for credit unlimited times.

EARTHSS 399. University Teaching. 1-4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Mathematics

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http://www.math.uci.edu/
Karl Rubin, **Department Chair**

The Department of Mathematics is engaged in teaching and in fundamental research in a wide variety of basic mathematical disciplines, and offers undergraduate and graduate students the opportunity to fashion a thorough program of study leading to professional competence in mathematical research or in an area of application.

The curriculum in mathematics includes opportunities for supervised individual study and research and is augmented by seminars and colloquia. It is designed to be compatible with curricular structures at other collegiate institutions in California in order to enable students transferring to UCI to continue their programs of mathematics study.

Undergraduate Program

The Department offers a B.S. degree in Mathematics. Within this program there are six tracks; besides the standard track, there are five specializations or concentrations (in Mathematical Biology, Mathematical Finance, Applied and Computational Mathematics, Mathematics for Education, and Mathematics for Education/Secondary Teaching Certification). In addition, the Department offers minors in Mathematics and Mathematics for Biology.

Undergraduate mathematics courses are of several kinds: courses preparatory to advanced work in mathematics, the exact sciences, and engineering; courses for students of the social and biological sciences; and courses for liberal arts students and those planning to enter the teaching field.

Admission to the Major

Students may be admitted to the Mathematics major upon entering the University as freshmen, via change of major, or as transfer students from other colleges and universities. Information about change of major policies is available in the Physical Sciences Student Affairs Office and at the UCI Change

of Major Criteria (http://www.changeofmajor.uci.edu) website. For transfer student admission, preference will be given to junior-level applicants with the highest grades overall and who have satisfactorily completed the required course work of one year of approved calculus. Additional course work in multivariable calculus, linear algebra, and differential equations is strongly recommended.

Requirements for the B.S. Degree in Mathematics

All students must meet the University Requirements (p. 71)**.**
School Requirements: None.

Core Requirements for all Mathematics Majors

Lower-Division Requirements:	
A. Complete:	
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
MATH 13	Introduction to Abstract Mathematics
B. Computing skills attained through one of the following:	
EECS 10	Computational Methods in Electrical and Computer
EECS 12	Introduction to Programming
ENGRMAE 10	Introduction to Engineering Computations
I&C SCI 31	Introduction to Programming
PHYSICS 53	Introduction to C and Numerical Analysis
C. Select one three-quarter lecture course sequence from the following:	
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
PHYSICS 2- 7C- 7D	Introduction to Mathematical Methods for Physics and Classical Physics and Classical Physics
PHYSICS 2- 7C- 7E	Introduction to Mathematical Methods for Physics and Classical Physics and Classical Physics
PHYSICS 7C- 7D- 7E	Classical Physics and Classical Physics and Classical Physics
Upper-Division Requirements:	
A. Complete:	
MATH 120A	Introduction to Abstract Algebra: Groups
MATH 121A	Linear Algebra
MATH 130A	Probability and Stochastic Processes
MATH 140A- 140B	Elementary Analysis and Elementary Analysis

Requirements for the Pure Mathematics Major

Core requirements for all Mathematics majors plus:	
Lower-Division Requirements:	
A. Complete:	
MATH 2E	Multivariable Calculus
Upper-Division Requirements:	
A. Complete:	
MATH 120B	Introduction to Abstract Algebra: Rings and Fields
MATH 121B	Linear Algebra
MATH 147	Complex Analysis
B. Five additional four-unit MATH lecture courses numbered 100–189.	

The Department offers two concentrations and three specializations. Note that all require the completion of an application and an interview with the faculty advisor for that concentration or specialization. Students must complete the basic "Core" requirements for the B.S. in Mathematics along with the lower- and upper-division requirements specified for each concentration and specialization.

Requirements for Mathematics Major with a Concentration in Mathematical Finance

Admission to this concentration requires approval in advance by the Mathematics Department. The admissions process begins with completing a form at the Department office and includes an interview with the Department's advisor for the concentration. This approval should be applied for after the student has completed ECON 20A-ECON 20B, but no later than the end of the junior year.

Core requirements for all Mathematics majors plus:	
Lower-Division Requirements:	
A. Complete:	
MATH 2E	Multivariable Calculus
Upper-Division Requirements:	
A. Complete:	
MATH 130B	Probability and Stochastic Processes
MATH 133A	Statistical Methods with Applications to Finance
MATH 176	Mathematics of Finance
B. Select three elective lecture courses from the following:	
MATH 105A- 105B	Numerical Analysis and Numerical Analysis (plus MATH 105LA-105LB)
MATH 107	Numerical Differential Equations (plus MATH 107L)
MATH 112A- 112B- 112C	Introduction to Partial Differential Equations and Applications and Introduction to Partial Differential Equations and Applications and Introduction to Partial Differential Equations and Applications
MATH 115	Mathematical Modeling
MATH 117	Dynamical Systems
MATH 118	The Theory of Differential Equations
MATH 119	Boundary Value Problems
MATH 121B	Linear Algebra
MATH 130C	Probability and Stochastic Processes
MATH 133B	Statistical Methods with Applications to Finance
MATH 140C	Analysis in Several Variables
C. Complete the following eight required Economics courses:	
ECON 20A- 20B	Basic Economics I and Basic Economics II
ECON 105A- 105B- 105C	Intermediate Quantitative Economics I and Intermediate Quantitative Economics II and Intermediate Quantitative Economics III
ECON 122A	Applied Econometrics I
or ECON 123A	Econometrics I
ECON 132A	Introduction to Financial Investments
ECON 134A	Corporate Finance

Requirements for Mathematics Major with a Specialization in Applied and Computational Mathematics

Admission to this specialization requires approval in advance by the Mathematics Department. The admissions process begins with completing a form at the Department office, and includes an interview with the Department's advisor for the specialization. This approval should be applied for no later than the end of the junior year.

Core requirements for all Mathematics majors plus:	
Lower-Division Requirements:	
A. Complete:	
MATH 2E	Multivariable Calculus
Upper-Division Requirements:	
A. Six required lecture courses:	

MATH 105A- 105B	Numerical Analysis and Numerical Analysis (plus MATH 105LA-LB)
MATH 112A- 112B	Introduction to Partial Differential Equations and Applications and Introduction to Partial Differential Equations and Applications
MATH 115	Mathematical Modeling
MATH 121B	Linear Algebra
B. Select three additional Mathematics courses from the following:	
MATH 107	Numerical Differential Equations (plus MATH 107L)
MATH 112C	Introduction to Partial Differential Equations and Applications
MATH 117	Dynamical Systems
MATH 118	The Theory of Differential Equations
MATH 130B- 130C	Probability and Stochastic Processes and Probability and Stochastic Processes
MATH 133A- 133B	Statistical Methods with Applications to Finance and Statistical Methods with Applications to Finance
MATH 140C	Analysis in Several Variables
MATH 176	Mathematics of Finance
C. Two approved upper-division courses in an area of application outside of Mathematics. Approval must be obtained in advance from the advisor for this specialization. The student is responsible for satisfying any prerequisites for these courses.	

Requirements for Mathematics Major with a Specialization in Mathematical Biology

Admission to this specialization requires approval in advance by the Mathematics Department. The admissions process begins with completing a form at the Department Office, and includes an interview with the Department's advisor for the specialization. This approval should be applied for no later than the end of the junior year.

Core requirements for all Mathematics majors plus:	
Lower-Division Requirements:	
A. Complete:	
MATH 2E	Multivariable Calculus
B. Replace item C in the Core Requirements with the following:	
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
and two courses selected from the following:	
BIO SCI 97	Genetics
CHEM 1A	General Chemistry
CHEM 1B	General Chemistry
PHYSICS 2	Introduction to Mathematical Methods for Physics
PHYSICS 7C	Classical Physics
PHYSICS 7D	Classical Physics
Upper-Division Requirements:	
A. Complete the following seven required upper-division lecture courses:	
MATH 105A- 105B	Numerical Analysis and Numerical Analysis (plus MATH 105LA-LB)
MATH 112A- 112B	Introduction to Partial Differential Equations and Applications and Introduction to Partial Differential Equations and Applications
MATH 113A- 113B	Mathematical Modeling in Biology and Mathematical Modeling in Biology
MATH 113C	Mathematical Modeling in Biology
or MATH 115	Mathematical Modeling
B. Two additional elective courses, at least one from MATH courses numbered 100–189. The second elective may be either an upper-division MATH course or a four-unit upper-division Biological Sciences course with the advanced approval by the advisor for this specialization.	

Requirements for Mathematics Major with a Specialization in Mathematics for Education

Admission to this specialization requires approval in advance by the Mathematics Department. The admission process begins with completing a form at the Department office, and includes an interview with the Department's advisor for the specialization. This approval should be applied for no later than the end of the junior year.

This specialization is designed to help prepare students for teaching mathematics. Students wishing to go on and teach at the intermediate and high school levels should also consult with an academic advisor in the School of Education. A Commission on Teacher Credentialing (CTC)-approved subject-matter program (SMP) in Mathematics can be easily satisfied in tandem with this specialization, and enables students to waive a subject matter exam for teachers. Specific SMP requirements and enrollment procedures are available from the School of Education. Students interested in teaching at the high school level are encouraged to complete the course PHY SCI 106 in addition to the requirements listed below.

Core requirements for all Mathematics majors plus:	
Lower-Division Requirements:	
A. Complete:	
MATH 8	Explorations in Functions and Modeling
Upper-Division Requirements:	
A. Complete:	
MATH 105A- 105LA	Numerical Analysis and Numerical Analysis Laboratory
MATH 120B	Introduction to Abstract Algebra: Rings and Fields
MATH 130B	Probability and Stochastic Processes
MATH 150	Introduction to Mathematical Logic
MATH 161	Modern Geometry
MATH 180A	Number Theory
MATH 184- 184L	History of Mathematics and History of Mathematics Lesson Lab
Plus one additional four-unit MATH course numbered 100–189.	
B. Complete:	
EDUC 172B	Teaching and Learning Secondary Mathematics
PHY SCI 5	California Teach 1: Introduction to Science and Mathematics Teaching
PHY SCI 105	California Teach 2: Middle School Science and Mathematics Teaching

Requirements for Mathematics Major with a Concentration in Mathematics for Education/Secondary Teaching Certification

Admission to this concentration requires approval in advance.The admission process begins with completing an Intent form at the Cal Teach Resource and Advising Center.

Following completion of the Intent form, students must complete an application in the Mathematics Department office and an interview with the Department's advisor for the concentration. These approvals should be applied for no later than the end of the sophomore year.

This concentration allows students pursuing the B.S. in Mathematics to earn a bachelor's degree and complete the required course work and field experience for a California Preliminary Single Subject Teaching Credential at the same time. With careful, early planning, it is possible for students to complete both in four years. For additional information about teacher certification requirements and enrollment procedures, see Preparation for Teaching Science and Mathematics (p. 1220) or contact the Cal Teach Resource and Advising Center. A Commission on Teacher Credentialing (CTC)-approved subject-matter program (SMP) in Mathematics can be satisfied in tandem with this concentration, and enables students to waive a subject matter exam for teachers. Specific SMP requirements and enrollment procedures are available from the Cal Teach Resource and Advising Center or the School of Education. Students interested in teaching at the high school level are encouraged to complete the course *PHY SCI 106* in addition to the requirements listed below.

Core requirements for all Mathematics majors plus:	
Lower-Division Requirements:	
A. Complete:	
MATH 8	Explorations in Functions and Modeling
Upper-Division Requirements:	
A. Complete:	
MATH 105A- 105LA	Numerical Analysis and Numerical Analysis Laboratory
MATH 120B	Introduction to Abstract Algebra: Rings and Fields

MATH 130B	Probability and Stochastic Processes
MATH 150	Introduction to Mathematical Logic
MATH 161	Modern Geometry
MATH 180A	Number Theory
MATH 184- 184L	History of Mathematics and History of Mathematics Lesson Lab
Plus one addtionatl four-unit MATH course numbered 100–189.	
B. Complete:	
CHEM 193	Research Methods
or PHYSICS 193	Research Methods
EDUC 55	Knowing and Learning in Mathematics and Science
EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II
EDUC 148	Complex Pedagogical Design
EDUC 158	Student Teaching Mathematics and Science in Middle/High School (two quarters)
PHY SCI 5	California Teach 1: Introduction to Science and Mathematics Teaching
PHY SCI 105	California Teach 2: Middle School Science and Mathematics Teaching

NOTE: Students may pursue either the concentration in Mathematics for Education/Secondary Teaching Certification or the specialization in Mathematics for Education, but not both.

Honors Program in Mathematics

The Honors Program in Mathematics is designed for students contemplating graduate work in mathematics. The program is open to junior and senior Mathematics majors who meet the minimum academic qualifications of a 3.5 GPA in Mathematics courses and a 3.2 GPA overall. It is highly recommended that students meet with the Honor's advisor by the beginning of their junior year to begin planning courses. Students should officially apply for the Honors Program no later than the fall quarter of their senior year. Recognition for completing the program is conferred upon graduation.

In addition to completing the requirements for the major in Mathematics (in any one of its tracks), participants must meet the following requirements:

A. Select one of the following series:	
MATH 205A- 205B- 205C	Introduction to Graduate Analysis and Introduction to Graduate Analysis and Introduction to Graduate Analysis
or	
MATH 206A- 206B- 206C	Introduction to Graduate Algebra and Introduction to Graduate Algebra and Introduction to Graduate Algebra
B. Complete the Honors Seminar, MATH H195A-B, or two quarters of MATH 199. One quarter of MATH 199 may be replaced by other research experience with the approval of the Honor's Program advisor.	

In order to prepare for independent study/independent research, it is highly recommended that students take at least one course sequence in the field they are interested in studying. The following list contains the major mathematical disciplines and the course work suggested for completion prior to doing independent study in that field:

- Applied Mathematics: MATH 117 and MATH 118
- Algebra: MATH 120A-MATH 120B-MATH 120C
- Probability and Statistics: MATH 130A-MATH 130B-MATH 130C
- Analysis: MATH 140A-MATH 140B-MATH 140C
- Logic: MATH 150 and MATH 151
- Geometry: MATH 162A-MATH 162B
- Number Theory: MATH 180A-MATH 180B

NOTE: These requirements are in addition to the math major requirements or requirements for any specialization/concentration. However, Math 206A-B-C in item A may be used to satisfy upper-division electives or taken in place of MATH 120A-B-C and 121A-B, and MATH 205A-B-C may be used to satisfy upper-division electives or taken in place of MATH 140A-B-C requirements as described in the major.

If all requirements are completed and the student's work and final GPA satisfies the program restrictions, the student will graduate with Honors in Mathematics, and this distinction is noted on the transcript.

Requirements for the Minor in Mathematics

A. Complete:	
MATH 13	Introduction to Abstract Mathematics
MATH 120A	Introduction to Abstract Algebra: Groups
or MATH 140A	Elementary Analysis
B. Select five additional four-unit courses in MATH (plus the associated lab, where applicable) numbered 77–189.	

NOTE: Nearly all upper-division courses in Mathematics have MATH 2A-MATH 2B as prerequisites, and many courses have additional prerequisites such as MATH 2D, MATH 2E, MATH 3A, and/or MATH 3D. Only one course from MATH 77A-MATH 77B-MATH 77C-MATH 77D (same as I&C SCI 77A-I&C SCI 77B-I&C SCI 77C-I&C SCI 77D) can be used toward the minor.

Requirements for the Minor in Mathematics for Biology

A. Complete:	
MATH 13	Introduction to Abstract Mathematics
MATH 113A- 113B- 113C	Mathematical Modeling in Biology and Mathematical Modeling in Biology and Mathematical Modeling in Biology
B. Select two of the following:	
MATH 105A	Numerical Analysis (plus MATH 105A)
MATH 112A	Introduction to Partial Differential Equations and Applications
MATH 117	Dynamical Systems
MATH 118	The Theory of Differential Equations
MATH 119	Boundary Value Problems
MATH 121A	Linear Algebra
MATH 140A	Elementary Analysis
C. One additional four-unit upper-division lecture course in MATH numbered 100–189.	

NOTE: Nearly all upper-division courses in Mathematics have MATH 2A-MATH 2B as prerequisites, and many courses have additional prerequisites such as MATH 2D, MATH 2E, MATH 3A, and/or MATH 3D.

Planning a Program of Study

For all Mathematics majors, or prospective majors, assistance in planning a program of study is available from the Mathematics Department Undergraduate Advisor and the advisors for the various tracks, as well as from the academic counselors for the School of Physical Sciences. The application process for the specializations and concentrations requires students to plan a program of study with the assistance of a faculty advisor. The following sample programs are only examples.

Those in the specialization for Education should note that MATH 184 may not be offered more than once every other year and thus should be taken when offered.

Sample Program — Pure Mathematics

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
PHYSICS 2	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
Gen. Ed./Elective	MATH 13	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Sophomore		
Fall	**Winter**	**Spring**
Gen. Ed./Elective	MATH 3A	MATH 3D
MATH 2E	I&C SCI 31	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Junior		
Fall	**Winter**	**Spring**
MATH 130A	MATH 140A	MATH 140B

MATH 120A	MATH 120B	MATH 141
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Senior		
Fall	**Winter**	**Spring**
MATH 121A	MATH 121B	MATH 115
MATH 150	MATH 147	Gen. Ed./Elective
MATH 112A	MATH 180A	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective

Sample Program — Mathematics Major Honors Program

Freshman		
Fall	**Winter**	**Spring**
MATH 2B	MATH 2D	MATH 2E
PHYSICS 2	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
Gen. Ed./Elective	MATH 13	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 121A	MATH 121B
MATH 3D	I&C SCI 31	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Junior		
Fall	**Winter**	**Spring**
MATH 120A	MATH 120B	MATH 141
MATH 140A	MATH 140B	Gen. Ed./Elective
MATH 130A	MATH 147	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Senior		
Fall	**Winter**	**Spring**
MATH 150	MATH 162A	MATH 162B
MATH 205A or 206A	MATH 205B or 206B	MATH 205C or 206C
Gen. Ed./Elective	MATH 199	MATH 199

Sample Program — Mathematics Major Concentrating in Mathematical Finance

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
PHYSICS 2	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
Gen. Ed./Elective	MATH 13	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Sophomore		
Fall	**Winter**	**Spring**
MATH 2E	MATH 3A	MATH 3D
ECON 20A	ECON 20B	Gen. Ed./Elective
Gen. Ed./Elective	I&C SCI 31	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	
Junior		
Fall	**Winter**	**Spring**
MATH 130A	MATH 130B	ECON 122A
MATH 140A	MATH 140B	MATH 140C
ECON 105A	ECON 105B	ECON 105C
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Senior		
Fall	**Winter**	**Spring**
MATH 120A	MATH 133A	MATH 133B
MATH 118	MATH 176	MATH 115
ECON 134A	ECON 132A	MATH 121A
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective

Sample Program — Mathematics Major Specializing in Applied and Computational Mathematics

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
PHYSICS 2	PHYSICS 7C- 7LC	MATH 13
Gen. Ed./Elective	Gen. Ed./Elective	PHYSICS 7D- 7LD
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Sophomore		
Fall	**Winter**	**Spring**
MATH 2E	MATH 3A	MATH 3D
I&C SCI 31	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Junior		
Fall	**Winter**	**Spring**
MATH 112A	MATH 112B	MATH 115
MATH 121A	MATH 121B	MATH 140B
MATH 130A	MATH 140A	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Senior		
Fall	**Winter**	**Spring**
MATH 105A- 105LA	MATH 105B- 105LB	MATH 107- 107L
MATH 117	MATH 118	Technical Elective
MATH 120A	Technical Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective

Sample Program — Mathematics Major Specializing in Mathematical Biology

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
BIO SCI 93	BIO SCI 94	MATH 13
Gen. Ed.	Gen. Ed.	Gen. Ed.
Gen. Ed.	Gen. Ed.	Gen. Ed.
Sophomore		
Fall	**Winter**	**Spring**
MATH 2E	MATH 3A	MATH 3D
CHEM 1A	CHEM 1B	Gen. Ed./Elective
I&C SCI 31	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective		
Junior		
Fall	**Winter**	**Spring**
MATH 113A	MATH 113B	MATH 113C
MATH 105A- 105LA	MATH 105B- 105LB	MATH 121A
Gen. Ed./Elective	MATH 140A	MATH 140B
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective
Senior		
Fall	**Winter**	**Spring**
MATH 112A	MATH 112B	MATH 115
MATH 130A	MATH 120A	Math. Elective
Bio. Elective	Gen. Ed./Elective	Gen. Ed./Elective
Gen. Ed./Elective	Gen. Ed./Elective	Gen. Ed./Elective

Sample Program — Mathematics Major Specializing in Mathematics for Education

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
PHYSICS 2	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
Gen. Ed.	MATH 13	Gen. Ed.
Gen. Ed./Elective	Gen. Ed.	

Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 8
PHY SCI 5	PHY SCI 105	MATH 121A
Gen. Ed.	Gen. Ed.	I&C SCI 31
Gen. Ed.		
Junior		
Fall	**Winter**	**Spring**
MATH 130A	MATH 130B	MATH 161
MATH 140A	MATH 120A	MATH 120B
Gen. Ed.	MATH 140B	Gen. Ed./Elective
Senior		
Fall	**Winter**	**Spring**
MATH 105A- 105LA	MATH 180A	MATH 184- 184L
MATH 150	EDUC 172B	Gen. Ed.
Gen. Ed./Elective	Math. Elective	Gen. Ed.

Sample Program – Concentration in Mathematics for Education/Secondary Teaching Certification

Freshman		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	MATH 2D
PHYSICS 2	PHYSICS 7C- 7LC	PHYSICS 7D- 7LD
PHY SCI 5	MATH 13	MATH 8
Gen. Ed.	Gen. Ed.	I&C SCI 31
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	MATH 161
PHY SCI 105	MATH 180A	MATH 121A
Gen. Ed.	CHEM 193	Gen. Ed.
Junior		
Fall	**Winter**	**Spring**
MATH 130A	MATH 130B	MATH 184- 184L
MATH 140A	MATH 120A	MATH 120B
EDUC 55	MATH 140B	EDUC 148
	EDUC 143AW	Math Elective
Senior		
Fall	**Winter**	**Spring**
MATH 105A- 105LA	EDUC 109	EDUC 158
MATH 150	EDUC 158	Gen. Ed.
EDUC 143BW	Gen. Ed.	Gen. Ed.

Graduate Program

Graduate courses are designed to meet the needs of students doing graduate work in mathematics and in those disciplines that require graduate-level mathematics for their study. Among the fields covered are analysis, algebra, applied and computational mathematics, mathematical biology, geometry and topology, probability, ordinary and partial differential equations, and mathematical logic.

In addition to formal courses, there are seminars for advanced study toward the Ph.D. in various fields of mathematics. Topics will vary from year to year. Each seminar is conducted by a faculty member specializing in the subject studied. Enrollment will be subject to the approval of the instructor in charge.

Master of Science in Mathematics

To earn the Master of Science degree, the student must satisfy course and residency requirements, and achieve two passes at the M.S. level among three exams in Real Analysis, Complex Analysis, and Algebra prior to the beginning of the second year.

The total number of required courses for the M.S. degree is 12, completed with satisfactory performance, that is, with a grade of B or better. Students are required to complete at least one series of the following courses:

MATH 210A- 210B- 210C	Real Analysis and Real Analysis and Real Analysis
or	

MATH 220A- 220B- 220C	Analytic Function Theory and Analytic Function Theory and Analytic Function Theory
or	
MATH 230A- 230B- 230C	Algebra and Algebra and Algebra

At most one undergraduate course may count as an elective course, provided it is sponsored by rank faculty and approved by the Graduate Advisor. At most one elective course (at least three units) is allowed outside the Department.

To satisfy exam requirements, students may take the Core Assessment Exam (offered in the spring of every year), the Comprehensive Exams (offered in the spring of every year), or the Qualifying Exams (offered before the start of each fall quarter) in Real Analysis, Complex Analysis, and Algebra. Students may not attempt to pass an exam in any particular area more than three times. Some students may require additional background before entering MATH 210 or MATH 230. This will be determined by assessment prior to the start of the students' first year by the Vice Chair of Graduate Studies, upon consultation with the Graduate Studies Committee. Such students will be directed into MATH 205 and/or MATH 206 during their first year. They may pass one Comprehensive Exam in the areas of Analysis or Algebra in lieu of achieving an M.S. pass in one of the Core Assessment or Qualifying Exams that must be obtained prior to the start of their second year.

Students who fail to pass the required examinations satisfactorily within the period specified will be recommended for academic disqualification by the Graduate Dean.

MATH 199, MATH 297, MATH 298, MATH 299, and MATH 399 may not be used to fulfill course requirements.

The residency requirement ordinarily is satisfied by full-time enrollment for three quarters immediately preceding the award of the M.S. degree. When appropriate, a leave of absence may be granted between matriculation and the final quarters of study.

If the candidate is not advanced before the beginning of the quarter in which all requirements are completed, the degree will not be conferred until the end of the following quarter. Deadlines for submission of the Application for Advancement to Candidacy are published on the Graduate Division (http://www.grad.uci.edu/academics/filing%20deadlines) website under filing fees and deadlines.

Master of Science in Mathematics with a Teaching Credential

In cooperation with the UCI School of Education, the Department of Mathematics sponsors a coordinated program for the M.S. degree in Mathematics and the California Single Subject Teaching Credential. The requirements for this option are the same as the Master of Science in Mathematics requirements listed above.

The student will complete the requirements for the Master's degree with the Mathematics Department (generally a two-year commitment) and then will petition with the UCI School of Education to take the School of Education's credential courses (generally a one-year commitment). The student must meet the requirements of the School of Education for the CBEST, CSET, TB test, and Certificate of Clearance. Prospective graduate students interested in this program should so indicate on their applications. A detailed description of the program can be requested from the School of Education.

Advancement to M.S. Candidacy

All Master’s students must be advanced to candidacy for the degree prior to the beginning of their final quarter of enrollment. An application for Advancement to Candidacy must be completed by the student and submitted for approval to the Department. The approved application must be submitted to the Graduate Division by the deadline published on the Graduate Division (http://www.grad.uci.edu) website. Advancement to M.S.Candidacy must occur one quarter prior to the degree conferral quarter.

Filing fee information can be located on the Graduate Division (http://www.grad.uci.edu) website.

Doctor of Philosophy in Mathematics

When accepted into the doctoral program, the student embarks on a program of formal courses, seminars, and individual study courses to prepare for the Ph.D. written examinations, Advancement to Candidacy examination, and dissertation.

Upon entering the program, students are expected to take MATH 210, MATH 220, and MATH 230, which must be passed with a grade of B or better. Students must complete these sequences by the end of the second year.

By the start of the second year, students must achieve at least two passes at the M.S. level among three exams in Real Analysis, Complex Analysis, and Algebra. By the start of the third year, students must achieve two Ph.D. level passes among three exams in Real Analysis, Complex Analysis, and Algebra.

To satisfy the exam requirements, students may take the Core Assessment Exams (offered in spring of every year) or the Qualifying Exams (offered before the start of the fall quarter) in these areas. Students may not attempt to take an exam in a particular subject area more than three times. A student who passes a Qualifying Examination at the Ph.D. level prior to taking the corresponding course will be exempted from taking the course.

Some students may require additional background prior to entering MATH 210 and MATH 230. This will be determined by assessment prior to the start of the students' first year by the Vice Chair for Graduate Studies, upon consultation with the Graduate Studies Committee. Such students will be directed into MATH 205 and/or MATH 206, or equivalent, during their first year. These students may pass one Comprehensive Exam in the areas of Algebra or Analysis in lieu of achieving an M.S. pass on one Core Assessment or Qualifying Exam that must be obtained prior to the start of the students' second year. Comprehensive Exams in Analysis and Algebra will be offered once per year in the spring quarter.

By the end of their second year, students must declare a major specialization from the following areas: Algebra, Analysis, Applied and Computational Mathematics, Geometry and Topology, Logic, or Probability. Students are required to take two series of courses from their chosen area. (Students who later decide to change their area must also take two series of courses from the new area.) Additionally, all students must take two series outside their declared major area of specialization. Special topics courses within certain areas of specialization and courses counted toward the M.S. degree, other than MATH 205A-MATH 205B-MATH 205C and MATH 206A-MATH 206B-MATH 206C, will count toward the fulfillment of the major specialization requirement.

By the beginning of their third year, students must have an advisor specializing in their major area. With the advisor's aid, the student forms a committee for the Advancement to Candidacy oral examination. This committee will be approved by the Department on behalf of the Dean of the Graduate Division and the Graduate Council and will consist of five faculty members. At least one, and at most two, of the members must be faculty from outside the Department. Before the end of the third year, students must have a written proposal, approved by their committee, for the Advancement to Candidacy examination. The proposal should explain the role of at least two series of courses from the student's major area of specialization that will be used to satisfy the Advancement to Candidacy requirements. The proposal should also explain the role of additional research reading material as well as providing a plan for investigating specific topics under the direction of the student's advisor(s). Only one of the courses MATH 210A-MATH 210B-MATH 210C, MATH 220A-MATH 220B-MATH 220C, and MATH 230A-MATH 230B-MATH 230C may count for the course requirement for Advancement to Candidacy Examinations. After the student meets the requirements, the Graduate Studies Committee recommends to the Dean of the Graduate Division the advancement to candidacy for the Ph.D. degree. Students should advance to candidacy by the beginning of their fourth year.

After advancing to candidacy, students are expected to be fully involved in research toward writing their Ph.D. dissertation. Ideally, students should keep in steady contact/interaction with their Doctoral Committee.

Teaching experience and training is an integral part of the Ph.D. program. All doctoral students are expected to participate in the Department's teaching program.

The candidate must demonstrate independent, creative research in Mathematics by writing and defending a dissertation that makes a new and valuable contribution to mathematics in the candidate's area of concentration. Upon Advancement to Candidacy a student must form a Thesis Committee, a subcommittee of the Advancement Examination Committee, consisting of at least three faculty members and chaired by the student's advisor. The committee guides and supervises the candidate's research, study, and writing of the dissertation; conducts an oral defense of the dissertation; and recommends that the Ph.D. be conferred upon approval of the Doctoral Dissertation. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years. Completion of the Ph.D. degree must occur within nine quarters of Advancement to Ph.D. candidacy.

Examinations

Ph.D. examinations are given in Algebra, Complex Analysis, and Real Analysis. All students seeking the Ph.D. degree must successfully complete two examinations before the end of the third year of entering the graduate program. Only two attempts are allowed for a Ph.D. student on each exam.

Area Requirements

Ph.D. students will choose from one of six areas of specialization in the Mathematics Department, which determines course work requirements. Each area of specialization will have a core course, which the Department will do its best to offer each year. The Department will offer other courses every other year, or more frequently depending on student demands and other Department priorities.

Algebra	
MATH 230A- 230B- 230C	Algebra and Algebra and Algebra (core)
MATH 232A- 232B- 232C	Algebraic Number Theory and Algebraic Number Theory and Algebraic Number Theory
MATH 233A- 233B- 233C	Algebraic Geometry and Algebraic Geometry and Algebraic Geometry
MATH 234B- 234C	Topics in Algebra and Topics in Algebra
MATH 235A- 235B- 235C	Mathematics of Cryptography and Mathematics of Cryptography and Mathematics of Cryptography

MATH 239A- 239B- 239C	Analytic Methods in Arithmetic Geometry and Analytic Methods in Arithmetic Geometry and Analytic Methods in Arithmetic Geometry
Analysis	
MATH 210A- 210B- 210C	Real Analysis and Real Analysis and Real Analysis (core)
MATH 211A- 211B- 211C	Topics in Analysis and Topics in Analysis and Topics in Analysis
MATH 220A- 220B- 220C	Analytic Function Theory and Analytic Function Theory and Analytic Function Theory (core)
MATH 260A- 260B- 260C	Functional Analysis and Functional Analysis and Functional Analysis
MATH 295A- 295B- 295C	Partial Differential Equations and Partial Differential Equations and Partial Differential Equations
MATH 296	Topics in Partial Differential Equations
Applied and Computational Mathematics	
MATH 290A- 290B- 290C	Methods in Applied Mathematics and Methods in Applied Mathematics and Methods in Applied Mathematics (core)
MATH 225A- 225B- 225C	Introduction to Numerical Analysis and Scientific Computing and Introduction to Numerical Analysis and Scientific Computing and Introduction to Numerical Analysis and Scientific Computing
MATH 226A- 226B- 226C	Computational Differential Equations and Computational Differential Equations and Computational Differential Equations
MATH 227A- 227B	Mathematical and Computational Biology and Mathematical and Computational Biology
MATH 291C	Topics in Applied and Computational Math
MATH 295A- 295B- 295C	Partial Differential Equations and Partial Differential Equations and Partial Differential Equations
Geometry and Topology	
MATH 218A- 218B- 218C	Introduction to Manifolds and Geometry and Introduction to Manifolds and Geometry and Introduction to Manifolds and Geometry (core)
MATH 222A- 222B- 222C	Several Complex Variables and Complex Geometry and Several Complex Variables and Complex Geometry and Several Complex Variables and Complex Geometry
MATH 240A- 240B- 240C	Differential Geometry and Differential Geometry and Differential Geometry
MATH 245A- 245C- 245C	Topics in Differential Geometry and Topics in Differential Geometry and Topics in Differential Geometry
MATH 250A- 250B- 250C	Algebraic Topology and Algebraic Topology and Algebraic Topology
Logic	
MATH 280A- 280B- 280C	Mathematical Logic and Mathematical Logic and Mathematical Logic (core)

MATH 281A- 281B- 281C	Set Theory and Set Theory and Set Theory
MATH 282A- 282B- 282C	Model Theory and Model Theory and Model Theory
MATH 285A- 285B- 285C	Topics in Mathematical Logic and Topics in Mathematical Logic and Topics in Mathematical Logic
Probability	
MATH 210A- 210B- 210C	Real Analysis and Real Analysis and Real Analysis
MATH 211A- 211B- 211C	Topics in Analysis and Topics in Analysis and Topics in Analysis
MATH 270A- 270B- 270C	Probability and Probability and Probability (core)
MATH 271A- 271B- 271C	Stochastic Processes and Stochastic Processes and Stochastic Processes (core)
MATH 272A- 272B- 272C	Probability Models and Probability Models and Probability Models (core)
MATH 274	Topics in Probability

Graduate Program in Mathematical and Computational Biology

The graduate program in Mathematical and Computational Biology (MCB) is a one-year “gateway” program designed to function in concert with selected department programs, including the Ph.D. in Mathematics. Detailed information is available at the Mathematical, Computational and Systems Biology (http://mcsb.bio.uci.edu) website and in the Francisco J. Ayala School of Biological Sciences (p. 289) section of the *Catalogue*.

Faculty

Takeo Akasaki, Ph.D. University of California, Los Angeles, *Professor Emeritus of Mathematics* (ring theory)

Jun F. Allard, Ph.D. University of British Columbia, *Assistant Professor of Mathematics; Physics and Astronomy* (mathematical and computational biology)

Vladimir Baranovsky, Ph.D. University of Chicago, *Associate Professor of Mathematics* (algebra and number theory)

Frank B. Cannonito, Ph.D. Adelphi University, *Professor Emeritus of Mathematics* (group theory)

Long Chen, Ph.D. Pennsylvania State University, *Associate Professor of Mathematics* (applied and computational mathematics)

Michael C. Cranston, Ph.D. University of Minnesota, *Professor of Mathematics* (probability)

Donald A. Darling, Ph.D. California Institute of Technology, *Professor Emeritus of Mathematics*

Paul C. Eklof, Ph.D. Cornell University, *Professor Emeritus of Mathematics* (logic and algebra)

German A. Enciso Ruiz, Ph.D. Rutgers, the State University of New Jersey, *Associate Professor of Mathematics; Developmental and Cell Biology* (applied and computational mathematics, mathematical and computational biology)

Catherine M. Famiglietti, Ph.D. Princeton University, *Lecturer of Mathematics* (calculus and numerical methods)

Aleksandr Figotin, Ph.D. Tashkent University of Information Technologies, *Professor of Mathematics* (applied and computational mathematics, mathematical physics)

Mark Finkelstein, Ph.D. Stanford University, *Professor Emeritus of Mathematics; Center for Educational Partnerships* (analysis)

Matthew Foreman, Ph.D. University of California, Berkeley, *Professor of Mathematics; Logic and Philosophy of Science* (ergodic theory and dynamical systems, logic and foundations)

Michael D. Fried, Ph.D. University of Michigan, *Professor Emeritus of Mathematics* (arithmetic geometry and complex variables)

Anton Gorodetski, Ph.D. Moscow State University, *Associate Professor of Mathematics* (ergodic theory and dynamical systems)

Patrick Q. Guidotti, Ph.D. University of Zurich, *Professor of Mathematics* (analysis and partial differential equations, applied and computational mathematics)

Hamid Hezari, Ph.D. Johns Hopkins University, *Assistant Professor of Mathematics* (analysis and partial differential equations)

Svetlana Jitomirskaya, Ph.D. Moscow State University, *UCI Chancellor's Fellow* and *Professor of Mathematics* (mathematical physics)

Abel Klein, Ph.D. Massachusetts Institute of Technology, *Professor of Mathematics* (mathematical physics)

Natalia Komarova, Ph.D. University of Arizona, *Professor of Mathematics; Ecology and Evolutionary Biology* (applied and computational mathematics, mathematical and computational biology, mathematics of complex and social phenomena)

Rachel Lehman, Ph.D. University of California, Irvine, *Lecturer of Mathematics* (mathematics education and probability)

Peter Li, Ph.D. University of California, Berkeley, *Professor Emeritus of Mathematics* (geometry and topology)

Song-Ying Li, Ph.D. University of Pittsburgh, *Professor of Mathematics* (analysis and partial differential equations)

John S. Lowengrub, Ph.D. Courant Institute of Mathematical Sciences, *UCI Chancellor's Professor of Mathematics; Biomedical Engineering; Chemical Engineering and Materials Science* (applied and computational mathematics, mathematical and computational biology)

Zhiqin Lu, Ph.D. Courant Institute of Mathematical Sciences, *Professor of Mathematics* (geometry and topology)

Penelope J. Maddy, Ph.D. Princeton University, *UCI Distinguished Professor of Logic and Philosophy of Science; Mathematics; Philosophy* (philosophy of mathematics and logic, meta-philosophy)

Eric D. Mjolsness, Ph.D. California Institute of Technology, *Professor of Computer Science; Mathematics* (applied mathematics, mathematical biology, modeling languages)

Qing Nie, Ph.D. Ohio State University, *Professor of Mathematics; Biomedical Engineering* (computational mathematics, systems biology, cell signaling, stem cell)

Alessandra Pantano, Ph.D. Princeton University, *Lecturer with Potential Security of Employment of Mathematics* (algebra and number theory)

David L. Rector, Ph.D. Massachusetts Institute of Technology, *Professor Emeritus of Mathematics* (algebraic topology and computer algebra)

Robert C. Reilly, Ph.D. University of California, Berkeley, *Professor Emeritus of Mathematics* (geometry and topology)

Karl Rubin, Ph.D. Harvard University, *Department Chair and Edward and Vivian Thorp Chair in Mathematics* and *Professor of Mathematics* (algebra and number theory)

Bernard Russo, Ph.D. University of California, Los Angeles, *Professor Emeritus of Mathematics* (functional analysis)

Donald G. Saari, Ph.D. Purdue University, *UCI Distinguished Professor of Economics; Logic and Philosophy of Science; Mathematics* (ergodic theory and dynamical systems, mathematics of complex social phenomena)

Martin Schechter, Ph.D. New York University, *Professor of Mathematics* (analysis and partial differential equations, mathematical physics)

Stephen Scheinberg, Ph.D. Princeton University, *Professor Emeritus of Mathematics*

Alice Silverberg, Ph.D. Princeton University, *Professor of Mathematics; Computer Science* (algebra and number theory)

William H. Smoke, Ph.D. University of California, Berkeley, *Professor Emeritus of Mathematics* (homological algebra)

Knut Solna, Ph.D. Stanford University, *Professor of Mathematics* (applied and computational mathematics, inverse problems and imaging, probability)

Ronald J. Stern, Ph.D. University of California, Los Angeles, *Professor Emeritus of Mathematics* (geometry and topology)

Jeffrey D. Streets, Ph.D. Duke University, *Assistant Professor of Mathematics* (geometry and topology)

Chuu-Lian Terng, Ph.D. Brandeis University, *UCI ADVANCE Term Chair* and *Professor of Mathematics* (geometry and topology, mathematical visualization)

Edriss S. Titi, Ph.D. Indiana University, *Professor Emeritus of Mathematics; Mechanical and Aerospace Engineering* (analysis and partial differential equations, applied and computational mathematics)

Li Sheng Tseng, Ph.D. University of Chicago, *Assistant Professor of Mathematics* (geometry and topology, mathematical physics)

Howard G. Tucker, Ph.D. University of California, Berkeley, *Professor Emeritus of Mathematics* (probability and statistics)

Sean P. Walsh, Ph.D. University of Notre Dame, *Assistant Professor of Logic and Philosophy of Science; Mathematics* (philosophy of mathematics, philosophy of logic and mathematical logic)

Daqing Wan, Ph.D. University of Washington, *Professor of Mathematics* (algebra and number theory)

Frederic Yui-Ming Wan, Ph.D. Massachusetts Institute of Technology, *Professor of Mathematics; Mechanical and Aerospace Engineering* (applied and computational mathematics, mathematical and computational biology)

Robert W. West, Ph.D. University of Michigan, *Professor Emeritus of Mathematics* (algebraic toplogy)

Joel J. Westman, Ph.D. University of California, Los Angeles, *Professor Emeritus of Mathematics* (analysis)

Robert J. Whitley, Ph.D. New Mexico State University, *Professor Emeritus of Mathematics* (analysis)

Janet L. Williams, Ph.D. Brandeis University, *Professor Emerita of Mathematics* (probability and statistics)

Dominik Franz X. Wodarz, Ph.D. Oxford University, *Professor of Ecology and Evolutionary Biology; Mathematics* (mathematical biology, infectious disease and cancer)

Jack Xin, Ph.D. New York University, *Professor of Mathematics* (applied and computational mathematics, mathematical and computational biology, probability)

James J. Yeh, Ph.D. University of Minnesota, *Professor Emeritus of Mathematics* (analysis and partial differential equations, probability)

Yifeng Yu, Ph.D. University of California, Berkeley, *Associate Professor of Mathematics* (analysis and partial differential equations)

Martin Zeman, Ph.D. Humboldt University of Berlin, *Professor of Mathematics; Logic and Philosophy of Science* (logic and foundations)

Hong-Kai Zhao, Ph.D. University of California, Los Angeles, *Professor of Mathematics; Computer Science* (applied and computational mathematics, inverse problems and imaging)

Weian Zheng, Ph.D. University of Strasbourg, *Professor Emeritus of Mathematics* (probability theory and financial engineering)

Courses

MATH 1A. Pre-Calculus. 4 Workload Units.
Basic equations and inequalities, linear and quadratic functions, and systems of simultaneous equations. Course may be offered online.

MATH 1B. Pre-Calculus. 4 Units.
Preparation for calculus and other mathematics courses. Exponentials, logarithms, trigonometry, polynomials, and rational functions. Satisfies no requirements other than contribution to the 180 units required for graduation. Course may be offered online.

Prerequisite: MATH 1A or placement into MATH 1B via the Calculus Placement exam, or a score of 450 or higher on the Mathematics section of the SAT Reasoning Test.

MATH 2A. Single-Variable Calculus. 4 Units.
Introduction to derivatives, calculation of derivatives of algebraic and trigonometric functions; applications including curve sketching, related rates, and optimization. Exponential and logarithm functions.

Prerequisite: MATH 1B or placement into MATH 2A via the Calculus Placement exam (fee required), or a score of 3 on the AP Calculus AB exam, or a score of 600 or higher on the Mathematics section of the SAT Reasoning Test. MATH 1B with a grade of C or better.

Restriction: School of Physical Sciences, School of Engineering, and School of Information and Computer Sciences majors have first consideration for enrollment.

(Vb)

MATH 2B. Single-Variable Calculus. 4 Units.
Definite integrals; the fundamental theorem of calculus. Applications of integration including finding areas and volumes. Techniques of integration. Infinite sequences and series. Parametric and polar equations.

Prerequisite: MATH 2A.

Restriction: School of Physical Sciences, School of Engineering, and School of Information and Computer Sciences majors have first consideration for enrollment.

(Vb)

MATH 2D. Multivariable Calculus. 4 Units.
Differential and integral calculus of real-valued functions of several real variables, including applications. Polar coordinates.

Prerequisite: MATH 2A and MATH 2B.

Overlaps with MATH H2D.

Restriction: School of Physical Sciences, School of Engineering, and School of Information and Computer Sciences majors have first consideration for enrollment.

(Vb)

MATH 2E. Multivariable Calculus. 4 Units.
The differential and integral calculus of vector-valued functions. Implicit and inverse function theorems. Line and surface integrals, divergence and curl, theorems of Greens, Gauss, and Stokes.

Prerequisite: MATH 2D.

Overlaps with MATH H2E.

Restriction: School of Physical Sciences and School of Engineering majors have first consideration for enrollment.

MATH 3A. Introduction to Linear Algebra. 4 Units.
Systems of linear equations, matrix operations, determinants, eigenvalues and eigenvectors, vector spaces, subspaces and dimension.

Prerequisite: MATH 2B.

Overlaps with MATH 6G, I&C SCI 6N.

Restriction: School of Physical Sciences and School of Engineering majors have first consideration for enrollment.

MATH 3D. Elementary Differential Equations. 4 Units.
Linear differential equations, variation of parameters, constant coefficient cookbook, systems of equations, Laplace tranforms, series solutions.

Prerequisite: MATH 2D and MATH 3A.

Restriction: School of Physical Sciences and School of Engineering majors have first consideration for enrollment.

MATH 4. Mathematics for Economists. 4 Units.
Topics in linear algebra and multivariable differential calculus suitable for economic applications.

Prerequisite: MATH 2B.

Overlaps with MATH 2D, MATH 2J, MATH 3A.

Restriction: MATH 4 may not be taken for credit if taken after MATH 2D and either MATH 2J or MATH 3A.

(Vb)

MATH 6G. Linear Algebra. 4 Units.
Linear equations, vector spaces and subspaces, linear functions and matrices, linear codes, determinants, scalar products.

Prerequisite: High school mathematics through trigonometry.

Overlaps with MATH 3A, I&C SCI 6N.

(Vb)

MATH 8. Explorations in Functions and Modeling. 4 Units.
Explorations of applications and connections in topics in algebra, geometry, calculus, and statistics for future secondary math educators. Emphasis on nonstandard modeling problems.

Corequisite: MATH 2A.

MATH 13. Introduction to Abstract Mathematics. 4 Units.
Introduction to formal definition and rigorous proof writing in mathematics. Topics include basic logic, set theory, equivalence relations, and various proof techniques such as direct, induction, contradiction, contrapositive, and exhaustion.

Prerequisite: MATH 2A or I&C SCI 6D.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 77A. Mathematics and Computation in the Digital Age: Introduction to Signal Processing. 4 Units.
Signals in Matlab; blurring, filtering; elements of linear algebra, statistics, optimization; blind matrix inversion; de-correlation method, stochastic gradient descent method, applications to sounds and images.

Prerequisite: MATH 2B and I&C SCI 31.

Same as I&C SCI 77A.

Restriction: Lower-division students only.

(II, Va)

MATH 77B. Mathematics and Computation in the Digital Age: Introduction to Collaborative Filtering. 4 Units.
Basic concepts of collaborative filtering; clustering; matrix factorization and principal components analysis; regression; classification: naive Bayes classifier, decision trees, Perceptron (neural networks).

Prerequisite: MATH 2B and I&C SCI 31.

Same as I&C SCI 77B.

Restriction: Lower-division students only.

(II, Va)

MATH 77C. Mathematics and Computation in the Digital Age: Introduction to Image Processing. 4 Units.
Image de-noising, de-blurring, low pass filtering; image segmentation and classification; Sparse representation; visualization.

Prerequisite: MATH 2B and I&C SCI 31.

Same as I&C SCI 77C.

Restriction: Lower-division students only.

(II, Va)

MATH 77D. Mathematics and Computation in the Digital Age: Intro to Game Simulation and Analysis. 4 Units.
Combinatorial Game Theory--game classification, tree graphs, strategy analysis, Sprague Grundy functions, Bouton's Theorem; Zero-Sum and General-Sum Game Theory--pay off matrices, Minimax Theorem, Nash equilibrium; machine learning--search algorithms.

Prerequisite: MATH 2B and I&C SCI 31.

Same as I&C SCI 77D.

Restriction: Lower-division students only.

(II, Va)

MATH 105A. Numerical Analysis. 4 Units.
Introduction to the theory and practice of numerical computation. Floating point arithmetic, roundoff; solving transcendental equations; quadrature; linear systems, eigenvalues, power method.

Corequisite: MATH 105LA.
Prerequisite: MATH 3A. Some acquaintance with computer programming.

Overlaps with ENGRMAE 185.

MATH 105B. Numerical Analysis. 4 Units.
Introduction to the theory and practice of numerical computation. Lagrange interpolation, finite differences, splines, Padé approximations; Gaussian quadrature; Fourier series and transforms.

Corequisite: MATH 105LB.
Prerequisite: MATH 105A.

MATH 105LA. Numerical Analysis Laboratory. 1 Unit.
Provides practical experience to complement the theory developed in Mathematics 105A.

Corequisite: MATH 105A.

MATH 105LB. Numerical Analysis Laboratory. 1 Unit.
Provides practical experience to complement the theory developed in Mathematics 105B.

Corequisite: MATH 105B.

MATH 107. Numerical Differential Equations. 4 Units.
Theory and applications of numerical methods to initial and boundary-value problems for ordinary and partial differential equations.

Corequisite: MATH 107L.
Prerequisite: MATH 3D and MATH 105A and MATH 105B.

MATH 107L. Numerical Differential Equations Laboratory. 1 Unit.
Provides practical experience to complement the theory developed in Mathematics 107.

Corequisite: MATH 107.

MATH 112A. Introduction to Partial Differential Equations and Applications. 4 Units.
Introduction to ordinary and partial differential equations and their applications in engineering and science. Basic methods for classical PDEs (potential, heat, and wave equations). Classification of PDEs, separation of variables and series expansions, special functions, eigenvalue problems.

Prerequisite: MATH 2D and MATH 3D.

MATH 112B. Introduction to Partial Differential Equations and Applications. 4 Units.
Introduction to partial differential equations and their applications in engineering and science. Basic methods for classical PDEs (potential, heat, and wave equations). Green functions and integral representations, method of characteristics.

Prerequisite: MATH 2E and MATH 112A.

MATH 112C. Introduction to Partial Differential Equations and Applications. 4 Units.
Nonhomogeneous problems and Green's functions, Sturm-Liouville theory, general Fourier expansions, applications of partial differential equations in different areas of science.

Prerequisite: MATH 3D and MATH 2D and MATH 3A.

MATH 113A. Mathematical Modeling in Biology. 4 Units.
Discrete mathematical and statistical models; difference equations, population dynamics, Markov chains, and statistical models in biology.

Prerequisite: MATH 2B.

MATH 113B. Mathematical Modeling in Biology. 4 Units.
Linear algebra; differential equations models; dynamical systems; stability; hysteresis; phase plane analysis; applications to cell biology, viral dynamics, and infectious diseases.

Prerequisite: MATH 113A.

MATH 113C. Mathematical Modeling in Biology. 4 Units.
Partial differential equations models in biology such as one dimensional blood flow, morphogen gradients, and tumor growth; stochastic models in cancer and epidemiology.

Prerequisite: MATH 113B.

MATH 114A. Applied Complex Analysis. 4 Units.
Introduction to complex functions and their applications to engineering and science. Complex numbers, elementary functions; analytic functions; complex integration; power series; residue theory; conformal maps; applications.

Prerequisite: MATH 2D and MATH 3A.

Overlaps with MATH 147.

MATH 115. Mathematical Modeling. 4 Units.
Mathematical modeling and analysis of phenomena that arise in engineering physical sciences, biology, economics, or social sciences.

Prerequisite: Corequisite or prerequisite: MATH 112A or ENGRMAE 140. MATH 2D and (MATH 3A or MATH 6G) and MATH 3D.

MATH 117. Dynamical Systems. 4 Units.
Introduction to the modern theory of dynamical systems including contraction mapping principle, fractals and chaos, conservative systems, Kepler problem, billiard models, expanding maps, Smale's horseshoe, topological entropy.

Prerequisite: MATH 3D and MATH 140A.

MATH 118. The Theory of Differential Equations. 4 Units.
Existence and uniqueness of solutions, continuous dependence of solutions on initial conditions and parameteres, Lyapunov and asymptotic stability, Floquet theory, nonlinear systems, and bifurcations.

Prerequisite: MATH 3D and MATH 140A.

MATH 119. Boundary Value Problems. 4 Units.
Introduction to boundary value problems including Green's function representations, maximum principle, variational formulations, Sturm-Liouville problems, eigenfunction expansions, existence and uniqueness for nonlinear problems, method of shooting, finite difference methods.

Prerequisite: MATH 3D and MATH 140A.

MATH 120A. Introduction to Abstract Algebra: Groups. 4 Units.
Axioms for group theory; permutation groups, matrix groups. Isomorphisms, homomorphisms, quotient groups. Advanced topics as time permits. Special emphasis on doing proofs.

Prerequisite: (MATH 3A OR MATH 6G) and MATH 13. MATH 13 with a grade of C- or better.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 120B. Introduction to Abstract Algebra: Rings and Fields. 4 Units.
Basic properties of rings; ideals, quotient rings; polynomial and matrix rings. Elements of field theory.

Prerequisite: MATH 120A.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 120C. Introduction to Abstract Algebra: Galois Theory. 4 Units.
Galois Theory: proof of the impossibility of certain ruler-and-compass constructions (squaring the circle, trisecting angles); nonexistence of analogues to the "quadratic formula" for polynomial equations of degree 5 or higher.

Prerequisite: MATH 120B.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 121A. Linear Algebra. 4 Units.
Introduction to modern abstract linear algebra. Special emphasis on students doing proofs. Vector spaces, linear independence, bases, dimension. Linear transformations and their matrix representations. Theory of determinants.

Prerequisite: (MATH 3A OR MATH 6G) and MATH 13. MATH 13 with a grade of C- or better.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 121B. Linear Algebra. 4 Units.
Introduction to modern abstract linear algebra. Special emphasis on students doing proofs. Canonical forms; inner products; similarity of matrices.

Prerequisite: MATH 121A.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 130A. Probability and Stochastic Processes. 4 Units.
Basic concepts of random variables, distributions, independence, correlations, moments, limit theorems, conditional probability, Markov chains, gambler's ruin, branching process, birth and death processes, numerical simulations in Matlab.

Prerequisite: MATH 2A and MATH 2B and (MATH 3A or MATH 6G).

Overlaps with MATH 131A, MATH 132A, STATS 120A.

MATH 130B. Probability and Stochastic Processes. 4 Units.
Exponential distributions, Poisson processes, continuous time Markov chains, renewal theory, insurance ruin and claim problems, numerical simulations in Matlab.

Prerequisite: MATH 130A OR MATH 131A or STATS 120A.

MATH 130C. Probability and Stochastic Processes. 4 Units.
Martingales, Invariance Principle, Brownian motions and applications in option pricing, stationary processes and applications in Wiener filter, numerical simulations in Matlab.

Prerequisite: MATH 130B.

MATH 131A. Introduction to Probability and Statistics. 4 Units.
Introductory course covering basic principles of probability and statistical inference. Axiomatic definition of probability, random variables, probability distributions, expectation.

Prerequisite: MATH 2A and MATH 2B and (MATH 2D or MATH 4).

Overlaps with MATH 130A, MATH 132A.

MATH 131B. Introduction to Probability and Statistics. 4 Units.
Introductory course covering basic principles of probability and statistical inference. Point estimation, interval estimating, and testing hypotheses, Bayesian approaches to inference.

Prerequisite: (MATH 131A or STATS 120A) and (MATH 3A or MATH 6G or MATH 4).

MATH 133A. Statistical Methods with Applications to Finance. 4 Units.
Overview of probability, statistics and financial concepts: distribution, point estimation, confidence interval, linear regression, hypothesis testing, principal component analysis, financial applications.

Prerequisite: MATH 130A or STATS 120A or MATH 2D or MATH 4.

MATH 133B. Statistical Methods with Applications to Finance. 4 Units.
Overview of markets and options: asset modeling, Brownian motion, risk neutrality, option pricing, value at risk, MC simulations.

Prerequisite: MATH 133A.

MATH 140A. Elementary Analysis. 4 Units.
Introduction to real analysis, including: convergence of sequence, infinite series, differentiation and integration, and sequences of functions. Students are expected to do proofs.

Prerequisite: MATH 2D and MATH 3A and MATH 13. MATH 13 with a grade of C- or better.

Restriction: Math majors have first consideration for enrollment.

MATH 140B. Elementary Analysis. 4 Units.
Introduction to real analysis including convergence of sequences, infinite series, differentiation and integration, and sequences of functions. Students are expected to do proofs.

Prerequisite: MATH 140A. MATH 140A with a grade of C- or better.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 140C. Analysis in Several Variables . 4 Units.
Rigorous treatment of multivariable differential calculus. Jacobians, Inverse and Implicit Function theorems.

Prerequisite: MATH 140B.

MATH 141. Introduction to Topology. 4 Units.
The elements of naive set theory and the basic properties of metric spaces. Introduction to topological properties.

Prerequisite: MATH 140A.

MATH 146. Fourier Analysis. 4 Units.
Rigorous introduction to the theory of Fourier series and orthogonal expansions. Fourier transform.

Prerequisite: MATH 3D and MATH 140A and MATH 140B. Recommended: MATH 112A.

MATH 147. Complex Analysis. 4 Units.
Rigorous treatment of basic complex analysis: analytic functions, Cauchy integral theory and its consequences, power series, residue calculus, harmonic functions, conformal mapping. Students are expected to do proofs.

Corequisite: MATH 140B.
Prerequisite: MATH 140A.

Overlaps with MATH 114A.

Restriction: MATH 114A may not be taken for credit after MATH 147.

MATH 150. Introduction to Mathematical Logic. 4 Units.
First order logic through the Completeness Theorem for predicate logic.

Prerequisite: MATH 13 or (I&C SCI 6B and I&C SCI 6D). MATH 13 with a grade of C- or better.

Overlaps with LPS 105B, PHILOS 105B.

MATH 151. Set Theory. 4 Units.
Axiomatic development; infinite sets; cardinal and ordinal numbers.

Prerequisite: MATH 150.

Overlaps with SOC SCI 105A, LPS 105A.

MATH 152. Computability. 4 Units.
Computable functions; undecidability; Gödel's Incompleteness Theorem.

Prerequisite: MATH 150.

Overlaps with PHILOS 105C, LPS 105C.

MATH 161. Modern Geometry. 4 Units.
Euclidean Geometry; Hilbert's Axioms; Absolute Geometry; Hyperbolic Geometry; the Poincare Models; and Geometric Transformations.

Prerequisite: MATH 13 or (I&C SCI 6B and I&C SCI 6D). MATH 13 with a C- or better.

Restriction: Math majors have first consideration for enrollment.

MATH 162A. Introduction to Differential Geometry. 4 Units.
Applications of advanced calculus and linear algebra to the geometry of curves and surfaces in space.

Prerequisite: MATH 2E and MATH 3A and MATH 3D.

MATH 162B. Introduction to Differential Geometry. 4 Units.
Applications of advanced calculus and linear algebra to the geometry of curves and surfaces in space.

Prerequisite: MATH 162A.

MATH 171A. Mathematical Methods in Operations Research Linear Programming. 4 Units.
Simplex algorithm, duality, optimization in networks.

Prerequisite: MATH 3A or MATH 6G.

MATH 171B. Mathematical Methods in Operations Research Nonlinear Programming. 4 Units.
Conditions for optimality, quadratic and convex programming, search methods, geometric programming.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

MATH 173A. Introduction to Cryptology. 4 Units.
Introduction to some of the mathematics used in the making and breaking of codes, with applications to classical ciphers and public key systems. The mathematics which is covered includes topics from number theory, probability, and abstract algebra.

Prerequisite: MATH 2B and (MATH 3A or MATH 6G) and (MATH 13 or (I&C SCI 6B and I&C SCI 6D)). MATH 13 with a grade of C- or better.

MATH 173B. Introduction to Cryptology. 4 Units.
Introduction to some of the mathematics used in the making and breaking of codes, with applications to classical ciphers and public key systems. The mathematics which is covered includes topics from number theory, probability, and abstract algebra.

Prerequisite: MATH 173A.

MATH 174A. Modern Graphy Theory. 4 Units.
An introductory course emphasizing the fundamental concepts of graph theory by developing abilities to produce examples, following and devising simple proofs, and current applications of graph theory. Topics include: Graph Types; Matching in Graphs; Menger's Theorem; Kuratowski's Theorem.

Prerequisite: MATH 2B and (MATH 3A or MATH 6G) and (MATH 13 or (I&C SCI 6B and I&C SCI 6D)). MATH 13 with a grade of C- or better.

MATH 175. Combinatorics . 4 Units.
Introduction to combinatorics including basic counting principles, permutations, combinations, binomial coefficients, inclusion-exclusion, derangements, ordinary and exponential generating functions, recurrence relations, Catalan numbers, Stirling numbers, and partition numbers. Course may be offered online.

Prerequisite: MATH 2B and MATH 13. MATH 13 with a grade of C- or better.

MATH 176. Mathematics of Finance. 4 Units.
After reviewing tools from probability, statistics, and elementary differential and partial differential equations, concepts such as hedging, arbitrage, Puts, Calls, the design of portfolios, the derivation and solution of the Blac-Scholes, and other equations are discussed.

Prerequisite: MATH 3A.

Same as ECON 135.

Restriction: Mathematics, Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

MATH 180A. Number Theory. 4 Units.
Introduction to number theory and applications. Divisibility, prime numbers, factorization. Arithmetic functions. Congruences. Quadratic residue. Diophantine equations. Introduction to cryptography.

Prerequisite: MATH 3A and MATH 13. MATH 13 with a grade of C- or better.

Restriction: Math majors have first consideration for enrollment.

MATH 180B. Number Theory. 4 Units.
Introduction to number theory and applications. Analytic number theory, character sums, finite fields, discrete logarithm, computational complexity. Introduction to coding theory. Other topics as time permits.

Prerequisite: MATH 180A.

Restriction: Mathematics majors have first consideration for enrollment.

MATH 184. History of Mathematics. 4 Units.
Topics vary from year to year. Some possible topics: mathematics in ancient times; the development of modern analysis; the evolution of geometric ideas. Students will be assigned individual topics for term papers.

Prerequisite: MATH 120A and MATH 140A.

Restriction: Math majors have first consideration for enrollment.

MATH 184L. History of Mathematics Lesson Lab. 1 Unit.
Aspiring math teachers research, design, present, and peer review middle school or high school math lessons that draw from history of mathematics topics.

Corequisite: MATH 184.
Prerequisite: PHY SCI 5.

MATH 189. Special Topics in Mathematics. 4 Units.
Offered from time to time, but not on a regular basis. Content and prerequisites vary with the instructor.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

MATH 191. Mathematical Modeling Seminar. 2 Units.
Developing, testing, and presenting mathematical models for real world problems. Students will prepare for and participate in the Mathematical Contest in Modeling (MCM) in late February. Separate contest registration fee required.

Prerequisite: MATH 3D.

Repeatability: May be taken for credit 2 times.

MATH 192. Studies in the Learning and Teaching of Secondary Mathematics. 2 Units.
Focus is on historic and current mathematical concepts related to student learning and effective math pedagogy, with fieldwork in grades 6-14.

Prerequisite: MATH 2D and MATH 2J and MATH 3D and (MATH 13 or MATH 120A or MATH 140A).

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Upper-division students only. Math majors with specialization in Mathematics for Education only.

MATH 193. SMPP Capstone. 2 Units.
Capstone course for the Mathematics Subject-Matter Preparation (SMP) program. Engages students in reviewing and conducting current research on significant issues related to the teaching and learning of mathematics in the secondary classroom.

Corequisite: Recommended: MATH 192.

Repeatability: May be taken for credit 2 times.

MATH 194. Problem Solving Seminar. 2 Units.
Develops ability in analytical thinking and problem solving, using problems of the type found in the Mathematics Olympiad and the Putnam Mathematical Competition. Students taking the course in fall will prepare for and take the Putnam examination in December.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

MATH H195A. Honors Seminar. 4 Units.
Topics vary from year to year. Provides an integrative experience, including problem-solving and oral and written presentations. Required for the Honors Program in Mathematics and open to others with consent of instructor.

Restriction: Mathematics Honors Program students only.

MATH H195B. Honors Seminar. 4 Units.
Topics vary from year to year. Provides an integrative experience, including problem-solving and oral and written presentations. Required for the Honors Program in Mathematics and open to others with consent of instructor.

Restriction: Mathematics Honors Program students only.

MATH 199A. Special Studies in Mathematics. 2-4 Units.
Supervised reading. For outstanding undergraduate Mathematics majors in supervised but independent reading or research of mathematical topics.

Repeatability: Unlimited as topics vary.

MATH 199B. Special Studies in Mathematics. 2-4 Units.
Supervised reading. For outstanding undergraduate Mathematics majors in supervised but independent reading or research of mathematical topics.

Repeatability: Unlimited as topics vary.

MATH 199C. Special Studies in Mathematics. 2-4 Units.
Supervised reading. For outstanding undergraduate Mathematics majors in supervised but independent reading or research of mathematical topics.

Repeatability: Unlimited as topics vary.

MATH 205A. Introduction to Graduate Analysis. 5 Units.
Construction of the real number system, topology of the real line, concepts of continuity, differential and integral calculus, sequences and series of functions, equicontinuity, metric spaces, multivariable differential and integral calculus, implicit functions, curves and surfaces.

Prerequisite: MATH 2E and MATH 3A and MATH 13.

MATH 205B. Introduction to Graduate Analysis. 5 Units.
Construction of the real number system, topology of the real line, concepts of continuity, differential and integral calculus, sequences and series of functions, equicontinuity, metric spaces, multivariable differential and integral calculus, implicit functions, curves and surfaces.

Prerequisite: MATH 205A.

MATH 205C. Introduction to Graduate Analysis. 5 Units.
Construction of the real number system, topology of the real line, concepts of continuity, differential and integral calculus, sequences and series of functions, equicontinuity, metric spaces, multivariable differential and integral calculus, implicit functions, curves and surfaces.

Prerequisite: MATH 205B.

MATH 206A. Introduction to Graduate Algebra. 5 Units.
Introduction to abstract linear algebra, including bases, linear transformation, eigenvectors, canonical forms, inner products, symmetric operators. Introduction to groups, rings, and fields including examples of groups, group actions, Sylow theorems, modules over principal ideal domains, polynomials and Galois groups.

Prerequisite: MATH 3A.

MATH 206B. Introduction to Graduate Algebra. 5 Units.
Introduction to abstract linear algebra, including bases, linear transformation, eigenvectors, canonical forms, inner products, symmetric operators. Introduction to groups, rings, and fields including examples of groups, group actions, Sylow theorems, modules over principal ideal domains, polynomials and Galois groups.

Prerequisite: MATH 206A.

MATH 206C. Introduction to Graduate Algebra. 5 Units.
Introduction to abstract linear algebra, including bases, linear transformation, eigenvectors, canonical forms, inner products, symmetric operators. Introduction to groups, rings, and fields including examples of groups, group actions, Sylow theorems, modules over principal ideal domains, polynomials and Galois groups.

Prerequisite: MATH 206B.

MATH 210A. Real Analysis. 4 Units.
Measure theory, Lebesgue integral, signed measures, Radon-Nikodym theorem, functions of bounded variation and absolutely continuous functions, classical Banach spaces, Lp spaces, integration on locally compact spaces and the Riesz-Markov theorem, measure and outer measure, product measure spaces.

Prerequisite: MATH 140C.

MATH 210B. Real Analysis. 4 Units.
Measure theory, Lebesgue integral, signed measures, Radon-Nikodym theorem, functions of bounded variation and absolutely continuous functions, classical Banach spaces, Lp spaces, integration on locally compact spaces and the Riesz-Markov theorem, measure and outer measure, product measure spaces.

Prerequisite: MATH 210A.

MATH 210C. Real Analysis. 4 Units.
Measure theory, Lebesgue integral, signed measures, Radon-Nikodym theorem, functions of bounded variation and absolutely continuous functions, classical Banach spaces, Lp spaces, integration on locally compact spaces and the Riesz-Markov theorem, measure and outer measure, product measure spaces.

Prerequisite: MATH 210B.

MATH 211A. Topics in Analysis . 4 Units.
Studies in selected areas of Real Analysis, a continuation of MATH 210A-MATH 210B-MATH 210C. Topics addressed vary each quarter.

Prerequisite: MATH 210C.

MATH 211B. Topics in Analysis . 4 Units.
Studies in selected areas of Real Analysis, a continuation of MATH 210A-MATH 210B-MATH 210C. Topics addressed vary each quarter.

Prerequisite: MATH 211A.

MATH 211C. Topics in Analysis . 4 Units.
Studies in selected areas of Real Analysis, a continuation of MATH 210A-MATH 210B-MATH 210C. Topics addressed vary each quarter.

Prerequisite: MATH 211B.

MATH 218A. Introduction to Manifolds and Geometry. 4 Units.
General topology and fundamental groups, covering space; Stokes theorem on manifolds, selected topics on abstract manifold theory.

Prerequisite: MATH 205C.

MATH 218B. Introduction to Manifolds and Geometry. 4 Units.
General topology and fundamental groups, covering space; Stokes theorem on manifolds, selected topics on abstract manifold theory.

Prerequisite: MATH 218A.

MATH 218C. Introduction to Manifolds and Geometry. 4 Units.
General topology and fundamental groups, covering space; Stokes theorem on manifolds, selected topics on abstract manifold theory.

Prerequisite: MATH 218B.

MATH 220A. Analytic Function Theory. 4 Units.
Standard theorems about analytic functions. Harmonic functions. Normal families. Conformal mapping.

Prerequisite: MATH 140C.

MATH 220B. Analytic Function Theory. 4 Units.
Standard theorems about analytic functions. Harmonic functions. Normal families. Conformal mapping.

Prerequisite: MATH 220A.

MATH 220C. Analytic Function Theory. 4 Units.
Standard theorems about analytic functions. Harmonic functions. Normal families. Conformal mapping.

Prerequisite: MATH 220B.

MATH 222A. Several Complex Variables and Complex Geometry. 4 Units.
Several Complex variables, d-bar problems, mappings, Kaehler geometry, de Rham and Dolbeault Theorems, Chern Classes, Hodge Theorems, Calabi conjecture, Kahler-Einstein geometry, Monge-Ampere.

Prerequisite: MATH 218C and MATH 220C.

MATH 222B. Several Complex Variables and Complex Geometry. 4 Units.
Several Complex variables, d-bar problems, mappings, Kaehler geometry, Le Rham and Dolbeault Theorems, Chern Classes, Hodge Theorems, Calabi conjecture, Kahler-Einstein geometry, Monge-Ampere.

Prerequisite: MATH 222A.

MATH 222C. Several Complex Variables and Complex Geometry. 4 Units.
Several Complex variables, d-bar problems, mappings, Kaehler geometry, Le Rham and Dolbeault Theorems, Chern Classes, Hodge Theorems, Calabi conjecture, Kahler-Einstein geometry, Monge-Ampere.

Prerequisite: MATH 222B.

MATH 225A. Introduction to Numerical Analysis and Scientific Computing. 4 Units.
Introduction to fundamentals of numerical analysis from an advanced viewpoint. Error analysis, approximation of functions, nonlinear equations.

Prerequisite: MATH 3D and ((MATH 105A and MATH 105B) or (MATH 140A and MATH 140B)) and MATH 121A and (MATH 112A or ENGRMAE 140).

Restriction: Graduate students only.

MATH 225B. Introduction to Numerical Analysis and Scientific Computing. 4 Units.
Introduction to fundamentals of numerical analysis from an advanced viewpoint. Numerical linear algebra, numerical solutions of differential equations; stability.

Prerequisite: MATH 225A.

Restriction: Graduate students only.

MATH 225C. Introduction to Numerical Analysis and Scientific Computing. 4 Units.
Introduction to fundamentals of numerical analysis from an advanced viewpoint. Numerical linear algebra, numerical solutions of differential equations; stability.

Prerequisite: MATH 225B.

Restriction: Graduate students only.

MATH 226A. Computational Differential Equations. 4 Units.
Finite difference and finite element methods. Quick treatment of functional and nonlinear analysis background: weak solution, Lp spaces, Sobolev spaces. Approximation theory. Fourier and Petrov-Galerkin methods; mesh generation. Elliptic, parabolic, hyperbolic cases in 226A-B-C, respectively.

Prerequisite: MATH 3D and (MATH 112A or ENGRMAE 140) and (MATH 140B or MATH 105B).

MATH 226B. Computational Differential Equations. 4 Units.
Finite difference and finite element methods. Quick treatment of functional and nonlinear analysis background: weak solution, Lp spaces, Sobolev spaces. Approximation theory. Fourier and Petrov-Galerkin methods; mesh generation. Elliptic, parabolic, hyperbolic cases in 226A-B-C, respectively.

Prerequisite: MATH 226A.

MATH 226C. Computational Differential Equations. 4 Units.
Finite difference and finite element methods. Quick treatment of functional and nonlinear analysis background: weak solution, Lp spaces, Sobolev spaces. Approximation theory. Fourier and Petrov-Galerkin methods; mesh generation. Elliptic, parabolic, hyperbolic cases in 226A-B-C, respectively.

Prerequisite: MATH 226B.

MATH 227A. Mathematical and Computational Biology. 4 Units.
Analytical and numerical methods for dynamical systems, temporal-spatial dynamics, steady state, stability, stochasticity. Application to life sciences: genetics, tissue growth and patterning, cancers, ion channels gating, signaling networks, morphogen gradients. Analytical methods.

Prerequisite: MATH 2A and MATH 2B and MATH 3A.

MATH 227B. Mathematical and Computational Biology. 4 Units.
Analytical and numerical methods for dynamical systems, temporal-spatial dynamics, steady state, stability, stochasticity. Application to life sciences: genetics, tissue growth and patterning, cancers, ion channels gating, signaling networks, morphogen gradients. Numerical simulations.

Prerequisite: MATH 227A.

MATH 227C. Mathematical and Computational Biology . 4 Units.
Analytical and numerical methods for dynamical systems, temporal-spatial dynamics, steady state, stability, stochasticity. Application to life sciences: genetics, tissue growth and patterning, cancers, ion channels gating, signaling networks, morphogen gradients. Probabilistic methods.

Prerequisite: MATH 227A.

Same as COMPSCI 285.

MATH 230A. Algebra. 4 Units.
Elements of the theories of groups, rings, fields, modules. Galois theory. Modules over principal ideal domains. Artinian, Noetherian, and semisimple rings and modules.

Prerequisite: MATH 120A and MATH 121A and MATH 121B.

MATH 230B. Algebra. 4 Units.
Elements of the theories of groups, rings, fields, modules. Galois theory. Modules over principal ideal domains. Artinian, Noetherian, and semisimple rings and modules.

Prerequisite: MATH 230A.

MATH 230C. Algebra. 4 Units.
Elements of the theories of groups, rings, fields, modules. Galois theory. Modules over principal ideal domains. Artinian, Noetherian, and semisimple rings and modules.

Prerequisite: MATH 230B.

MATH 232A. Algebraic Number Theory. 4 Units.
Algebraic integers, prime ideals, class groups, Dirichlet unit theorem, localization, completion, Cebotarev density theorem, L-functions, Gauss sums, diophantine equations, zeta functions over finite fields. Introduction to class field theory.

Prerequisite: MATH 230C.

MATH 232B. Algebraic Number Theory. 4 Units.
Algebraic integers, prime ideals, class groups, Dirichlet unit theorem, localization, completion, Cebotarev density theorem, L-functions, Gauss sums, diophantine equations, zeta functions over finite fields. Introduction to class field theory.

Prerequisite: MATH 232A.

MATH 232C. Algebraic Number Theory. 4 Units.
Algebraic integers, prime ideals, class groups, Dirichlet unit theorem, localization, completion, Cebotarev density theorem, L-functions, Gauss sums, diophantine equations, zeta functions over finite fields. Introduction to class field theory.

Prerequisite: MATH 232B.

MATH 233A. Algebraic Geometry. 4 Units.
Basic commutative algebra and classical algebraic geometry. Algebraic varieties, morphisms, rational maps, blow ups. Theory of schemes, sheaves, divisors, cohomology. Algebraic curves and surfaces, Riemann-Roch theorem, Jocobian classification of curves and surfaces.

Prerequisite: MATH 230C.

MATH 233B. Algebraic Geometry. 4 Units.
Basic commutative algebra and classical algebraic geometry. Algebraic varieties, morphisms, rational maps, blow ups. Theory of schemes, sheaves, divisors, cohomology. Algebraic curves and surfaces, Riemann-Roch theorem, Jocobian classification of curves and surfaces.

Prerequisite: MATH 233A.

MATH 233C. Algebraic Geometry. 4 Units.
Basic commutative algebra and classical algebraic geometry. Algebraic varieties, morphisms, rational maps, blow ups. Theory of schemes, sheaves, divisors, cohomology. Algebraic curves and surfaces, Riemann-Roch theorem, Jocobian classification of curves and surfaces.

Prerequisite: MATH 233B.

MATH 234B. Topics in Algebra. 4 Units.
Group theory, homological algebra, and other selected topics.

Prerequisite: MATH 230C.

Repeatability: May be repeated for credit unlimited times.

MATH 234C. Topics in Algebra. 4 Units.
Group theory, homological algebra, and other selected topics.

Prerequisite: MATH 234B.

Repeatability: May be repeated for credit unlimited times.

MATH 235A. Mathematics of Cryptography. 4 Units.
Mathematics of public key cryptography: encryption and signature schemes; RSA; factoring; primality testing; discrete log based cryptosystems, elliptic and hyperelliptic curve cryptography and additional topics as determined by the instructor.

Prerequisite: MATH 230C.

MATH 235B. Mathematics of Cryptography. 4 Units.
Mathematics of public key cryptography: encryption and signature schemes; RSA; factoring; primality testing; discrete log based cryptosystems, elliptic and hyperelliptic curve cryptography and additional topics as determined by the instructor.

Prerequisite: MATH 235A.

MATH 235C. Mathematics of Cryptography. 4 Units.
Mathematics of public key cryptography: encryption and signature schemes; RSA; factoring; primality testing; discrete log based cryptosystems, elliptic and hyperelliptic curve cryptography and additional topics as determined by the instructor.

Prerequisite: MATH 235B.

MATH 239A. Analytic Methods in Arithmetic Geometry. 4 Units.
Riemann zeta function, Dirichlet L-functions, prime number theorem, zeta functions over finite fields, sieve methods, zeta functions of algebraic curves, algebraic coding theory, L-Functions over number fields, L-functions of modular forms, Eisenstein series.

Prerequisite: MATH 220C and MATH 230C.

MATH 239B. Analytic Methods in Arithmetic Geometry. 4 Units.
Riemann zeta function, Dirichlet L-functions, prime number theorem, zeta functions over finite fields, sieve methods, zeta functions of algebraic curves, algebraic coding theory, L-Functions over number fields, L-functions of modular forms, Eisenstein series.

Prerequisite: MATH 239A.

MATH 239C. Analytic Methods in Arithmetic Geometry. 4 Units.
Riemann zeta function, Dirichlet L-functions, prime number theorem, zeta functions over finite fields, sieve methods, zeta functions of algebraic curves, algebraic coding theory, L-Functions over number fields, L-functions of modular forms, Eisenstein series.

Prerequisite: MATH 239B.

MATH 240A. Differential Geometry. 4 Units.
Riemannian manifolds, connections, curvature and torsion. Submanifolds, mean curvature, Gauss curvature equation. Geodesics, minimal submanifolds, first and second fundamental forms, variational formulas. Comparison theorems and their geometric applications. Hodge theory applications to geometry and topology.

MATH 240B. Differential Geometry. 4 Units.
Riemannian manifolds, connections, curvature and torsion. Submanifolds, mean curvature, Gauss curvature equation. Geodesics, minimal submanifolds, first and second fundamental forms, variational formulas. Comparison theorems and their geometric applications. Hodge theory applications to geometry and topology.

Prerequisite: MATH 240A.

MATH 240C. Differential Geometry. 4 Units.
Riemannian manifolds, connections, curvature and torsion. Submanifolds, mean curvature, Gauss curvature equation. Geodesics, minimal submanifolds, first and second fundamental forms, variational formulas. Comparison theorems and their geometric applications. Hodge theory applications to geometry and topology.

Prerequisite: MATH 240B.

MATH 245A. Topics in Differential Geometry. 4 Units.
Studies in selected areas of differential geometry, a continuation of MATH 240A-MATH 240B-MATH 240C. Topics addressed vary each quarter.

Prerequisite: MATH 240C.

Repeatability: Unlimited as topics vary.

MATH 245B. Topics in Differential Geometry. 4 Units.
Studies in selected areas of differential geometry, a continuation of MATH 240A-MATH 240B-MATH 240C. Topics addressed vary each quarter.

Prerequisite: MATH 245A.

Repeatability: Unlimited as topics vary.

MATH 245C. Topics in Differential Geometry. 4 Units.
Studies in selected areas of differential geometry, a continuation of MATH 240A-MATH 240B-MATH 240C. Topics addressed vary each quarter.

Prerequisite: MATH 245B.

Repeatability: Unlimited as topics vary.

MATH 250A. Algebraic Topology. 4 Units.
Provides fundamental materials in algebraic topology: fundamental group and covering space, homology and cohomology theory, and homotopy group.

Prerequisite: MATH 230A.

MATH 250B. Algebraic Topology. 4 Units.
Provides fundamental materials in algebraic topology: fundamental group and covering space, homology and cohomology theory, and homotopy group.

Prerequisite: MATH 250A.

MATH 250C. Algebraic Topology. 4 Units.
Provides fundamental materials in algebraic topology: fundamental group and covering space, homology and cohomology theory, and homotopy group.

Prerequisite: MATH 250B.

MATH 260A. Functional Analysis. 4 Units.
Normed linear spaces, Hilbert spaces, Banach spaces, Stone-Weierstrass Theorem, locally convex spaces, bounded operators on Banach and Hilbert spaces, the Gelfand-Neumark Theorem for commutative C*-algebras, the spectral theorem for bounded self-adjoint operators, unbounded operators on Hilbert spaces.

Prerequisite: MATH 210C and MATH 220C.

MATH 260B. Functional Analysis. 4 Units.
Normed linear spaces, Hilbert spaces, Banach spaces, Stone-Weierstrass Theorem, locally convex spaces, bounded operators on Banach and Hilbert spaces, the Gelfand-Neumark Theorem for commutative C*-algebras, the spectral theorem for bounded self-adjoint operators, unbounded operators on Hilbert spaces.

Prerequisite: MATH 260A.

MATH 260C. Functional Analysis. 4 Units.
Normed linear spaces, Hilbert spaces, Banach spaces, Stone-Weierstrass Theorem, locally convex spaces, bounded operators on Banach and Hilbert spaces, the Gelfand-Neumark Theorem for commutative C*-algebras, the spectral theorem for bounded self-adjoint operators, unbounded operators on Hilbert spaces.

Prerequisite: MATH 260B.

MATH 270A. Probability. 4 Units.
Probability spaces, distribution and characteristic functions. Strong limit theorems. Limit distributions for sums of independent random variables. Conditional expectation and martingale theory. Stochastic processes.

Prerequisite: MATH 130C and MATH 210C.

MATH 270B. Probability. 4 Units.
Probability spaces, distribution and characteristic functions. Strong limit theorems. Limit distributions for sums of independent random variables. Conditional expectation and martingale theory. Stochastic processes.

Prerequisite: MATH 270A.

MATH 270C. Probability. 4 Units.
Probability spaces, distribution and characteristic functions. Strong limit theorems. Limit distributions for sums of independent random variables. Conditional expectation and martingale theory. Stochastic processes.

Prerequisite: MATH 270B.

MATH 271A. Stochastic Processes. 4 Units.
Processes with independent increments, Wiener and Gaussian processes, function space integrals, stationary processes, Markov processes.

Prerequisite: MATH 210C.

Overlaps with STATS 270.

MATH 271B. Stochastic Processes. 4 Units.
Processes with independent increments, Wiener and Gaussian processes, function space integrals, stationary processes, Markov processes.

Prerequisite: MATH 271A.

Overlaps with STATS 270.

MATH 271C. Stochastic Processes. 4 Units.
Processes with independent increments, Wiener and Gaussian processes, function space integrals, stationary processes, Markov processes.

Prerequisite: MATH 271B.

Overlaps with STATS 270.

MATH 272A. Probability Models. 4 Units.
Spin systems, Ising models, contact process, exclusion process, percolation, increasing events, critical probabilities, sub- and super-critical phases, scaling theory, oriented percolation, concentration of measure, Gaussian fields, Borell's inequality, chaining, entropy.

Prerequisite: MATH 271C.

MATH 272B. Probability Models. 4 Units.
Spin systems, Ising models, contact process, exclusion process, percolation, increasing events, critical probabilities, sub- and super-critical phases, scaling theory, oriented percolation, concentration of measure, Gaussian fields, Borell's inequality, chaining, entropy.

Prerequisite: MATH 272A.

MATH 272C. Probability Models. 4 Units.
Spin systems, Ising models, contact process, exclusion process, percolation, increasing events, critical probabilities, sub- and super-critical phases, scaling theory, oriented percolation, concentration of measure, Gaussian fields, Borell's inequality, chaining, entropy.

Prerequisite: MATH 272B.

MATH 274. Topics in Probability. 4 Units.
Selected topics, such as theory of stochastic processes, martingale theory, stochastic integrals, stochastic differential equations.

Prerequisite: MATH 270C.

Repeatability: Unlimited as topics vary.

MATH 277A. Topics in Mathematical Physics . 4 Units.
Studies in selected areas of mathematical physics. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

MATH 277B. Topics in Mathematical Physics . 4 Units.
Studies in selected areas of mathematical physics. Topics addressed vary each quarter.

Prerequisite: MATH 277A.

Repeatability: May be repeated for credit unlimited times.

MATH 277C. Topics in Mathematical Physics . 4 Units.
Studies in selected areas of mathematical physics. Topics addressed vary each quarter.

Prerequisite: MATH 277B.

Repeatability: May be repeated for credit unlimited times.

MATH 280A. Mathematical Logic. 4 Units.
Basic set theory; models, compactness, and completeness; basic model theory; Incompleteness and Gödel's Theorems; basic recursion theory; constructible sets.

MATH 280B. Mathematical Logic. 4 Units.
Basic set theory; models, compactness, and completeness; basic model theory; Incompleteness and Gödel's Theorems; basic recursion theory; constructible sets.

Prerequisite: MATH 280A.

MATH 280C. Mathematical Logic. 4 Units.
Basic set theory; models, compactness, and completeness; basic model theory; Incompleteness and Gödel's Theorems; basic recursion theory; constructible sets.

Prerequisite: MATH 280B.

MATH 281A. Set Theory. 4 Units.
Ordinals, cardinals, cardinal arithmetic, combinatorial set theory, models of set theory, Gödel's constructible universe, forcing, large cardinals, iterate forcing, inner model theory, fine structure.

Prerequisite: MATH 280C.

MATH 281B. Set Theory. 4 Units.
Ordinals, cardinals, cardinal arithmetic, combinatorial set theory, models of set theory, Gödel's constructible universe, forcing, large cardinals, iterate forcing, inner model theory, fine structure.

Prerequisite: MATH 281A.

MATH 281C. Set Theory. 4 Units.
Ordinals, cardinals, cardinal arithmetic, combinatorial set theory, models of set theory, Gödel's constructible universe, forcing, large cardinals, iterate forcing, inner model theory, fine structure.

Prerequisite: MATH 281B.

MATH 282A. Model Theory. 4 Units.
Languages, structures, compactness and completeness. Model-theoretic constructions. Omitting types theorems. Morley's theorem. Ranks, forking. Model completeness. O-minimality. Applications to algebra.

Prerequisite: MATH 280C.

MATH 282B. Model Theory. 4 Units.
Languages, structures, compactness and completeness. Model-theoretic constructions. Omitting types theorems. Morley's theorem. Ranks, forking. Model completeness. O-minimality. Applications to algebra.

Prerequisite: MATH 282A.

MATH 282C. Model Theory. 4 Units.
Languages, structures, compactness and completeness. Model-theoretic constructions. Omitting types theorems. Morley's theorem. Ranks, forking. Model completeness. O-minimality. Applications to algebra.

Prerequisite: MATH 282B.

MATH 285A. Topics in Mathematical Logic. 4 Units.
Studies in selected areas of mathematical logic, a continuation of MATH 280A-MATH 280B-MATH 280C. Topics addressed vary each quarter.

Prerequisite: MATH 280C.

Repeatability: Unlimited as topics vary.

MATH 285B. Topics in Mathematical Logic. 4 Units.
Studies in selected areas of mathematical logic, a continuation of MATH 280A-MATH 280B-MATH 280C. Topics addressed vary each quarter.

Prerequisite: MATH 285A.

Repeatability: Unlimited as topics vary.

MATH 285C. Topics in Mathematical Logic. 4 Units.
Studies in selected areas of mathematical logic, a continuation of MATH 280A-MATH 280B-MATH 280C. Topics addressed vary each quarter.

Prerequisite: MATH 285B.

Repeatability: Unlimited as topics vary.

MATH 290A. Methods in Applied Mathematics. 4 Units.
Introduction to ODEs and dynamical systems: existence and uniqueness. Equilibria and periodic solutions. Bifurcation theory. Perturbation methods: approximate solution of differential equations. Multiple scales and WKB. Matched asymptotic. Calculus of variations: direct methods, Euler-Lagrange equation. Second variation and Legendre condition.

MATH 290B. Methods in Applied Mathematics. 4 Units.
Introduction to ODEs and dynamical systems: existence and uniqueness. Equilibria and periodic solutions. Bifurcation theory. Perturbation methods: approximate solution of differential equations. Multiple scales and WKB. Matched asymptotic. Calculus of variations: direct methods, Euler-Lagrange equation. Second variation and Legendre condition.

Prerequisite: MATH 290A.

MATH 290C. Methods in Applied Mathematics. 4 Units.
Introduction to ODEs and dynamical systems: existence and uniqueness. Equilibria and periodic solutions. Bifurcation theory. Perturbation methods: approximate solution of differential equations. Multiple scales and WKB. Matched asymptotic. Calculus of variations: direct methods, Euler-Lagrange equation. Second variation and Legendre condition.

Prerequisite: MATH 290B.

MATH 291C. Topics in Applied and Computational Math. 4 Units.
Studies in selected areas of applied and computational mathematics. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

MATH 295A. Partial Differential Equations. 4 Units.
Theory and techniques for linear and nonlinear partial differential equations. Local and global theory of partial differential equations: analytic, geometric, and functional analytic methods.

Prerequisite: MATH 210C and MATH 112B and MATH 112C.

MATH 295B. Partial Differential Equations. 4 Units.
Theory and techniques for linear and nonlinear partial differential equations. Local and global theory of partial differential equations: analytic, geometric, and functional analytic methods.

Prerequisite: MATH 295A.

MATH 295C. Partial Differential Equations. 4 Units.
Theory and techniques for linear and nonlinear partial differential equations. Local and global theory of partial differential equations: analytic, geometric, and functional analytic methods.

Prerequisite: MATH 295B.

MATH 296. Topics in Partial Differential Equations. 4 Units.
Studies in selected areas of partial differential equations, a continuation of MATH 295A-MATH 295B-MATH 295C. Topics addressed vary each quarter.

Prerequisite: MATH 295C.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

MATH 297. Mathematics Colloquium. 1 Unit.
Weekly colloquia on topics of current interest in mathematics.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

MATH 298A. Seminar . 1-3 Units.
Seminars organized for detailed discussion of research problems of current interest in the Department. The format, content, frequency, and course value are variable.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

MATH 298B. Seminar . 2 Units.
Seminars organized for detailed discussion of research problems of current interest in the Department. The format, content, frequency, and course value are variable.

Prerequisite: MATH 298A.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

MATH 298C. Seminar . 2 Units.
Seminars organized for detailed discussion of research problems of current interest in the Department. The format, content, frequency, and course value are variable.

Prerequisite: MATH 298B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: Unlimited as topics vary.

MATH 299A. Supervised Reading and Research. 1-12 Units.
Supervised reading and research with Mathematics faculty.

Repeatability: May be repeated for credit unlimited times.

MATH 299B. Supervised Reading and Research. 1-12 Units.
Supervised reading and research with Mathematics faculty.

Prerequisite: MATH 299A.

Repeatability: May be repeated for credit unlimited times.

MATH 299C. Supervised Reading and Research. 1-12 Units.
Supervised reading and research with Mathematics faculty.

Prerequisite: MATH 299B.

Repeatability: May be repeated for credit unlimited times.

MATH 399. University Teaching. 1-4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Department of Physics and Astronomy

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http://www.physics.uci.edu/
Peter Taborek, **Department Chair**

Physics is that branch of science concerned with the study of natural phenomena at the fundamental level. Physicists study the smallest particles of matter (quarks and leptons), nuclei, and atoms; the fundamental forces; the properties of solids, liquids, gases, and plasmas; the behavior of matter on the grand scale in stars and galaxies; and even the origin and fate of the universe. Other disciplines such as chemistry, biology, medicine, and engineering often build upon the foundations laid by physics.

The Department of Physics and Astronomy offers courses for students of various interests, from those in the humanities and social sciences, to those in biological sciences, and to those in physics, engineering, and other sciences. Faculty members are conducting active research in several forefront areas of physical research, and there is student access to specialized research areas such as astrophysics, cosmology, elementary particle, plasma, condensed matter, biological, and medical physics at both advanced and undergraduate course levels. The Department offers several interdisciplinary concentrations and tracks which include courses taught by faculty in Biological Sciences, Chemistry, Engineering, and Medicine. The faculty is vigorous, innovative, and engaged in a wide variety of research, education, and university and public service activities. The Department encourages student-faculty interaction.

Undergraduate Program

The goal of the undergraduate major in Physics is to develop expert problem solvers with a broad understanding of physical principles. The program is flexible and prepares students for careers in industrial research, applications programming, education, law, or business, as well as for graduate study in astronomy, biomedical physics, engineering, or physics. Annual mandatory meetings with faculty advisors assist students in selecting a program that matches their aptitudes and interests. In addition to the core Physics courses, students complete either a standard track (such as the track for future Ph.D. physicists), or one of the formal concentrations or specializations (in Applied Physics, Biomedical Physics, Computational Physics, Philosophy of Physics, Physics Education, or Astrophysics). In addition, Physics majors may find the minor in Earth and Atmospheric Sciences, offered by the Department of Earth System Science, to be of interest.

The three lower-division sequences in physics are distinguished by their intended audience, their mathematical prerequisites, and the extent to which they offer preparation for more advanced courses. These aspects of the beginning courses are summarized as follows:

Physics 3: *Intended audience:* Premedical students, Biological Sciences majors. *Prerequisites:* concurrent enrollment in MATH 2A. *Preparation for advanced courses:* PHYSICS 7D with permission.

Physics 7: *Intended audience:* Physical Sciences and Engineering majors. *Prerequisite:* concurrent enrollment in Mathematics 2. *Preparation for advanced courses:* PHYSICS 51A.

Physics 12-21: *Intended audience:* Nonscience majors. *Prerequisites:* none. *Preparation for advanced courses:* none.

Admission to the Major

Students may be admitted to the Physics major upon entering the University as freshmen, via change of major, or as transfer students from other colleges and universities. Information about change of major policies is available in the Physical Sciences Student Affairs Office and at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website. For transfer student admission, preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following required courses: one year of approved calculus and one year of calculus-based physics with laboratory for engineering and physics majors.

Requirements for the B.S. Degree in Physics

All students must meet the University Requirements (p. 71)**.**

School Requirements: None.

Departmental Requirements

MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 2D- 2E	Multivariable Calculus and Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
PHYSICS 7C- 7D- 7E	Classical Physics and Classical Physics and Classical Physics
PHYSICS 7LC- 7LD	Classical Physics Laboratory and Classical Physics Laboratory
PHYSICS 50	Mathematical Methods for Physical Science
PHYSICS 52A- 52B- 52C	Fundamentals of Experimental Physics and Fundamentals of Experimental Physics and Fundamentals of Experimental Physics
PHYSICS 53	Introduction to C and Numerical Analysis (or another programming course)
PHYSICS 60	Thermal Physics
PHYSICS 61A- 61B	Modern Physics for Majors and Modern Physics for Majors [1]
PHYSICS 111A- 111B	Classical Mechanics and Classical Mechanics
PHYSICS 112A- 112B	Electromagnetic Theory and Electromagnetic Theory
PHYSICS 113A	Quantum Physics
PHYSICS 115A	Statistical Physics
PHYSICS 121W	Advanced Laboratory

PHYSICS 125A	Mathematical Physics
PHYSICS 194	Research Communication for Physics Majors

And select five additional coherently related four-unit courses. (This requirement is normally satisfied by concentrations, specializations, and tracks, as listed below.)

[1] For students transferring into the major after taking PHYSICS 51A-PHYSICS 51B, PHYSICS 51A-PHYSICS 51B will be accepted in place of PHYSICS 61A-PHYSICS 61B.

Upper-Division Writing Requirement: Physics majors are required to satisfy the upper-division writing requirement by completing PHYSICS 194 with a grade of C or better, followed by PHYSICS 121W with a grade of C or better.

Concentration in Applied Physics

Requirements:

The six additional coherently related courses required for the major must be in engineering and be approved by the Department of Physics and Astronomy.

Concentration in Biomedical Physics

Requirements:

BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
CHEM 1LC- 1LD	General Chemistry Laboratory and General Chemistry Laboratory
Select one of the following:	
CHEM 51A- 51B	Organic Chemistry and Organic Chemistry
or	
CHEM H52A- H52B	Honors Organic Chemistry and Honors Organic Chemistry

Concentration in Computational Physics

Requirements:

Three courses in computer science:	
I&C SCI 31	Introduction to Programming
I&C SCI 32	Programming with Software Libraries
I&C SCI 33	Intermediate Programming
Two courses in numerical analysis plus the accompanying laboratories:	
MATH 105A- 105B	Numerical Analysis and Numerical Analysis
MATH 105LA- 105LB	Numerical Analysis Laboratory and Numerical Analysis Laboratory
One advanced computational course and accompanying laboratory:	
MATH 107- 107L	Numerical Differential Equations and Numerical Differential Equations Laboratory

Concentration in Philosophy of Physics

Requirements:

Select one course from the following:	
MATH 150	Introduction to Mathematical Logic
MATH 151	Set Theory
MATH 152	Computability
PHILOS/LPS 30	Introduction to Symbolic Logic
PHILOS/LPS 104	Introduction to Logic

PHILOS 105A- 105B- 105C	Elementary Set Theory and Metalogic and Undecidability and Incompleteness (or LPS 105A-105B-105C)
Complete:	
PHILOS/LPS 31	Introduction to Inductive Logic
PHILOS/LPS 140	Topics in Philosophy of Science
Select one of the following:	
HISTORY 60	The Making of Modern Science
HISTORY 135B	Crossing the World's Oceans: From Sail to Steam
or an approved alternative elective	
Complete:	
PHYSICS 113B	Quantum Physics
Select three of the following:	
PHILOS/LPS 102	Introduction to the Theory of Knowledge
PHILOS/LPS 121	Topics in the Theory of Knowledge
PHILOS/LPS 141A	Topics in Philosophy of Physics
PHILOS/LPS 141B	Geometry and Spacetime
PHILOS/LPS 141C	Philosophy of Quantum Mechanics
PHILOS/LPS 141D	Probability and Determinism

Concentration in Physics Education

Requirements:

EDUC 55	Knowing and Learning in Mathematics and Science
PHY SCI 5	California Teach 1: Introduction to Science and Mathematics Teaching
PHY SCI 105	California Teach 2: Middle School Science and Mathematics Teaching
PHYSICS 193	Research Methods
Select four courses from the following:	
BIO SCI 1A	Life Sciences
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
CHEM 1A- 1B- 1C	General Chemistry and General Chemistry and General Chemistry
EARTHSS 1	Introduction to Earth System Science
EARTHSS 7	Physical Geology
PHYSICS 20A- 20B	Introduction to Astronomy and Cosmology: Man's Place in the Universe
The following course is recommended:	
PHY SCI 106	California Teach 3: High School Science and Mathematics Teaching

NOTE: With this concentration, a Secondary Teaching Certification (p. 1386) option is available.

Specialization in Astrophysics

Requirements:

Requirements:

PHYSICS 139	Observational Astrophysics
Select three astrophysics courses from the following:	
PHYSICS 137	Introduction to Cosmology
PHYSICS 138	Extragalactic Astrophysics
PHYSICS 144	Stellar Astrophysics
PHYSICS 145	High-Energy Astrophysics
Select any two upper-division Physics electives.	

Honors Program in Physics

The Honors Program in Physics provides an opportunity for selected students majoring in Physics to pursue advanced work in one of the research areas of the Department. Admission to the program is based on an application normally submitted by the sixth week of the spring quarter of the junior year. Applicants must have an overall grade point average of at least 3.4 and a grade point average in physics courses of 3.5 or better. (Exceptions to these procedures and standards may be granted in unusual circumstances.) In selecting students for the program, the Department considers evidence of ability and interest in research.

Students admitted to the program participate in a year-long course, PHYSICS H196A-PHYSICS H196B-PHYSICS H196C, which includes two quarters of research and a final quarter in which a written thesis is submitted. If this work and the student's final GPA are deemed of honors quality by the program advisor, the student then graduates with Departmental Honors in Physics.

Planning a Program of Study

Physics 3 is a one-year course suitable for premedical students, students majoring in Biological Sciences, and nonscience majors. It surveys most of the important branches of physics. Laboratory work accompanies the course. Nonscience majors with some mathematical skill may wish to consider Physics 3 as an alternative to PHYSICS 12 through PHYSICS 21.

A student who decides to major in Physics after completing Physics 3 should meet with the Department Undergraduate Advisor for placement information.

Physics 7 is an intensive four-quarter course for students in Physical Sciences and Engineering who are interested in a careful quantitative approach to macroscopic physics. Laboratory work accompanies the course.

Physics courses numbered between 12 and 21 are general education courses intended for nonscience majors. The content and format of PHYSICS 21 may vary from year to year.

The introduction to mathematical methods (MATH 2E, MATH 3A, MATH 3D, and PHYSICS 50), microscopic physics (PHYSICS 61A-PHYSICS 61B), and experimental physics (PHYSICS 52A-PHYSICS 52B-PHYSICS 52C) are normally taken in the sophomore year.

Courses numbered 100 and above are for Physics majors and other qualified students. Courses numbered between 111 and 115 emphasize the mathematical and theoretical structures that have unified our understanding of nature. It should be noted that multi-quarter courses such as 111A-B must be taken and passed in sequential order. Any student who is so inclined may take more than the minimum one quarter of advanced laboratory work. Courses numbered between 133 and 149 introduce active subdisciplines in current research. Independent research (PHYSICS 195, PHYSICS 196) is strongly encouraged. In PHYSICS 194, students learn the basics of writing about science, proper use of references and background material, presentation of research proposals, and more.

Transfer students are specifically advised to seek individual consultation with the Department Undergraduate Advisor before deciding on a program of courses.

All Physics majors must complete the core courses listed below. By the end of the junior year, each student is encouraged to select a concentration or track.

Note that alternatives to Physics major requirements can be approved upon petition to the Department and the Office of the Associate Dean. Furthermore, exceptionally prepared students are allowed to enroll in graduate-level courses; to do so requires the approval of the Department Undergraduate Advisor.

Sample Program — Physics Core Curriculum

Freshman		
Fall	**Winter**	**Spring**
MATH 2B	MATH 2D	MATH 2E
PHYSICS 7C- 7LC	PHYSICS 7D- 7LD	PHYSICS 7E
(Physics 99)		
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	PHYSICS 50
PHYSICS 52A	PHYSICS 52B	PHYSICS 52C
PHYSICS 60	PHYSICS 61A	PHYSICS 61B
Junior		
Fall	**Winter**	**Spring**
PHYSICS 111A	PHYSICS 111B	PHYSICS 53
	PHYSICS 112A	PHYSICS 112B

PHYSICS 113A

Senior	
Fall	**Winter**
PHYSICS 115A	PHYSICS 121W
PHYSICS 194	PHYSICS 125A

For a student planning graduate study in physics, additional courses in advanced physics are strongly recommended.

Sample Program — Physics Graduate School Track

Junior		
Fall		
PHYSICS 115A or 116		
Senior		
Fall	**Winter**	**Spring**
PHYSICS 113B	PHYSICS 113C	PHYSICS 115B
PHYSICS 115A or 116	Physics Elective	PHYSICS 125B
Physics Elective		Physics Elective

Students preparing for graduate school in atmospheric science or physical oceanography should complete the minor in Earth and Atmospheric Sciences.

The **Applied Physics concentration** is designed to provide appropriate education to students who anticipate a career in industrial or technological research. It combines the fundamental knowledge of physical processes obtained from physics courses with the technical knowledge obtained from engineering courses. A student is required to complete six courses in the School of Engineering approved by the Physics and Astronomy Department. Examples of appropriate courses include:

EECS 70A	Network Analysis I
EECS 70B- 70LB	Network Analysis II and Network Analysis II Laboratory
EECS 170A- 170LA	Electronics I and Electronics I Laboratory
EECS 170B- 170LB	Electronics II and Electronics II Laboratory
EECS 170C- 170LC	Electronics III and Electronics III Laboratory
EECS 174	Semiconductor Devices
EECS 188	Optical Electronics
ENGRMAE 120	Heat and Mass Transfer
ENGRMAE 135	Compressible Flow
ENGRMAE 147	Vibrations

Upon completion of the Applied Physics concentration, the student will receive a B.S. degree in Physics.

Sample Program — Applied Physics Concentration

Junior		
Fall	**Winter**	**Spring**
No Fall Classes	EECS 70A	EECS 70B- 70LB
Senior		
Fall	**Winter**	**Spring**
EECS 170A- 170LA	EECS 170B- 170LB	PHYSICS 206
	EECS 188	

The **Biomedical Physics concentration** is designed for the student who anticipates a career in physics applied to biology and medicine, such as health physics or radiological physics, or who intends to work in a scholarly field which deals with the physical aspects of biology or medicine, such as molecular biology or physiology. Completion of requirements for the Physics major is required as are nine quarters of basic courses in biology

and chemistry. Students who wish to follow the Biomedical Physics concentration are advised to seek guidance early in their college careers. The requirements are such that coordination of a program in the second year is essential.

Sample Program — Biomedical Physics Concentration

Freshman		
Fall	**Winter**	**Spring**
CHEM 1A	CHEM 1B	CHEM 1C- 1LC
Sophomore		
Fall	**Winter**	
CHEM 1LD	CHEM 51B	
CHEM 51A		
Junior		
Fall	**Winter**	**Spring**
BIO SCI 97	BIO SCI 98	BIO SCI 99

The **Computational Physics concentration** provides training for positions in software development in a wide variety of high-technology fields. For example, consider medical imaging software for magnetic resonance imaging. To write a first-rate program, one must understand the apparatus and analysis techniques (physics), use appropriate numerical techniques (numerical analysis), and employ a convenient object-oriented interface (computer science). The concentration develops this unique set of skills: physical and mathematical insight through the Physics curriculum, knowledge of modern computer programming techniques, and knowledge of numerical analysis.

Sample Program — Computational Physics Concentration

Junior		
Fall	**Winter**	**Spring**
I&C SCI 31	I&C SCI 32	I&C SCI 33
Senior		
Fall	**Winter**	**Spring**
MATH 105A- 105LA	MATH 105B- 105LB	MATH 107- 107L

The **Philosophy of Physics concentration** is concerned with the study of the conceptual history of physics, the method of inquiry that has led to our best physical theories, and the structure and interpretation of the theories themselves. Students take courses in deductive and inductive logic, the philosophy and history of physics, and quantum mechanics. The emphasis on careful argument makes this concentration useful for anyone who wishes to pursue a graduate degree in philosophy or law, or for other careers that employ both verbal and quantitative analysis.

The **Physics Education concentration** is for students who plan a career in secondary education. An Education course, four general science courses, a research methods course, and two quarters of classroom experience complete the requirements for the concentration. Students are encouraged to take PHYSICS 191 (outreach).

Secondary Teaching Certification Option: With *additional* course work and field experience offered through the UCI Cal Teach program, students who complete the concentration in Physics Education can also earn a California Preliminary Single Subject Teaching Credential. Completing the bachelor's degree, concentration, and teacher certification in four years is possible with careful, early planning. Additional courses required for teacher certification are:

LPS 60	The Making of Modern Science
EDUC 109	Reading and Writing in Secondary Mathematics and Science Classrooms
EDUC 143AW	Classroom Interactions I
EDUC 143BW	Classroom Interactions II
EDUC 148	Complex Pedagogical Design [1]
EDUC 158	Student Teaching Mathematics and Science in Middle/High School (two quarters)

1 Successful completion of EDUC 143AW-EDUC 143BW and EDUC 148 will be accepted in lieu of PHYSICS 125A and PHYSICS 194 for Cal Teach students.

For additional information about teacher certification requirements and enrollment procedures, see Preparation for Teaching Science and Mathematics (p. 1220). Interested students are strongly encouraged to contact the Cal Teach Resource and Advising Center or the Physical Sciences Student Affairs Office.

Sample Program — Concentration in Physics Education with Secondary Teaching Certification Option

Freshman		
Fall	**Winter**	**Spring**
MATH 2B	MATH 2D	MATH 2E
PHYSICS 7C- 7LC	PHYSICS 7D- 7LD	PHYSICS 7E
Gen. Ed.	Gen. Ed.	Gen. Ed.
(Physics 99)	PHY SCI 5	Gen. Ed.
Sophomore		
Fall	**Winter**	**Spring**
MATH 3A	MATH 3D	PHYSICS 50
PHYSICS 60	PHYSICS 61A	PHYSICS 61B
PHYSICS 52A	PHYSICS 52B	PHYSICS 52C
PHY SCI 105	PHYSICS 193	LPS 60
Junior		
Fall	**Winter**	**Spring**
PHYSICS 111A	PHYSICS 111B	PHYSICS 53
PHYSICS 112A	PHYSICS 112A	PHYSICS 113A
General Science	General Science	EDUC 148
General Science	EDUC 143AW	
EDUC 55		
Senior		
Fall	**Winter**	**Spring**
PHYSICS 115A	Gen. Ed.	PHYSICS 121W
General Science	EDUC 109	Gen. Ed.
EDUC 143BW	EDUC 158	EDUC 158

The Astrophysics specialization is primarily taken by two types of students, those planning on going on to graduate school in astronomy or astrophysics and those planning to work in aeronautics or astrophysics-related industries or government research laboratories after receiving their bachelor's degree. It also is an excellent focus for students who anticipate careers in science journalism, teaching, science administration, or public relations. The course work includes:

One upper-division astrophysics laboratory:

PHYSICS 139 Observational Astrophysics

Select three of four courses in astrophysics:	
PHYSICS 137	Introduction to Cosmology
PHYSICS 138	Extragalactic Astrophysics
PHYSICS 144	Stellar Astrophysics
PHYSICS 145	High-Energy Astrophysics
Two or more upper-division Physics courses. Of the Physics electives, students bound for graduate school are strongly advised to include:	
PHYSICS 113B	Quantum Physics
PHYSICS 115B	Thermodynamics
PHYSICS 125B	Mathematical Physics
Other recommended electives include:	
PHYSICS 116	Relativity and Black Holes
PHYSICS 134A	Physical and Geometrical Optics
PHYSICS 135	Plasma Physics
PHYSICS 136	Introduction to Particle Physics

Sample Program — Astrophysics Specialization

Junior		
Fall	**Winter**	**Spring**
PHYSICS 116	PHYSICS 137	PHYSICS 144 or 145
Senior		
Fall	**Winter**	**Spring**
PHYSICS 113B	PHYSICS 138	PHYSICS 115B
PHYSICS 139		PHYSICS 125B
		PHYSICS 144 or 145

Graduate Program

The Department offers the M.S. and Ph.D. degrees in Physics. These degrees are awarded in recognition of demonstrated knowledge of the basic facts and theories of physics and of a demonstrated capacity for independent research. Active programs of research are underway in particle physics, nanophysics, biophysics, medical physics, condensed matter physics, low-temperature physics, plasma physics, gravitational physics, astrophysics, and cosmology.

In general, graduate study in the physics Ph.D. program is expected to be a full-time activity. Other proposed arrangements should be approved by the Graduate Committee. The normative time for completion of the Ph.D. is six years of full-time study, and the maximum time permitted is seven years. Students may pursue the M.S. degree on either a full-time or part-time basis.

Complementing the formal courses, the Department offers regular colloquia and informal seminars. Graduate students are members of an intellectual community and are expected to participate fully in departmental activities. Attendance at colloquia is considered an essential part of graduate study. In addition, there are regular weekly research seminars in condensed matter, particle, and plasma physics, and astrophysics.

Sources of support available to graduate students include teaching assistantships, research assistantships, and fellowships. Students planning to pursue graduate work in Physics should visit the Physics Department (http://www.physics.uci.edu) website.

Students admitted into the graduate program in Physics and Astronomy may elect to pursue the M.S. or Ph.D. degree with a concentration in Chemical and Materials Physics, as described in a later section.

Master of Science in Physics

Requirements for the M.S. degree:

All courses must be passed with a grade of B or better.

A. Three quarters of residence.	
B. Seven quarter courses including:	
PHYSICS 211	Classical Mechanics
PHYSICS 212A	Mathematical Physics
PHYSICS 213A	Electromagnetic Theory
PHYSICS 213B	Electromagnetic Theory
or PHYSICS 240C	Radiative Processes in Astrophysics
PHYSICS 214A	Statistical Physics
PHYSICS 215A- 215B	Quantum Mechanics and Quantum Mechanics
C. Two courses numbered between 200 and 259	
D. Two other courses approved by the graduate advisor	
E. Select Option A or Option B below:	
Option A. Research project and written thesis (three quarters)	
PHYSICS 295	Experimental Research
or PHYSICS 296	Theoretical Research
Option B. Comprehensive written examination	
PHYSICS 215B	Quantum Mechanics

The requirements for the M.S. degree with a concentration in Chemical and Materials Physics differ from these.

Doctor of Philosophy in Physics

The principal requirements for the Ph.D. degree are a minimum of six quarters of residence, passage of a written and an oral examination, and successful completion and defense of a dissertation reporting results of original research. In addition, the Ph.D. candidate must complete certain graduate course requirements. There is no foreign language requirement.

Course Requirements. Students are required to exhibit mastery of the basic sequences—Classical Mechanics, Electromagnetic Theory, Quantum Mechanics, Mathematical Physics, and Statistical Physics.

All courses must be passed with a grade of B or better.

Students who do not have a prior Master's degree (or other equivalent degree) in Physics from UCI or another institution must take a minimum of 11 quarter courses including:	
PHYSICS 211	Classical Mechanics

PHYSICS 212A	Mathematical Physics
PHYSICS 213A	Electromagnetic Theory
PHYSICS 213B	Electromagnetic Theory
or PHYSICS 240C	Radiative Processes in Astrophysics
PHYSICS 214A	Statistical Physics
PHYSICS 215A- 215B	Quantum Mechanics and Quantum Mechanics
and select at least two other courses numbered between 200 and 259;	
and select two other courses approved by the graduate advisor.	
or	
Students who have obtained a prior Master's degree (or other equivalent degree) in Physics from UCI or another institution:	
Take a minimum of 4 quarter courses including: two courses numbered between 200 and 259 and two other courses approved by the graduate advisor. These students are strongly encouraged to take the qualifying exam in the Fall quarter of entrance.	

Students are strongly encouraged to take PHYSICS 211, PHYSICS 212A, PHYSICS 213A, PHYSICS 214A, PHYSICS 215A-PHYSICS 215B, and either PHYSICS 213B or PHYSICS 240C in their first year of study. It is expected that students, having selected a research specialty, will ordinarily take the core courses in that subject in their second year of study. Students pursuing research in elementary particle physics ordinarily complete PHYSICS 234A-PHYSICS 234B-PHYSICS 234C and PHYSICS 235A-PHYSICS 235B during their second year. Students pursuing research in plasma physics ordinarily complete PHYSICS 239A during their first year and PHYSICS 239B-PHYSICS 239C-PHYSICS 239D their second year; PHYSICS 249 is also recommended. Students pursuing research in condensed-matter physics ordinarily take PHYSICS 238A-PHYSICS 238B-PHYSICS 238C during their second year; PHYSICS 133 should be taken in the first year by those students who have not had an equivalent course. Students pursuing research in astrophysics/cosmology ordinarily complete PHYSICS 240A during spring of their first year; PHYSICS 240B, PHYSICS 240C in their second year; and one or more of PHYSICS 241B, PHYSICS 241C, PHYSICS 241D in their second or subsequent years. Students interested in medical imaging should take PHYSICS 233A-PHYSICS 233B-PHYSICS 233C in the second year. Students pursuing research in biological physics should take PHYSICS 230A-PHYSICS 230B in the second year. Students who have earned grades of B or better in equivalent graduate-level courses prior to entering UCI may be exempted from required courses by the graduate advisor. Equivalency will be determined by the instructor of each course for which an exemption is sought.

NOTE: The requirements for the Ph.D. degree with a concentration in Chemical and Materials Physics (ChaMP) differ from these and are outlined in a later section.

Comprehensive Examination. Progress toward the degree is assessed by a written comprehensive examination covering a broad range of fundamentals of physics at the graduate and advanced undergraduate levels. It is offered twice a year, and a student is allowed a maximum of three attempts. The first attempt must occur before the end of the fall quarter of the student’s second year, and the examination must be passed by the end of spring quarter of the student’s second year.

Advancement to Ph.D. Candidacy. For advancement to Ph.D. candidacy, a student must pass an oral advancement examination. It is typically taken within one year of successful completion of the comprehensive examination. To satisfy normative progress toward the degree, it must be taken by the end of the student’s third year. The candidacy committee that administers this examination will contain one or two faculty members from outside the Department. This oral examination will cover material principally related to the broad and general features of the student’s dissertation area.

Teaching Program. Experience in teaching is an integral part of the graduate program, and all Ph.D. students are required to participate in the teaching program for at least one quarter during their graduate careers. All new teaching assistants are required to enroll in PHYSICS 269 and must pass in order to be allowed to TA in future quarters. Students are required to enroll in PHYSICS 399 while serving as a TA. Lab TAs are required to enroll in PHYSICS 395 as well as PHYSICS 399.

Students who are not citizens from countries where English is either the primary or dominant language as approved by the UCI Graduate Council must pass either the Test of Spoken English (TSE) or the UCI SPEAK (Speaking Proficiency English Assessment Kit) examination. One of these tests must be passed before such a student can qualify for a teaching assistantship in order to fulfill the Department’s teaching requirement. The Department expects one of these tests to be passed by the end of the student’s second year at UCI.

Dissertation. A dissertation summarizing the results of original research performed by the student under the supervision of a doctoral committee, appointed by the Department Chair on behalf of the Dean of the Graduate Division and the Graduate Council, will be required for the Ph.D. degree. A criterion for the acceptability of a dissertation by the Department is that it be suitable for publication in a scientific journal. The dissertation must not have been submitted to any other institution prior to its submission to the UCI Physics and Astronomy Department.

Defense of Dissertation. Upon completion of the dissertation, the student will take an oral examination, open to the public, before the doctoral committee.

Concentration in Chemical and Materials Physics

This is an interdisciplinary program between condensed matter physics and physical chemistry, which is designed to eliminate the barrier between these two disciplines. Students with B.S. degrees in Physics, Chemistry, or Materials Science and Engineering, are encouraged to apply to the program. The goal of the concentration in Chemical and Materials Physics (ChaMP) is to provide students with a broad interdisciplinary education in the applied physical sciences that emphasizes modern laboratory and computational skills. The program accepts students for both the M.S. and the Ph.D. degrees. Upon admission to the program, students are assigned two faculty advisors, one from the Department of Physics and Astronomy, and one from the Department of Chemistry, to provide guidance on curriculum and career planning.

The curriculum for the M.S. program includes a summer session to assimilate students with different undergraduate backgrounds; formal shop, laboratory, and computational courses; a sequence on current topics to bridge the gap between fundamental principles and applied technology; and a course to develop communication skills. The required courses include thirteen core courses and three electives (subject to advisor approval) as follows:

Core	
CHEM 231A	Fundamentals of Quantum Mechanics
or PHYSICS 215A	Quantum Mechanics
CHEM 231B	Applications of Quantum Mechanics
or PHYSICS 215B	Quantum Mechanics
CHEM 231C	Molecular Spectroscopy
CHEM 232A- 232B	Thermodynamics and Introduction to Statistical Mechanics and Advanced Topics in Statistical Mechanics
PHYSICS 206	Laboratory Skills
PHYSICS 207	Chemistry for Physicists
PHYSICS 228	Electromagnetism
PHYSICS 229A	Computational Methods
PHYSICS 266	Current Topics in Chemical and Materials Physics
PHYSICS 273	Technical Communication Skills
or CHEM 273	Technical Communication Skills
Select one course from each of the following two groups:	
PHYSICS 133	Introduction to Condensed Matter Physics
or PHYSICS 238A	Condensed Matter Physics
or CHEM 236	Forces Between Molecules
PHYSICS 211	Classical Mechanics
or PHYSICS 222	Continuum Mechanics
Electives	
CHEM 213	Chemical Kinetics
CHEM 225	Polymer Chemistry: Synthesis and Characterization of Polymers
CHEM 232C	Non-Equilibrium Statistical Mechanics
CHEM 233	Nuclear and Radiochemistry
CHEM 243	Advanced Instrumental Analysis
CHEM 248	Electrochemistry
CHEM 249	Analytical Spectroscopy
EECS 285B	Lasers and Photonics
ENGRMSE 259	Transmission Electron Microscopy
PHYSICS 134A	Physical and Geometrical Optics
PHYSICS 223	Numerical Methods
PHYSICS 229B	Computational Methods
PHYSICS 233A	Principles of Imaging
PHYSICS 233B	Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging
PHYSICS 238A	Condensed Matter Physics
PHYSICS 238B	Condensed Matter Physics
PHYSICS 238C	Condensed Matter Physics

In addition to the required courses, M.S. students complete a master's thesis. Students are required to advance to candidacy for the master's degree at least one quarter prior to filing the master's thesis. There is no examination associated with this advancement, but the thesis committee needs to be

selected and appropriate forms need to be filed. The M.S. program prepares students to compete for high-tech jobs or to begin research toward a Ph.D. degree.

Successful completion of the M.S. degree requirements qualifies students for the Ph.D. program. Progress toward the Ph.D. degree is assessed by a written comprehensive examination administered in the summer after completion of the first year of study. This examination covers comprehensive knowledge acquired in course work, and the content of the examination depends upon the student's specific area of interest.

Participants in the Ph.D. program take an examination for formal advancement to candidacy. It is typically taken within one year of successful completion of the comprehensive examination. To satisfy normative progress toward the degree, it must be taken by the end of the student's third year. The examination is comprised of two parts: (a) a written report on a topic to be determined in consultation with the research advisor and (b) an oral report on research accomplished and plans for completion of the Ph.D. dissertation.

Faculty

Kevork N. Abazajian, Ph.D. University of California, San Diego, *Associate Professor of Physics and Astronomy*

Jun F. Allard, Ph.D. University of British Columbia, *Assistant Professor of Mathematics; Physics and Astronomy* (mathematical and computational biology)

Aaron J. Barth, Ph.D. University of California, Berkeley, *Professor of Physics and Astronomy*

Steven W. Barwick, Ph.D. University of California, Berkeley, *Professor of Physics and Astronomy*

Gregory A. Benford, Ph.D. University of California, San Diego, *Professor Emeritus of Physics and Astronomy*

James S. Bullock, Ph.D. University of California, Santa Cruz, *Gary McCue Administrative Term Chair in Cosmology* and *Professor of Physics and Astronomy*

David A. Buote, Ph.D. Massachusetts Institute of Technology, *Professor of Physics and Astronomy*

Kieron Burke, Ph.D. University of California, Santa Barbara, *Professor of Chemistry; Physics and Astronomy* (physical chemistry and chemical physics, polymer, materials, nanoscience, theoretical and computational)

David W. Casper, Ph.D. University of Michigan, *Associate Professor of Physics and Astronomy*

Gary A. Chanan, Ph.D. University of California, Berkeley, *Professor of Physics and Astronomy*

Liu Chen, Ph.D. University of California, Berkeley, *Research Professor and Professor Emeritus of Physics and Astronomy*

Mu-Chun Chen, Ph.D. University of Colorado Boulder, *Associate Professor of Physics and Astronomy*

Alexander L. Chernyshev, Ph.D. Russian Academy of Sciences, *Professor of Physics and Astronomy*

Philip Collins, Ph.D. University of California, Berkeley, *Professor of Physics and Astronomy*

Michael Cooper, Ph.D. University of California, Berkeley, *Assistant Professor of Physics and Astronomy*

Asantha R. Cooray, Ph.D. University of Chicago, *Professor of Physics and Astronomy*

Michael B. Dennin, Ph.D. University of California, Santa Barbara, *Professor of Physics and Astronomy*

Igor E. Dzyaloshinskii, Ph.D. Moscow State University, *Professor Emeritus of Physics and Astronomy*

Jonathan L. Feng, Ph.D. Stanford University, *Professor of Physics and Astronomy*

Zachary Fisk, Ph.D. University of California, San Diego, *UCI Distinguished Professor Emeritus of Physics and Astronomy*

Enrico Gratton, Ph.D. University of Rome, *Professor of Biomedical Engineering; Developmental and Cell Biology; Physics and Astronomy* (design of new fluorescence instruments, protein dynamics, single molecule, fluorescence microscopy, photon migration in tissues)

Steven P. Gross, Ph.D. University of Texas at Austin, *Professor of Developmental and Cell Biology; Biomedical Engineering; Physics and Astronomy* (force generation by molecular motors in living cells)

Arnold Guerra, Ph.D. University of California, Irvine, *Lecturer of Physics and Astronomy*

Gultekin Gulsen, Ph.D. Bogazici University, *Associate Professor of Radiological Sciences; Biomedical Engineering; Electrical Engineering and Computer Science; Physics and Astronomy* (in vivo molecular imaging, diffuse optical tomography, fluorescence tomography, photo-magnetic imaging, multi-modality imaging)

Herbert W. Hamber, Ph.D. University of California, Santa Barbara, *Professor of Physics and Astronomy*

William W. Heidbrink, Ph.D. Princeton University, *Professor of Physics and Astronomy*

Wilson Ho, Ph.D. University of Pennsylvania, *Donald Bren Professor* and *Professor of Physics and Astronomy; Chemistry* (physical chemistry and chemical physics, polymer, materials, nanoscience)

Herbert J. Hopster, Ph.D. Aachen University, *Professor Emeritus of Physics and Astronomy*

Manoj Kaplinghat, Ph.D. Ohio State University, *Professor of Physics and Astronomy*

David P. Kirkby, Ph.D. California Institute of Technology, *Professor of Physics and Astronomy; Electrical Engineering and Computer Science* (observational cosmology, data science, embedded systems)

Ilya N. Krivorotov, Ph.D. University of Minnesota, *Associate Professor of Physics and Astronomy*

Andrew J. Lankford, Ph.D. Yale University, *Professor of Physics and Astronomy*

Jon M. Lawrence, Ph.D. University of Rochester, *Professor Emeritus of Physics and Astronomy*

Zhihong Lin, Ph.D. Princeton University, *Professor of Physics and Astronomy*

Mark A. Mandelkern, Ph.D. University of California, Berkeley, *Research Professor and Professor Emeritus of Physics and Astronomy*

Alexei A. Maradudin, Ph.D. University of Bristol, *Professor Emeritus of Physics and Astronomy*

Roger D. McWilliams, Ph.D. Princeton University, *Professor of Physics and Astronomy*

William R. Molzon, Ph.D. University of Chicago, *Professor of Physics and Astronomy*

Simona Murgia, Ph.D. Michigan State University, *Assistant Professor of Physics and Astronomy*

Riley D. Newman, Ph.D. University of California, Berkeley, *Professor Emeritus of Physics and Astronomy; Logic and Philosophy of Science; Physics and Astronomy*

Siddah Ashok Parameswaran, Ph.D. Princeton University, *Assistant Professor of Physics and Astronomy*

William H. Parker, Ph.D. University of Pennsylvania, *Professor Emeritus of Physics and Astronomy*

Arvind Rajaraman, Ph.D. Stanford University, *Professor of Physics and Astronomy*

Thorsten Ritz, Ph.D. University of Ulm, *Professor of Physics and Astronomy*

Norman Rostoker, Sc.D. Carnegie Institute of Technology, *Research Professor and Professor Emeritus of Physics and Astronomy*

James E. Rutledge, Ph.D. University of Illinois at Chicago Circle, *Associate Dean of the School of Physical Sciences* and *Professor of Physics and Astronomy*

Nathan Rynn, Ph.D. Stanford University, *Professor Emeritus of Physics and Astronomy*

Jonas Schultz, Ph.D. Columbia University, *Professor Emeritus of Physics and Astronomy; International Studies; Logic and Philosophy of Science*

Yuri Shirman, Ph.D. University of California, Santa Cruz, *Professor of Physics and Astronomy*

Dennis J. Silverman, Ph.D. Stanford University, *Professor Emeritus of Physics and Astronomy*

Zuzanna S. Siwy, Ph.D. Silesian University of Technology, *Professor of Physics and Astronomy; Biomedical Engineering; Chemistry* (biosensing, nanotechnology, condensed matter physics)

Tammy Ann Smecker-Hane, Ph.D. Johns Hopkins University, *Associate Professor of Physics and Astronomy*

Henry W. Sobel, Ph.D. Case Western Reserve University, *Professor of Physics and Astronomy*

Min-Ying Su, Ph.D. University of California, Irvine, *Professor of Radiological Sciences; Physics and Astronomy*

Peter Taborek, Ph.D. California Institute of Technology, *Department Chair and Professor of Physics and Astronomy*

Agnes Taffard, Ph.D. University of Liverpool, *Associate Professor of Physics and Astronomy*

Timothy Tait, Ph.D. Michigan State University, *UCI Chancellor's Fellow* and *Professor of Physics and Astronomy*

Fumiko Tajima, Ph.D. University of Tokyo, *Lecturer of Physics and Astronomy*

Toshiki Tajima, Ph.D. University of California, Irvine, *UCI Endowed Chair* and *Adjunct Professor of Physics and Astronomy*

Virginia L. Trimble, Ph.D. California Institute of Technology, *Professor of Physics and Astronomy*

Mark Vagins, Ph.D. Yale University, *Adjunct Professor of Physics and Astronomy*

Gerard Vanhoven, Ph.D. Standford University, *Professor Emeritus of Physics and Astronomy*

Richard F. Wallis, Ph.D. Catholic University of America, *Professor Emeritus of Physics and Astronomy*

Frank J. Wessel, Ph.D. University of California, Irvine, *Project Scientist of Physics and Astronomy*

Steven R. White, Ph.D. Cornell University, *Professor of Physics and Astronomy*

Daniel Whiteson, Ph.D. University of California, Berkeley, *Associate Professor of Physics and Astronomy; Logic and Philosophy of Science*

Ruqian Wu, Ph.D. Institute of Physics, Chinese Academy of Science, *Professor of Physics and Astronomy*

Jing Xia, Ph.D. Stanford University, *Assistant Professor of Physics and Astronomy*

Basilio J. Yniguez, Ph.D. University of California, Irvine, *Lecturer of Physics and Astronomy*

Gaurang B. Yodh, Ph.D. University of Chicago, *Professor Emeritus of Physics and Astronomy*

Clare C. Yu, Ph.D. Princeton University, *Professor of Physics and Astronomy*

Courses

PHYSICS 2. Introduction to Mathematical Methods for Physics. 4 Units.
Provides the applied mathematics and problem solving/presentation skills necessary for success in an introductory physics sequence. Focuses on practical exercises in problem solving. Covers kinematics in one and two dimensions in detail. Additional topics include vectors, differentiation, and integration.

Corequisite: MATH 2A.
Prerequisite: Passing score on the UCI Physics Placement Exam.

PHYSICS 3A. Basic Physics. 4 Units.
Vectors; motion, force, and energy. Course may be offered online.

Corequisite: MATH 2A.

(II, Va)

PHYSICS 3B. Basic Physics. 4 Units.
Fluids; heat; electricity and magnetism.

Prerequisite: PHYSICS 3A.

(II, Va)

PHYSICS 3C. Basic Physics. 4 Units.
Waves and sound; optics; quantum ideas; atomic and nuclear physics; relativity.

Corequisite: MATH 2B.
Prerequisite: PHYSICS 3B.

(II, Va)

PHYSICS 3LB. Basic Physics Laboratory. 1.5 Unit.
Practical applications of electronics and classical physics to biology. Goals include skill to use oscilloscope and other basic instrumentation. Materials fee.

PHYSICS 3LC. Basic Physics Laboratory. 1.5 Unit.
Practical applications of physics to medical imaging. Topics include optics, radioactivity, and acoustics. Materials fee.

PHYSICS 7C. Classical Physics. 4 Units.
Topics include force; energy; momentum; rotation and gravity.

Corequisite: PHYSICS 7LC and MATH 2B.
Prerequisite: MATH 2A and ((PHYSICS 2 or (Math 2D and CHEM 1C or CHEM H2C or CHEM M3C)) or passing score on the UCI Physics Placement Exam). PHYSICS 2 with a grade of C or better.

Restriction: Physics majors have first consideration for enrollment in one section of this course. PHYSICS 7C may not be taken for credit after PHYSICS 7A and PHYSICS 7B.

(II, Va)

PHYSICS 7D. Classical Physics. 4 Units.
Electricity and magnetism.

Corequisite: PHYSICS 7LD and MATH 2D.
Prerequisite: PHYSICS 7C and MATH 2B.

Restriction: Physics majors have first consideration for enrollment in one section of this course.

(II, Va)

PHYSICS 7E. Classical Physics. 4 Units.
Fluids; oscillations; waves; and optics. Course may be offered online.

Prerequisite: PHYSICS 7C and MATH 2B.

Restriction: Physics majors have first consideration for enrollment in one section of this course.

(II, Va)

PHYSICS 7LC. Classical Physics Laboratory. 1 Unit.
Experiments related to lecture topics in Physics 7C. Materials fee.

Corequisite: PHYSICS 7C.

Overlaps with PHYSICS 7LA, PHYSICS 7LB.

Restriction: Physics majors have first consideration for enrollment.

PHYSICS 7LD. Classical Physics Laboratory. 1 Unit.
Electricity and magnetism.

Corequisite: PHYSICS 7D.

Restriction: Physics majors have first consideration for enrollment in select section(s) of this course.

PHYSICS 12. Science Fiction and Science Fact. 4 Units.
An introduction to fundamental physics principles, the scientific process, and the mathematical language of science, used to analyze topics drawn from superheroes, science fiction works, and current science news to distinguish science fiction and science fact. Course may be offered online.

Overlaps with PHYSICS 21.

(II, Va)

PHYSICS 14. Physics of Energy and the Environment. 4 Units.
The physics of society's energy production and consumption, and of their influences on the environment. Topics include fossil and renewable energy resources; nuclear power; prospects for a hydrogen economy; efficient and environmentally benign transportation; efficient home and commercial energy usage.

Restriction: Non-School of Physical Sciences majors only. Non-Physics majors only.

(II)

PHYSICS 15. Physics of Music. 4 Units.
Introduces basic physical principles underlying generation and properties of music, including basic properties of sound waves, musical scales and temperament, musical instruments, and acoustics of music halls. No mathematics background required, but high school algebra is recommended.

(II)

PHYSICS 17. Physics of Athletics. 4 Units.
Introduces basic physical principles behind motion. Examples are drawn from a range of athletic endeavors (such as ice skating, baseball, diving, and dance). No mathematics background required, but high school algebra is recommended.

(II)

PHYSICS 18. How Things Work. 4 Units.
Survey of the physical basis of modern technology, with an emphasis on electronics and materials. Topics include power generation and distribution, communication (radio, TV, telephone, computers, tape recorders, CD players), imaging (optics, x-rays, MRI), and modern materials (alloys, semiconductors, superconductors). Course may be offered online.

(II)

PHYSICS 19. Great Ideas of Physics. 4 Units.
Introduces nonscience majors to physics, examining important breakthroughs and controversies. Potential topics: Einstein's Relativity; Heisenberg's Uncertainty Principle; black holes; extra-dimensions; antimatter. Case studies illustrate the essential nature of scientific review and independent confirmation of results. No mathematics background required.

(II)

PHYSICS 20A. Introduction to Astronomy. 4 Units.
History of astronomy. Underlying physics. Objects in the solar system and how they are studied. Properties of stars: their formation, structure, and evolution. Pulsars and black holes. Galaxies and quasars. Course may be offered online.

(II, Va)

PHYSICS 20B. Cosmology: Man's Place in the Universe. 4 Units.
"Cook's Tour" of the universe. Ancient world models. Evidence for universal expansion; the size and age of the universe and how it all began. The long-range future and how to decide the right model. Anthropic principle. Course may be offered online.

(II, Va)

PHYSICS 20C. Observational Astronomy. 4 Units.
Basics of observing the night sky. Includes using UCI Observatory telescopes. Discusses fundamental observational techniques used to determine orbits and masses of objects, identify asteroids, classify stars, derive star cluster ages, measure the Universe's expansion rate and dark matter content. Course may be offered online.

Prerequisite: PHYSICS 20A or PHYSICS 20B or MATH 1B or MATH 2A.

(II, Va)

PHYSICS 20D. Space Science. 4 Units.
Motions of planets, satellites, and rockets. Propulsion mechanisms and space flight. The solar radiation field and its influence on planets. The interplanetary medium, solar wind, and solar-terrestrial relations. Course may be offered online.

(II, Va)

PHYSICS 20E. Life in the Universe. 4 Units.
An overview of the scientific quest to discover life elsewhere in the universe. Topics include the origin of life on Earth, Mars, extra-solar planets, interstellar travel, and extra-terrestrial intelligence.

(II, Va)

PHYSICS 21. Special Topics in Physics. 4 Units.
Topics addressed vary each quarter. Past topics have included physics and music, Newton, planetary science. Lectures on areas of special interest in physics used to introduce students to scientific method, fundamental laws of science, qualitative and quantitative analysis of data.

Repeatability: Unlimited as topics vary.

Overlaps with PHYSICS 12, PHYSICS XI12.

(II)

PHYSICS 50. Mathematical Methods for Physical Science. 4 Units.
Mathematica and its applications to linear algebra, differential equations, and complex functions. Fourier series and Fourier transforms. Other topics in integral transforms. Course may be offered online.

Corequisite: MATH 2E.
Prerequisite: MATH 2J or MATH 3A.

Overlaps with PHYSICS 100.

PHYSICS 51A. Modern Physics. 4 Units.
Wave-particle duality; quantum mechanics; special relativity; statistical mechanics.

Prerequisite: (PHYSICS 7E or PHYSICS 3C) and MATH 2D.

Overlaps with PHYSICS 61A.

Restriction: Non-Physics majors only.

PHYSICS 51B. Modern Physics. 4 Units.
Atoms; molecules; solids; nuclei; elementary particles.

Prerequisite: PHYSICS 51A or PHYSICS 61A.

Overlaps with PHYSICS 61B.

Restriction: Non-Physics majors only.

PHYSICS 52A. Fundamentals of Experimental Physics. 2 Units.
Optics: lenses, mirrors, polarization, lasers, optical fibers, interference, spectra. Materials fee.

Corequisite: PHYSICS 7E or PHYSICS 3C.

Restriction: Physics majors have first consideration for enrollment in select section(s) of this course.

PHYSICS 52B. Fundamentals of Experimental Physics. 2 Units.
Circuits: oscilloscope, meters, DC and AC circuits. Materials fee.

Prerequisite: PHYSICS 7D or PHYSICS 3B.

Restriction: Physics majors have first consideration for enrollment in select section(s) of this course.

PHYSICS 52C. Fundamentals of Experimental Physics. 2 Units.
Data analysis: random and systematic errors, curve fitting; nuclear counting; quantum experiments. Error analysis: random and systematic errors, curve fitting, nuclear counting, and quantum experiments. Materials fee.

Prerequisite: PHYSICS 51A or PHYSICS 61A.

Restriction: Physics majors have first consideration for enrollment in select section(s) of this course.

PHYSICS 53. Introduction to C and Numerical Analysis. 4 Units.
Introduction to structured programming; in-depth training in C. Elementary numerical methods applied to physics problems.

Prerequisite: (MATH 2J or MATH 3A) and MATH 3D.

PHYSICS 60. Thermal Physics. 4 Units.
Introduction to thermodynamics and systems of many particles. Topics include first and second laws of thermodynamics, ideal gas laws, kinetic theory, heat engines and refrigerators, thermodynamic potentials, phase transitions, dilute solutions, chemical equilibrium, and basic statistical distributions.

Prerequisite: (PHYSICS 7E or PHYSICS 3C) and MATH 2D.

Restriction: Physics majors only.

PHYSICS 61A. Modern Physics for Majors. 4 Units.
Wave-particle duality; Schrödinger equation; angular momentum.

Prerequisite: (PHYSICS 7E or PHYSICS 3C) and MATH 2D.

Overlaps with PHYSICS 51A.

Restriction: Physics majors only.

PHYSICS 61B. Modern Physics for Majors. 4 Units.
Atomic transitions; molecules; solids; nuclei; elementary particles; cosmological models.

Prerequisite: PHYSICS 61A or PHYSICS 51A.

Overlaps with PHYSICS 51B.

Restriction: Physics majors only.

PHYSICS H90. The Idiom and Practice of Science. 4 Units.
A series of fundamental and applied scientific problems of social relevance. Possible topics include Newton's Law, calculus, earthquake physics, and radiation.

Restriction: Campuswide Honors Program students only.

(II, Va)

PHYSICS 99. General Physics Seminar. 1 Unit.
Designed to introduce undergraduate students to current topics in physics. Focus is discussion of selected readings on current research issues.

Repeatability: Unlimited as topics vary.

PHYSICS 100. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Overlaps with PHYSICS 50.

Concurrent with PHYSICS 229A.

PHYSICS 106. Laboratory Skills. 4-6 Units.
Introduces students to a variety of practical laboratory techniques, including lock-in, boxcar, coincidence counting, noise filtering, PID control, properties of common transducers, computer interfacing to instruments, vacuum technology, laboratory safety, basic mechanical design, and shop skills.

Concurrent with PHYSICS 206 and CHEM 206.

PHYSICS 111A. Classical Mechanics. 4 Units.
One-dimensional motion and oscillations; three-dimensional motion, non-inertial coordinates, conservation laws, and Lagrangian and Hamiltonian dynamics; rigid body motion and relativity.

Prerequisite: (PHYSICS 7E or PHYSICS 3C) and PHYSICS 50.

PHYSICS 111B. Classical Mechanics. 4 Units.
One-dimensional motion and oscillations; three-dimensional motion, non-inertial coordinates, conservation laws, and Lagrangian and Hamiltonian dynamics; rigid body motion and relativity.

Prerequisite: PHYSICS 111A.

PHYSICS 112A. Electromagnetic Theory. 4 Units.
Electric, magnetic, and gravitational fields and potentials; electrodynamics; mechanical and electromagnetic waves and radiation.

Prerequisite: (PHYSICS 7D or PHYSICS 3B) and PHYSICS 50.

PHYSICS 112B. Electromagnetic Theory. 4 Units.
Electric, magnetic, and gravitational fields and potentials; electrodynamics; mechanical and electromagnetic waves and radiation.

Prerequisite: PHYSICS 7E and PHYSICS 112A.

PHYSICS 113A. Quantum Physics. 4 Units.
Inadequacy of classical physics; time independent and time dependent Schrodinger equation; systems in one, two, and three dimensions; matrices; Hermitian operators; symmetries; angular momentum; perturbation theory; scattering theory; applications to atomic structure; emphasis on phenomenology.

Prerequisite: (PHYSICS 51A or PHYSICS 61A) and PHYSICS 50.

PHYSICS 113B. Quantum Physics. 4 Units.
Inadequacy of classical physics; time independent and time dependent Schrodinger equation; systems in one, two, and three dimensions; matrices; Hermitian operators; symmetries; angular momentum; perturbation theory; scattering theory; applications to atomic structure; emphasis on phenomenology.

Prerequisite: PHYSICS 111B and PHYSICS 112B and PHYSICS 113A.

PHYSICS 113C. Quantum Physics. 4 Units.
Inadequacy of classical physics; time independent and time dependent Schrodinger equation; systems in one, two, and three dimensions; matrices; Hermitian operators; symmetries; angular momentum; perturbation theory; scattering theory; applications to atomic structure; emphasis on phenomenology.

Prerequisite: PHYSICS 111B and PHYSICS 112B and PHYSICS 113B.

PHYSICS 115A. Statistical Physics. 4 Units.
Microscopic theory of temperature, heat, and entropy; kinetic theory; multicomponent systems; quantum statistics.

Prerequisite: PHYSICS 50 and PHYSICS 60.

PHYSICS 115B. Thermodynamics. 4 Units.
Macroscopic theory of temperature, heat, and entropy; mathematical relationships of thermodynamics; heat engines; phase transitions.

Prerequisite: PHYSICS 115A.

PHYSICS 116. Relativity and Black Holes. 4 Units.
Introduces students to both special and general relativity; includes the formalism of four-vectors, equivalence principle, curved space-time, and modern issues with black holes.

Corequisite: PHYSICS 111A.
Prerequisite: PHYSICS 50.

PHYSICS 120. Electronics for Scientists. 4 Units.
Applications of modern semiconductor devices to physical instrumentation. Characteristics of semiconductor devices, integrated circuits, analog and digital circuits. Materials fee.

Prerequisite: PHYSICS 52B.

Concurrent with PHYSICS 220.

PHYSICS 121W. Advanced Laboratory. 4 Units.
Experiments in atomic, condensed matter, nuclear, particle, and plasma physics. Introduction to instrumentation and a first experience in the research laboratory.

Prerequisite: (PHYSICS 51B or PHYSICS 61B) and (PHYSICS 52C or PHYSICS 193) and (PHYSICS 194 or EDUC 143BW).

Repeatability: May be taken for credit 3 times.

Restriction: Physics majors only.

(Ib)

PHYSICS 125A. Mathematical Physics. 4 Units.
Complex variables; Legendre and Bessel functions; complete sets of orthogonal functions; partial differential equations; integral equations; calculus of variations; coordinate transformations; special functions and series.

Prerequisite: PHYSICS 50 and MATH 3D.

PHYSICS 125B. Mathematical Physics. 4 Units.
Complex variables; Legendre and Bessel functions; complete sets of orthogonal functions; partial differential equations; integral equations; calculus of variations; coordinate transformations; special functions and series.

Prerequisite: PHYSICS 125A and PHYSICS 113A.

PHYSICS 133. Introduction to Condensed Matter Physics. 4 Units.
Phenomena of solids and their interpretation in terms of quantum theory.

Prerequisite: PHYSICS 113B and PHYSICS 115A.

PHYSICS 134A. Physical and Geometrical Optics. 4 Units.
Focuses on the practical aspects of optics and optical engineering, starting at the fundamentals. Topics include geometrical optics, ray tracing, polarization optics, interferometers, and diffractive optics.

Corequisite: PHYSICS 112B.
Prerequisite: PHYSICS 112A.

Concurrent with CBEMS 242A and CHEM 242A.

PHYSICS 135. Plasma Physics. 4 Units.
Basic concepts, orbits, kinetic and fluid equations, Coulomb collisions, fluctuations, scattering, radiation.

Prerequisite: PHYSICS 112B.

Concurrent with PHYSICS 239A.

PHYSICS 136. Introduction to Particle Physics. 4 Units.
Experimental techniques and theoretical concepts of high-energy phenomena: accelerators and detectors; classification of particles and interactions; particle properties; symmetries and mass multiplets; production and decay mechanisms.

Prerequisite: PHYSICS 113B.

PHYSICS 137. Introduction to Cosmology. 4 Units.
Solution of the differential equations governing the expansion of the Universe. Observational determinations of the parameters governing the expansion. Big Bang inflation, primordial nucleosynthesis, and cosmic microwave background. Dark matter, dark energy, and large-scale structure of the Universe.

Prerequisite: PHYSICS 111A.

PHYSICS 138. Extragalactic Astrophysics. 4 Units.
Introduction to the solar neighborhood, Milky Way, and other galaxies. Interstellar medium. Star formation. Stellar populations. Evolution of spiral, elliptical, and irregular galaxies. Supermassive black holes, quasars, and active galaxies. Galaxies as probes of the expansion rate of the Universe.

Prerequisite: PHYSICS 111A.

PHYSICS 139. Observational Astrophysics. 4 Units.
Telescopes and astronomical observations, imaging with CCD detectors and image processing techniques. Photometry and spectroscopy of stars, galaxies, and quasars. Advanced imaging techniques such as deconvolution, adaptive optics, and interferometry.

Prerequisite: PHYSICS 52A and PHYSICS 52B and PHYSICS 52C and PHYSICS 53.

PHYSICS 144. Stellar Astrophysics. 4 Units.
Stars: their structure and evolution; physical state of the interior; the Hertzprung- Russell diagram, stellar classification, and physical principles responsible for the classification; star formation; nuclear burning; giant and dwarf stars; neutron stars and black holes.

Prerequisite: (PHYSICS 51A or PHYSICS 61A) and PHYSICS 111A and PHYSICS 112A.

PHYSICS 145. High-Energy Astrophysics. 4 Units.
Production of radiation by high-energy particles, white dwarfs, neutron stars, and black holes. Evolution of galactic nuclei, radio galaxies, quasars, and pulsars. Cosmic rays and the cosmic background radiation.

Prerequisite: (PHYSICS 51A or PHYSICS 61A) and PHYSICS 111A and PHYSICS 112A.

PHYSICS 146A. Biophysics of Molecules and Molecular Machines. 4 Units.
Physical concepts and experimental and computational techniques used to study the structure and function of biological molecules and molecular machines with examples from enzyme action, protein folding, molecular motors, photobiology, chemotaxis, and vision.

Prerequisite: PHYSICS 115A.

Concurrent with PHYSICS 230A.

PHYSICS 146B. Biophysics of Molecules and Molecular Machines. 4 Units.
Physical concepts and experimental and computational techniques used to study the structure and function of biological molecules and molecular machines with examples from enzyme action, protein folding, molecular motors, photobiology, chemotaxis, and vision.

Prerequisite: PHYSICS 115A.

Concurrent with PHYSICS 230B.

PHYSICS 147A. Principles of Imaging. 4 Units.
Linear systems, probability and random processes, image processing, projection imaging, tomographic imaging.

Prerequisite: PHYSICS 50.

Concurrent with PHYSICS 233A and EECS 202A.

PHYSICS 147B. Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging. 4 Units.
Ionizing radiation, planar and tomographic radiographic and nuclear imaging, magnetism, NMR, MRI imaging.

Prerequisite: PHYSICS 147A.

Concurrent with PHYSICS 233B and EECS 202B.

PHYSICS 147C. Techniques in Medical Imaging II: Ultrasound, Electrophysiological, Optical. 4 Units.
Sound and ultrasound, ultrasonic imaging, physiological electromagnetism, EEG, MEG, ECG, MCG, optical properties of tissues, fluorescence and bioluminescence, MR impedance imaging, MR spectroscopy, electron spin resonance and ESR imaging.

Prerequisite: PHYSICS 147B.

Concurrent with PHYSICS 233C and EECS 202C.

PHYSICS 150. Special Topics in Physics and Astronomy. 4 Units.
Current topics in physics. Includes topics from nano-science, biological sciences, astrophysics, and the common use of estimation across subdisciplines within physics.

Repeatability: Unlimited as topics vary.

PHYSICS 191. Field Experience in Physics Education. 1-4 Units.
Students develop and perform physics assemblies at neighboring public schools.

Prerequisite: PHYSICS 7C and PHYSICS 7D and PHYSICS 7E.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

PHYSICS 192. Tutoring in Physics. 1-2 Units.
Formalizes the already existing free tutoring for the lower-division physics courses that is provided by the Society of Physics Students (SPS). Includes instructions on tutoring techniques.

Prerequisite: PHYSICS 7E.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 12 units.

Restriction: Society of Physics Students (SPS) tutoring program students only.

PHYSICS 193. Research Methods. 4 Units.
Explores tools of inquiry for developing and implementing science research projects. Students undertake independent projects requiring data collection, analysis, and modeling, and the organization and presentation of results. Additional topics include ethical issues and role of scientific literature.

Prerequisite: BIO SCI 14 or PHY SCI 5.

Same as BIO SCI 108, CHEM 193.

PHYSICS 194. Research Communication for Physics Majors. 2 Units.
Students learn the fundamentals of communicating about research. Topics include preparing abstracts, proposals, and literature reviews. Provides preparation for presentation of independent research projects in PHYSICS 121 and PHYSICS 196.

Prerequisite: PHYSICS 61B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Physics majors only.

PHYSICS 195. Undergraduate Research. 4 Units.
Independent research under the guidance of a Physics faculty member.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Juniors only. Physics majors only.

PHYSICS 196A. Thesis in Physics I. 2 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Corequisite: PHYSICS 194.

Overlaps with PHYSICS H196A.

Restriction: Physics majors only.

PHYSICS 196B. Thesis in Physics II. 4 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Prerequisite: PHYSICS 196A.

Overlaps with PHYSICS H196B.

Restriction: Physics majors only.

PHYSICS 196C. Thesis in Physics III. 4 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Prerequisite: PHYSICS 196B.

Overlaps with PHYSICS H196C, PHYSICS 197.

Restriction: Physics majors only.

PHYSICS H196A. Honors Thesis in Physics I. 2 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Corequisite: PHYSICS 194.

Overlaps with PHYSICS 196A.

Restriction: Physics majors only. Honors Program in Physics students only. Campuswide Honors Program students only.

PHYSICS H196B. Honors Thesis in Physics II. 4 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Prerequisite: PHYSICS H196A.

Overlaps with PHYSICS 196B.

Restriction: Physics majors only. Honors Program in Physics students only. Campuswide Honors Program students only.

PHYSICS H196C. Honors Thesis in Physics III. 4 Units.
Independent research for seniors conducted under the guidance of a faculty member. Students' research results are discussed in oral presentations, and a written proposal, progress report, and thesis are submitted.

Prerequisite: PHYSICS H196B.

Overlaps with PHYSICS 196C.

Restriction: Physics majors only. Honors Program in Physics students only. Campuswide Honors Program students only.

PHYSICS 199. Readings on Special Topics. 1-4 Units.
Readings in selected areas of Physics. Topics addressed vary each quarter.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 206. Laboratory Skills. 4-6 Units.
Introduces students to a variety of practical laboratory techniques, including lock-in, boxcar, coincidence counting, noise filtering, PID control, properties of common transducers, computer interfacing to instruments, vacuum technology, laboratory safety, basic mechanical design, and shop skills. Materials fee.

Same as CHEM 206.

Concurrent with PHYSICS 106.

PHYSICS 207. Chemistry for Physicists. 4 Units.
Introduction to fundamental concepts in molecular structure and reactivity: theory of bonding, valence and molecular orbitals; structure and reactivity in inorganic chemistry; elements in molecular group theory; nomenclature in organic chemistry; and survey of macromolecules.

Same as CHEM 207.

PHYSICS 208. Mathematics for Chemists. 4 Units.
Applications of mathematics to physical and chemical problems. Calculus of special functions, complex variables and vectors; linear vector spaces and eigenvalue problems. Differential equations.

Same as CHEM 208.

PHYSICS 211. Classical Mechanics. 4 Units.
Variational principles, Lagrange's equations; applications to two body problems, small oscillation theory, and other phenomena. Hamilton's equations. Hamilton-Jacobi theory. Canonical transformations.

Restriction: Graduate students only.

PHYSICS 212A. Mathematical Physics. 4 Units.
Complex variables and integration; ordinary and partial differential equations; the eigenvalue problem.

Restriction: Graduate students only.

PHYSICS 213A. Electromagnetic Theory. 4 Units.
Electrostatics; magnetostatics; relativity; classical electron theory; fields in vacuum and matter; retardation; radiation and absorption; dispersion; propagation of light; diffraction; geometric optics; theories of the electric and magnetic properties of materials; scattering.

PHYSICS 213B. Electromagnetic Theory. 4 Units.
Electrostatics; magnetostatics; relativity; classical electron theory; fields in vacuum and matter; retardation; radiation and absorption; dispersion; propagation of light; diffraction; geometric optics; theories of the electric and magnetic properties of materials; scattering.

Prerequisite: Physics 213A.

PHYSICS 214A. Statistical Physics. 4 Units.
Maxwell-Boltzmann, Bose-Einstein, Fermi-Dirac statistics; ideal and imperfect gases; thermodynamic properties of solids; transport theory.

Restriction: Graduate students only.

PHYSICS 214B. Statistical Physics. 4 Units.
Phase transitions; critical phenomena; cooperative phenomena; fluctuations.

Prerequisite: PHYSICS 214A.

Restriction: Graduate students only.

PHYSICS 214C. Many Body Theory. 4 Units.
Application of field theory methods, perturbative and non-perturbative, to many particle systems; second quantization, Feynman diagrams, linear response theory, and functional integral methods applied to the ground state and at finite temperature.

Prerequisite: PHYSICS 214A and PHYSICS 215A and PHYSICS 215B.

Restriction: Graduate students only.

PHYSICS 215A. Quantum Mechanics. 4 Units.
Foundations; Dirac notation; basic operators and their eigenstates; perturbation theory; spin.

Restriction: Graduate students only.

PHYSICS 215B. Quantum Mechanics. 4 Units.
Atomic physics; scattering theory, formal collision theory; semi-classical radiation theory; many body systems.

Prerequisite: PHYSICS 215A.

Restriction: Graduate students only.

PHYSICS 220. Electronics for Scientists. 4 Units.
Applications of modern semiconductor devices to physical instrumentation. Characteristics of semiconductor devices, integrated circuits, analog and digital circuits.

Restriction: Graduate students only.

Concurrent with PHYSICS 120.

PHYSICS 222. Continuum Mechanics. 4 Units.
Introduction to the continuum limit and stress and strain tensors. Hydrodynamics of perfect fluids; two-dimensional problems, motion of incompressible viscous fluids, Navier Stokes equations. Basic elasticity theory. Description of viscoelastic materials. Introduction to nonlinear behavior instabilities.

PHYSICS 223. Numerical Methods. 4 Units.
Introduction to theory and practice of modern numerical methods. Techniques are drawn from topics such as solution of differential equations, Monte Carlo methods, Fast Fourier transforms, and evaluation of special functions.

PHYSICS 228. Electromagnetism. 4 Units.
Maxwell's equations, electrodynamics, electromagnetic waves and radiation, wave propagation in media, interference and quantum optics, coherent and incoherent radiation, with practical applications in interferometry, lasers, waveguides, and optical instrumentation.

Same as CHEM 228.

PHYSICS 229A. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Same as CHEM 229A.

Concurrent with PHYSICS 100.

PHYSICS 229B. Computational Methods. 4 Units.
Mathematical and numerical analysis using Mathematica and C programming, as applied to problems in physical science.

Same as CHEM 229B.

PHYSICS 230A. Biophysics of Molecules and Molecular Machines. 4 Units.
Physical concepts and experimental and computational techniques used to study the structure and function of biological molecules and molecular machines with examples from enzyme action, protein folding, molecular motors, photobiology, chemotaxis, and vision.

Concurrent with PHYSICS 146A.

PHYSICS 230B. Biophysics of Molecules and Molecular Machines. 4 Units.
Physical concepts and experimental and computational techniques used to study the structure and function of biological molecules and molecular machines with examples from enzyme action, protein folding, molecular motors, photobiology, chemotaxis, and vision.

Concurrent with PHYSICS 146B.

PHYSICS 231. Special Topics in Computational Physics. 4 Units.
Modern symbolic and numerical techniques on state-of-the-art computers for solving problems in classical and quantum mechanics, fluids, electromagnetism, and mathematical physics.

Prerequisite: PHYSICS 223 or PHYSICS 229A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 233A. Principles of Imaging. 4 Units.
Linear systems, probability and random processes, image processing, projecting imaging, tomographic imaging.

Prerequisite: PHYSICS 51B or PHYSICS 61B.

Same as EECS 202A.

Restriction: Graduate students only.

Concurrent with PHYSICS 147A.

PHYSICS 233B. Techniques in Medical Imaging I: X-ray, Nuclear, and NMR Imaging. 4 Units.
Ionizing radiation, planar and tomographic radiographic and nuclear imaging, magnetism, NMR, MRI imaging.

Prerequisite: EECS 202A.

Same as EECS 202B.

Restriction: Graduate students only.

Concurrent with PHYSICS 147B.

PHYSICS 233C. Techniques in Medical Imaging II: Ultrasound, Electrophysiological, Optical. 4 Units.
Sound and ultrasound, ultrasonic imaging, physiological electromagnetism, EEG, MEG, ECG, MCG, optical properties of tissues, fluorescence and bioluminescence, MR impedance imaging, MR spectroscopy, electron spin resonance and ESR imaging.

Prerequisite: EECS 202B.

Same as EECS 202C.

Restriction: Graduate students only.

Concurrent with PHYSICS 147C.

PHYSICS 234A. Elementary Particle Physics. 4 Units.
Overview of Standard Model theory and phenomenology. Electromagnetic, strong and weak forces, quark model, interactions with matter, particle detectors and accelerators.

Prerequisite: PHYSICS 215B.

PHYSICS 234B. Advanced Elementary Particle Physics. 4 Units.
SU(3)xSU(2)xU(1) model of strong, weak, and electromagnetic interactions. K-meson system and CP violation, neutrino masses and mixing, grand-unified theories, supersymmetry, introduction to cosmology and its connection to particle physics.

Prerequisite: PHYSICS 234A and PHYSICS 235A.

PHYSICS 234C. Advanced Elementary Particle Physics. 4 Units.
SU(3)xSU(2)xU(1) model of strong, weak, and electromagnetic interactions. K-meson system and CP violation, neutrino masses and mixing, grand-unified theories, supersymmetry, introduction to cosmology and its connection to particle physics.

Prerequisite: PHYSICS 234A and PHYSICS 235A.

PHYSICS 235A. Quantum Field Theory. 4 Units.
Canonical quantization, scalar field theory, Feynman diagrams, tree-level quantum electrodynamics.

Prerequisite: PHYSICS 215B.

Restriction: Graduate students only.

PHYSICS 235B. Advanced Quantum Field Theory. 4 Units.
Pathintegral techniques, loop diagrams, regularization and renormalization, anomalies.

Prerequisite: PHYSICS 235A.

Restriction: Graduate students only.

PHYSICS 238A. Condensed Matter Physics. 4 Units.
Bonding in solids; crystal symmetry and group theory, elastic properties of crystals; lattice vibrations, interaction of radiation with matter; cohesion of solids; the electron gas; electron energy bands in solids; ferromagnetism; transport theory; semiconductors and superconductors; many-body perturbation theory.

Prerequisite: PHYSICS 133 and (PHYSICS 214A or CHEM 232A) and (PHYSICS 215B or CHEM 231B).

PHYSICS 238B. Condensed Matter Physics. 4 Units.
Bonding in solids; crystal symmetry and group theory, elastic properties of crystals; lattice vibrations, interaction of radiation with matter; cohesion of solids; the electron gas; electron energy bands in solids; ferromagnetism; transport theory; semiconductors and superconductors; many-body perturbation theory.

Prerequisite: PHYSICS 238A.

PHYSICS 238C. Condensed Matter Physics. 4 Units.
Bonding in solids; crystal symmetry and group theory, elastic properties of crystals; lattice vibrations, interaction of radiation with matter; cohesion of solids; the electron gas; electron energy bands in solids; ferromagnetism; transport theory; semiconductors and superconductors; many-body perturbation theory.

Prerequisite: PHYSICS 238B.

PHYSICS 239A. Plasma Physics. 4 Units.
Basic concepts, orbits, kinetic and fluid equations, Coulomb collisions, fluctuations, scattering, radiation.

Restriction: Graduate students only.

PHYSICS 239B. Plasma Physics. 4 Units.
Magnetic confinement, MHD equilibrium and stability, collisional transport.

Prerequisite: PHYSICS 239A.

Restriction: Graduate students only.

PHYSICS 239C. Plasma Physics. 4 Units.
Linear waves and instabilities, uniform un-magnetized and magnetized plasmas, non-uniform plasmas.

Prerequisite: PHYSICS 239B.

Restriction: Graduate students only.

PHYSICS 239D. Plasma Physics. 4 Units.
Nonlinear plasma physics, quasilinear theory, large-amplitude coherent waves, resonance broadening, strong turbulence.

Prerequisite: PHYSICS 239C.

Restriction: Graduate students only.

PHYSICS 240A. Galactic Astrophysics. 4 Units.
The morphology, kinematics, and evolution of our Milky Way and other galaxies. Topics include stellar formation and stellar evolution, end states of stars (supernovae, neutron stars), the distribution of stars, interstellar gas and mass in galaxies. The Local Group.

PHYSICS 240B. Cosmology. 4 Units.
An introduction to modern cosmology set within the context of general relativity. Topics include the expansion history of the Universe, inflation, the cosmic microwave background, density fluctuations, structure formation, dark matter, dark energy, and gravitational lensing.

PHYSICS 240C. Radiative Processes in Astrophysics. 4 Units.
Exploration of radiation mechanisms (electron scattering, synchrotron emission, collisional excitation, and more) and radiative transfer through matter including absorption and emission. Includes such observational astrophysics topics as spectroscopic study of atoms and nuclei, X-rays, and cosmic rays.

PHYSICS 241B. Stellar Astrophysics. 4 Units.
Physics of stellar interiors and equations of stellar structure. Stellar atmospheres and absorption processes. Introduction to stellar winds. Thermonuclear reactions, nucleosynthesis, and solar neutrinos. Binary stars and mass accretion. White dwarfs, supernovae, neutron stars, and black holes.

Prerequisite: PHYSICS 211 and PHYSICS 240A.

PHYSICS 241C. Extragalactic Astrophysics. 4 Units.
The physics and phenomenology of galaxies; star formation, interstellar medium, and intergalactic medium. Galaxy structure and dynamics. Galaxy evolution, stellar populations, and scaling relations; the relationship between galaxy properties and environment. Galaxy clusters and active galactic nuclei.

Prerequisite: PHYSICS 211 and PHYSICS 240A.

PHYSICS 241D. Early Universe Physics. 4 Units.
Includes a thorough quantum treatment of the generation of perturbations during inflation and various topics related to kinetic theory in an expanding Universe. Other topics include the astrophysics and cosmology of weakly interacting particles.

Prerequisite: PHYSICS 234A and (PHYSICS 240B or PHYSICS 255).

PHYSICS 246. Special Topics in Astrophysics. 4 Units.
Outlines and emphasizes a subarea of astrophysics that is undergoing rapid development.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 247. Special Topics in Particle Physics. 4 Units.
Current topics in particle non-accelerator-based research fields.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 248. Special Topics in Condensed Matter Physics. 4 Units.
Outlines and emphasizes a subarea of condensed matter physics that is undergoing rapid development.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PHYSICS 249. Special Topics in Plasma Physics. 4 Units.
Outlines and emphasizes a subarea of plasma physics that is undergoing rapid development.

Prerequisite: PHYSICS 239A and PHYSICS 239B.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 255. General Relativity. 4 Units.
An introduction to Einstein's theory of gravitation. Tensor analysis, Einstein's field equations, astronomical tests of Einstein's theory, gravitational waves.

PHYSICS 260A. Seminar in Condensed Matter Physics. 1 Unit.
Seminar designed to acquaint students with recent advances in solid state physics. Lecturers from the Department of Physics and Astronomy (both faculty and graduate students), other UCI departments, and other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 260B. Seminar in Condensed Matter Physics. 1 Unit.
Seminar designed to acquaint students with recent advances in solid state physics. Lecturers from the Department of Physics and Astronomy (both faculty and graduate students), other UCI departments, and other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 260C. Seminar in Condensed Matter Physics. 1 Unit.
Seminar designed to acquaint students with recent advances in solid state physics. Lecturers from the Department of Physics and Astronomy (both faculty and graduate students), other UCI departments, and other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 261A. Seminar in Plasma Physics. 1 Unit.
Advanced topics in plasma physics: wave propagation, nonlinear effects, kinetic theory and turbulence, stability problems, transport coefficients, containment, and diagnostics. Applications to controlled fusion and astrophysics.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PHYSICS 261B. Seminar in Plasma Physics. 1 Unit.
Advanced topics in plasma physics: wave propagation, nonlinear effects, kinetic theory and turbulence, stability problems, transport coefficients, containment, and diagnostics. Applications to controlled fusion and astrophysics.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PHYSICS 261C. Seminar in Plasma Physics. 1 Unit.
Advanced topics in plasma physics: wave propagation, nonlinear effects, kinetic theory and turbulence, stability problems, transport coefficients, containment, and diagnostics. Applications to controlled fusion and astrophysics.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PHYSICS 263A. Seminar in Particle Physics. 1 Unit.
Discussion of advanced topics and reports of current research results in theoretical and experimental particle physics and cosmic rays.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 263B. Seminar in Particle Physics. 1 Unit.
Discussion of advanced topics and reports of current research results in theoretical and experimental particle physics and cosmic rays.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate student only.

PHYSICS 263C. Seminar in Particle Physics. 1 Unit.
Discussion of advanced topics and reports of current research results in theoretical and experimental particle physics and cosmic rays.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 265A. Seminar in Astrophysics. 1 Unit.
Acquaints students with current research in astrophysics. Lecturers from the Department of Physics and Astronomy and from other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 265B. Seminar in Astrophysics. 1 Unit.
Acquaints students with current research in astrophysics. Lecturers from the Department of Physics and Astronomy and from other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 265C. Seminar in Astrophysics. 1 Unit.
Acquaints students with current research in astrophysics. Lecturers from the Department of Physics and Astronomy and from other institutions.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 266. Current Topics in Chemical and Materials Physics. 1 Unit.
The subjects covered vary from year to year. Connection between fundamental principles and implementations in practice in science, industry, and technology.

Repeatability: May be repeated for credit unlimited times.

Same as CHEM 266.

PHYSICS 267A. Current Problems in Particle Physics. 4 Units.
Presentation and discussion of current research and theory in particle physics. Lectures given by staff and students.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 267B. Current Problems in Particle Physics. 4 Units.
Presentation and discussion of current research and theory in particle physics. Lectures given by staff and students.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 267C. Current Problems in Particle Physics. 4 Units.
Presentation and discussion of current research and theory in particle physics. Lectures given by staff and students.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 269. Seminar in Teaching Physics. 2 Units.
Techniques for effective teaching. Covers active listening and student engagement, problem-solving skills, peer instruction and collaborative learning, and evaluation. Required of all new Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

PHYSICS 273. Technical Communication Skills. 2 Units.
Development of effective communication skills, oral and written presentations, through examples and practice.

Grading Option: Satisfactory/unsatisfactory only.

Same as CHEM 273.

PHYSICS 291. Research Seminar. 1-4 Units.
Detailed discussion of research problems of current interest in the Department. Format, content, and frequency of the course are variable.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PHYSICS 295. Experimental Research. 4-12 Units.
With the approval of a faculty member, a student may pursue a research program in experimental physics. Typical areas include astrophysics, condensed matter physics, elementary particle physics, and plasma physics.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Physical Sciences majors only. Graduate students only.

PHYSICS 296. Theoretical Research. 4-12 Units.
With approval of a faculty member, a student may pursue a research program in theoretical physics. Typical areas include astrophysics, condensed matter physics, elementary particle physics, and plasma physics.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Physical Sciences majors only. Graduate students only.

PHYSICS 298. Physics Colloquium. 1 Unit.
Seminar held each week, in which a current research topic is explored. Frequently, off-campus researchers are invited to present the seminar, and on occasion a faculty member or researcher from the Department will speak.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: School of Physical Sciences majors only.

PHYSICS 299. Reading of Special Topic. 4-12 Units.
With special consent from a faculty member who will agree to supervise the program, a student may receive course credit for individual study of some area of physics.

Restriction: Graduate students only.

PHYSICS 395. Laboratory Teaching. 1 Unit.
Required of and limited to teaching assistants of undergraduate laboratory courses. Designed to teach the necessary skills required of teaching assistants for these courses.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PHYSICS 399. University Teaching. 1-4 Units.
Required of and limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Program in Public Health

Anteater Instruction & Research Building, Suite 2010
Undergraduate Advising: 949-824-2358
Graduate Advising: 949-824-7095
http://publichealth.uci.edu/

The Program in Public Health was established in 2003 to provide institutional focus for existing academic strengths in various sub-disciplines of public health and to facilitate well-grounded education and innovative research in emerging cross-disciplinary topics in the field. Undergraduate degree programs in public health began enrolling students in 2006, and the Department of Population Health and Disease Prevention was established in 2007 to advance the collaborative interdisciplinary mission of public health research, education, service, and professional development. The Department offers a B.S. in Public Health Sciences, a B.A. in Public Health Policy, a minor in Public Health, a Master of Public Health (M.P.H.) in three emphases: Environmental Health, Epidemiology, and Sociocultural Diversity and Health, and a Doctor of Philosophy (Ph.D.) in Public Health in two concentrations: Disease Prevention and Global Health. The Department also offers a dual-degree M.D./M.P.H. and a joint Doctor of Philosophy (Ph.D.) in Environmental Health Sciences with the School of Medicine. Future plans and information is available at the Program in Public Health (http://catalogue.uci.edu/programinpublichealth/%20http://publichealth.uci.edu) website. The Program is fully accredited by the Council on Education for Public Health (http://ceph.org).

Department of Population Health and Disease Prevention

Oladele Ogunseitan, **Department Chair**

Overview

The mission of the Department of Population Health and Disease Prevention is to create, integrate, and translate population-based knowledge into preventive strategies to reduce the societal burden of human disease and disability through excellence in interdisciplinary research, education, and service. This is a forward-thinking mission that acknowledges and complements traditional discipline-based research and training in public health. It is a specific mission that is increasingly recognized by eminent organizations such as the Institute of Medicine's Board on Population Health and Public Health Practice, by research and education funding institutions such as the Robert Wood Johnson Foundation's Health & Society Scholars Program, and by distinguished Schools of Public Health.

New sources of funding for research and education are emerging, including the translational science initiative of the National Institutes of Health, to support this ecological paradigm of public health. The societal challenges facing health care and the burden of diseases at the community, national, and international levels have increased the demand for experts capable of researching, developing, and implementing programs to prevent disease and to improve population health. The Department hosts activities that bridge disciplinary perspectives, methods, and practices to nurture new leaders in public health through research and training on risk factors that render people vulnerable to diseases in their communities and the development of strategies for preventing disease by separating risk factors from specific vulnerable populations.

Degrees

Public Health Policy	B.A.
Public Health Sciences	B.S.
Public Health*	M.P.H.
Public Health**	Ph.D.

* With emphases in Environmental Health; Epidemiology; and Sociocultural Diversity and Health.

** With concentrations in Disease Prevention and Global Health.

Honors

Honors Research Program in Public Health

The Public Health Honors Program provides an opportunity for selected outstanding students in the program to pursue advanced work in independent research and earn honors in Public Health upon graduation. Successful completion of the honors program requires three quarters of commitment, while enrolled in PUBHLTH H192A-PUBHLTH H192B-PUBHLTH H192C. Students are also expected to enroll in supervised Undergraduate Research (PUBHLTH 199) with their research mentor. The program concludes with a presentation and submission of an honors culminating thesis.

Eligibility and Application Process

In order to be considered, a student must have satisfied the following requirements: completion of all lower-division Public Health courses required for the major; completion of at least five upper-division Public Health courses; an overall UCI grade point average of a minimum of 3.5; and a minimum 3.5 grade point average in all required and completed Public Health courses. Acceptance into the program is based upon evidence of the student's ability, interest in research, and proposed thesis project with a faculty member.

Admission to the program is based on formal invitation and/or an application to participate in the Public Health Honors Program submitted by the student in the spring quarter of the junior year.

Requirements

Beyond fulfilling the regular courses required for either the Public Health Sciences or Public Health Policy major, honor students must take the following:

A. Fall Quarter	
PUBHLTH H192A	Public Health Honors Seminar and Thesis I (4 units)
PUBHLTH 199	Undergraduate Research (4 units)
B. Winter Quarter	
PUBHLTH H192B	Public Health Honors Seminar and Thesis II (1 unit)
PUBHLTH 199	Undergraduate Research (4 units)
C. Spring Quarter	
PUBHLTH H192C	Public Health Honors Seminar and Thesis III (1 unit)
PUBHLTH 199	Undergraduate Research (4 units)

Graduation with Honors

Honors at graduation, e.g., *cum laude, magna cum laude, summa cum laude*, are awarded to about 12 percent of the graduating seniors. Eligibility for such honors will be on the basis of grade point average (GPA). A minimum overall GPA of 3.5 is required for consideration. Students must have completed at least 72 units in residence at a University of California campus by the end of the final quarter prior to graduation. The student's cumulative record at the end of the final quarter is the basis for consideration for awarding Latin honors. Other important factors are considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext) .

Campuswide Honors Program

The Campuswide Honors Program is available to selected high-achieving students from all academic majors from their freshman through senior years. For more information contact the Campuswide Honors Program, 1200 Student Services II; (949) 824-5461; honors@uci.edu; http://www.honors.uci.edu/.

Dean's Honor List

The quarterly Dean's Honor List is composed of students who have received a 3.5 grade point average while carrying a minimum of 12 graded units.

Public Health Honors, Scholarships, Prizes, and Awards

The following honors, scholarships, prizes, and awards are presented at the annual Public Health Honors and Awards Ceremony held in June.

Outstanding Contribution to Public Health and Community. This award is for undergraduates who have made significant contributions to the Public Health community, including the intellectual growth of others.

Excellence in Community and UCI Service. This award is to signify any work/research done by a student that benefits the campus community or the community-at-large.

Excellence in Public Health Research. This award is for research conducted by a student that is exceptional in quality.

Excellence in Writing. This award honors students who best demonstrate an ability to communicate ideas clearly through writing.

Special Recognition. This award is given to undergraduates who deserve special recognition.

Recognition of Preceptors. This award goes to nominated Practicum Preceptor Sites who have shown an outstanding commitment to UCI students or have been nominated for the award by student recognition.

Undergraduate Program

The B.S. in Public Health Sciences (p. 1414) and the B.A. in Public Health Policy (p. 1417) degree programs train students in multidisciplinary approaches to public health practice and research. The degrees explore both quantitative and qualitative aspects of public health at all levels of analysis. Graduates will advance, through selective employment or further education, to become the new generation of public health professionals prepared to face the emerging challenges to human health from a population perspective using cutting-edge prevention approaches.

Students who are interested in pursuing a premedical program should note that additional courses will be needed beyond the requirements of the public health degrees to fulfill requirements for medical school.

Students considering the public health degrees should carefully evaluate their academic preparation and career goals before enrolling in either the B.S. or B.A. degree program. Changing from a degree program to the other is possible, but will require completion of the required lower- and upper-division

courses specified for each program. It is also possible for a student to enroll in both the B.S. and B.A. degree programs (double major), provided the student completes all the requirements outlined under each degree.

The Department also offers an undergraduate minor (p. 1419).

Academic Advising: Academic, Career, Public Health

AIRB Suite 2010
http://publichealth.uci.edu/ph_docs/new_ugrad

Academic Advising

The Public Health Student Services Office coordinates the advising program and provides academic counseling. Undergraduate Public Health students should consult the Public Health Student Services Office for information on academic requirements for the degree, career opportunities, the Public Health 198/199 Research Program, the Public Health Honors Research Program, and student organizations such as the Public Health Association. Students can also visit the Public Health Student Services Office to process change-of-major requests, apply for graduation, obtain information about public health alumni, professional development, or for any other help they might need related to their academic career at UCI.

Peer Academic Advisors. The Peer Academic Advisors are upper-division Public Health majors who bring with them valuable academic, social, and professional experiences. Their functions include counseling students in matters of major selection, program planning, petitioning, tutoring, learning skills problems, and participation in co-curricular and extracurricular activities. The Peer Advisors are located in the Public Health Student Services Office. Office hours are posted at the beginning of each quarter.

Career Advising

Information on graduate and professional schools in public health can be obtained from the Public Health Student Services Office. The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. See the Career Center (p. 124) section for additional information.

Areas of opportunity open to those with a Bachelor of Science in Public Health Sciences degree include laboratory technology, publishing, technical editing, pharmaceutical sales, and training programs in county, state, and federal agencies. The bachelor's degree is necessary to pursue studies leading to the M.S. and Ph.D. degrees. The B.S. degree, plus short training periods, may prepare students for employment in education, medical technology (usually one year), allied health positions, and various other areas.

Areas of opportunity open to those with a Bachelor of Arts in Public Health Policy degree include health care administration and planning, lobbying, corporate planning, health promotion, health education (in hospitals, clinics, government agencies, etc.), mental health, chemical dependency, case managing, insurance, health strategizing, fundraising, community organization, and social work. The B.A. degree, plus brief training periods, may prepare students for employment in education, administration, nonprofit corporations, and various other areas.

Education (community colleges, state colleges, or private schools), medical illustration, and public health (which includes hospital administration, biostatistics, epidemiology, environmental health sciences, social work, public health education, maternal and child health, and chronic, infectious, and tropical diseases) are fields in which opportunities are available upon completion of a master's program. Other areas where advanced degrees are necessary include medicine, dentistry, law, nursing, actuary, optometry, podiatry, osteopathy, physical therapy, and veterinary medicine.

Health Sciences Advising

Students desiring to enter the health sciences should have their majors checked in the Public Health Student Services Office. Admissions tests for medical, dental, pharmacy, and graduate schools should be taken in the spring, a year and one-half before the student plans to enter.

Leaders in nearly all health professional schools recommend that students preparing to seek admission to their schools plan to obtain a bachelor's degree. Students who plan to enter a school of dentistry, medicine, or other areas of the health sciences may receive the required preprofessional training at UCI. This preprofessional training may be accomplished by (1) completing a major in Public Health Sciences *and* specializing the degree to complete specific course requirements of the dental, medical, or other professional school the student expects to attend. or (2) majoring in any school or department *and* fulfilling concurrently the specific course requirements of the dental, medical, or other professional school the student expects to attend.

Practicum

A major part of the undergraduate curriculum in Public Health is the Practicum requirement. Public Health Practicum and Culminating Experience (PUBHLTH 195W) is an 8-unit required course for students majoring in Public Health Policy or Public Health Sciences. The course allows students to gain hands-on experience at an approved organization in the field of public health. Preparation for the Practicum course requires that each student interview officials at a selected site. There is an online catalog of approved organizations that have agreed to accept, train and supervise Public Health students in the ongoing activities of the organization. Students must choose a placement site listed in the Practicum catalog. Unlisted sites will not be approved for registration. All students are required to spend 100 hours (about 10 hours per week) at the public health organization during the quarter in which they are enrolled in PUBHLTH 195W.

Practicum is open only to upper-division Public Health students who are in good academic standing and have completed all prerequisite course work. Practicum must be taken for a letter grade. Additional information, including Practicum enrollment procedures and prerequisites, can be found at the Public Health (http://publichealth.uci.edu) website.

Change of major. Students who wish to change their major to Public Health Sciences or Public Health Policy should contact the Public Health Student Services office for information about change-of-major requirements, procedures, and policies. Information is also available at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Requirements for the Bachelor's Degree

All Program in Public Health students must complete the following requirements.

All students must meet the University Requirements (p. 71).

Program Requirements:

Grade Requirement: A minimum grade point average of at least C (2.0) is required (1) overall, (2) in all courses required for the major program, (3) in the upper-division courses required for the major, and (4) in Public Health 195W.

Residence Requirement: After matriculation, all Public Health courses required for the major must be successfully completed at UCI. The Program in Public Health strictly enforces the UCI residence requirement. At least 36 of the final 45 units completed by a student for the bachelor's degree must be earned in residence at the UCI campus. (The Program considers courses taken in the Education Abroad Program to be in-residence courses.)

Normal Progress: Students in the Public Health Program are expected to make progress toward their degree, and their progress will be monitored. If normal academic progress toward the degree in Public Health is not being met, students will be subject to probation.

Double Majoring and Minoring

Second majors and/or minors will not be approved unless the student can complete both the degree and double major/minor(s) in their allotted time permitted at UCI. Students must be in good standing and not on academic probation for acceptance as a double major/minor(s).

Students may not enter as a double major, but Public Health students interested in other areas may apply for a double major after their first quarter, if the Public Health Program approves.

Overlap Restrictions

Double Majoring in Public Health Sciences and Public Health Policy. Students may double major in Public Health Sciences and Public Health Policy; however there are only seven courses that may overlap between the two majors. Students may overlap PUBHLTH 1, PUBHLTH 2, PUBHLTH 101, MATH 2A, MATH 2B, STATS 7 or STATS 8, and PUBHLTH 195W. There are no other courses that can count for both majors.

Other Double Majors. In fulfilling degree requirements for multiple majors, a maximum of two courses may overlap between any two majors.

Major and Minor Requirements. In fulfilling minor requirements, a maximum of two courses may overlap between a major and minor. No course overlap is permitted between minors.

Students may not double major in Public Health Sciences, Pharmaceutical Sciences, Nursing Science, Biomedical Engineering: Premedical, or with any of the School of Biological Sciences majors or minors.

Requirements for the B.S. Degree in Public Health Sciences

All students must meet the University Requirements (p. 71).

All students must meet the P (p. 1414)rogram Requirements (p. 1414).

Major Requirements

A. Lower-Division Requirements

PUBHLTH 1	Principles of Public Health
PUBHLTH 2	Case Studies in Public Health Practice
CHEM 1A- 1B- 1C- 1LC- 1LD	General Chemistry and General Chemistry and General Chemistry and General Chemistry Laboratory and General Chemistry Laboratory [1]
CHEM 51A- 51B- 51C- 51LB- 51LC	Organic Chemistry and Organic Chemistry and Organic Chemistry and Organic Chemistry Laboratory and Organic Chemistry Laboratory [2]

BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
BIO SCI 97	Genetics
BIO SCI 98	Biochemistry
BIO SCI 99	Molecular Biology
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
STATS 7	Basic Statistics
or STATS 8	Introduction to Biological Statistics
And three Social and Behavioral Science courses, with at least two in the same discipline selected from the following:	
Psychology:	
PSY BEH 9	Introduction to Psychology
Sociology:	
SOCIOL 1	Introduction to Sociology
SOCIOL 2	Globalization and Social Change
SOCIOL 3	Social Problems
Economics:	
ECON 1	Introduction to Economics
ECON 13	Global Economy
ECON 20A	Basic Economics I
ECON 20B	Basic Economics II
Anthropology:	
ANTHRO 2A	Introduction to Sociocultural Anthropology
ANTHRO 2B	Introduction to Biological Anthropology
ANTHRO 2C	Introduction to Archaeology
ANTHRO 2D	Introduction to Language and Culture
Political Science:	
POL SCI 6C	Introduction to Political Science: Micropolitics
POL SCI 31A	Introduction to Political Theory
POL SCI 51A	Introduction to Politics Around the World
Social Ecology:	
SOCECOL E8	Introduction to Environmental Analysis and Design
B. Upper-Division Requirements	
PUBHLTH 101	Introduction to Epidemiology
Select two of the following:	
BIO SCI D103	Cell Biology
BIO SCI D104	Developmental Biology
BIO SCI E109	Human Physiology
BIO SCI N110	Neurobiology and Behavior
Five additional upper-division courses with at least one course chosen from each of the three topic areas: [3]	
Epidemiology, Genetics, and Health Informatics:	
BIO SCI D137	Eukaryotic and Human Genetics [4]
BIO SCI D148	Development and Disease [4]
BIO SCI D153	Molecular and Cellular Basis of Disease [4]
BIO SCI E106	Processes in Ecology and Evolution [4]
BIO SCI M123	Introduction to Computational Biology [4]
BIO SCI M137	Microbial Genetics [4]
COMPSCI 183	Introduction to Computational Biology [4]
PSY BEH 183S	Social Epidemiology [4]
PUBHLTH 102–119 [4]	

Environmental and Global Health Sciences:	
ANTHRO 125B	Ecological Anthropology [4]
ANTHRO 128B	Race, Gender, and Science
ANTHRO 134A	Medical Anthropology
BIO SCI D124	Biology of Integrative Medecine
BIO SCI E118	Ecosystem Ecology [4]
BIO SCI E140	Evolution and the Environment [4]
BIO SCI E151	Population Dynamics in Ecology, Epidemiology, and Medicine [4]
BIO SCI E179	Limnology and Freshwater Biology [4]
BIO SCI E189	Environmental Ethics [4]
BIO SCI 191A- 191B	Senior Seminar on Global Sustainability I and Senior Seminar on Global Sustainability II [4]
BIO SCI 191CW	Writing/Senior Seminar on Global Sustainability III [4]
CHEM 125	Advanced Organic Chemistry [4]
CHC/LAT 176	Race, Gender, and Science
CRM/LAW C148	Geographic Information Systems
EARTHSS 112	Global Climate Change and Impacts [4]
EARTHSS 164	Ecosystem Ecology [4]
EARTHSS 190A- 190B	Senior Seminar on Global Sustainability I and Senior Seminar on Global Sustainability II [4]
EARTHSS 190CW	Writing/Senior Seminar on Global Sustainability III [4]
PUBHLTH 126	Public Health Law: Fundamentals in Action
PUBHLTH 160–179 [4]	
PUBHLTH 190	Geographical Information Systems for Public Health [4]
SOCECOL E127	Nuclear Environments
SOCECOL 186A- 186B	Senior Seminar on Global Sustainability I and Senior Seminar on Global Sustainability II [4]
SOCECOL 186CW	Writing/Senior Seminar on Global Sustainability III [4]
Infectious and Chronic Diseases:	
BIO SCI D111L	Developmental and Cell Biology Laboratory [4]
BIO SCI E124	Infectious Disease Dynamics [4]
BIO SCI E136	The Physiology of Human Nutrition [4]
BIO SCI E137	Genetics of Complex Traits [4]
BIO SCI E176	Evolution of Infectious Disease [4]
BIO SCI M114	Advanced Biochemistry
BIO SCI M114L	Biochemistry Laboratory [4]
BIO SCI M116	Advanced Molecular Biology [4]
BIO SCI M116L	Molecular Biology Laboratory [4]
BIO SCI M118L	Experimental Microbiology Laboratory [4]
BIO SCI M121	Immunology with Hematology [4]
BIO SCI M121L	Advanced Immunology Laboratory [4]
BIO SCI M122	General Microbiology
BIO SCI M122L	Advanced Microbiology Laboratory [4]
BIO SCI M124A- M124B	Virology and Viral Pathogenesis and Immunity [4]
BIO SCI M125	Molecular Biology of Cancer [4]

BIO SCI M143	Human Parasitology [4]
PHRMSCI 170A	Molecular Pharmacology I [4]
PUBHLTH 180–189 [4]	
C. Practicum Requirement	
PUBHLTH 195W	Public Health Practicum and Culminating Experience (8 units) [5]

1 CHEM 1C and CHEM 1LC are corequisites. Series change effective for new students beginning fall 2011.

2 Series change effective beginning fall 2012. CHEM 1LD will be a prerequisite for CHEM 51LB.

3 Upon petition, PUBHLTH 100 may also be taken to fulfill upper-division course work in specific topic areas, depending on course content.

4 Note additional prerequisites.

5 Taken for upper-division writing credit.

Requirements for the B.A. Degree in Public Health Policy

All students must meet the University Requirements (p. 71)**.**
All students must meet the Program Requirements (p. 1414)**.**

Major Requirements

A. Lower-Division Requirements	
PUBHLTH 1	Principles of Public Health
PUBHLTH 2	Case Studies in Public Health Practice
Select three of the following:	
BIO SCI 9A	Nutrition Science
BIO SCI 9D	Diseases of the Twenty-First Century
BIO SCI 9J	Biology of Oriental Medicine
BIO SCI 9N	Introduction to Complementary and Alternative Medicine
BIO SCI 10	The Biology of Human Diseases
BIO SCI 12B	Disease and Civilization
BIO SCI 12D	Molecular Basis of Human Disease
BIO SCI 25	Biology of Cancer
BIO SCI 35	The Brain and Behavior
BIO SCI 36	Drugs and the Brain
BIO SCI 37	Brain Dysfunction and Repair
BIO SCI 38	Mind, Memory, Amnesia, and the Brain
BIO SCI 45	AIDS Fundamentals
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
Complete:	
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
STATS 7	Basic Statistics
or STATS 8	Introduction to Biological Statistics
And three Social and Behavioral Science courses, with at least two in the same discipline selected from the following:	
Psychology:	
PSY BEH 9	Introduction to Psychology
Sociology:	
SOCIOL 1	Introduction to Sociology
SOCIOL 2	Globalization and Social Change
SOCIOL 3	Social Problems
Economics:	
ECON 1	Introduction to Economics
ECON 13	Global Economy
ECON 20A	Basic Economics I

ECON 20B	Basic Economics II
Anthropology:	
ANTHRO 2A	Introduction to Sociocultural Anthropology
ANTHRO 2B	Introduction to Biological Anthropology
ANTHRO 2C	Introduction to Archaeology
ANTHRO 2D	Introduction to Language and Culture
Political Science:	
POL SCI 6C	Introduction to Political Science: Micropolitics
POL SCI 31A	Introduction to Political Theory
POL SCI 51A	Introduction to Politics Around the World
Social Ecology:	
SOCECOL E8	Introduction to Environmental Analysis and Design
B. Upper-Division Requirements	
PUBHLTH 101	Introduction to Epidemiology
PUBHLTH 122	Health Policy
PUBHLTH 144	Health Behavior Theory
Seven additional upper-division courses with at least two courses in each topic area selected from the following courses: [1]	
Health Policy and Management:	
ASIANAM 150	Special Topics in Asian American Studies [2]
CRM/LAW C126	Drugs, Crime, and Social Control
CRM/LAW C148	Geographic Information Systems
ECON 123A- 123B- 123C	Econometrics I and Econometrics II and Econometrics III [3]
ECON 124	Advances in Econometrics I [3]
MGMT 101	Management Science [3]
MGMT 107	Introduction to Management Information Systems
MGMT 160	Introduction to Business and Government [3]
MGMT 165	US Healthcare Systems [3]
MGMT 166	Business of Medicine [3]
MGMT 190	Special Topics in Management [2]
PP&D 102	Urban Inequality
PP&D 112	Foundations of Community Health [3]
PP&D 132	Environmental Sustainability II
PP&D 134	Human Ecology [3]
PP&D 155	Urban Design Principles
PP&D 166	Urban Public Policy [3]
PP&D 169	Public Policy Analysis [3]
POL SCI 171A	Law and Society [3]
PUBHLTH 120–139 [3]	
PUBHLTH 170	Introduction to Global Health
PUBHLTH 190	Geographical Information Systems for Public Health
Social and Behavioral Health Sciences:	
ANTHRO 134A	Medical Anthropology
CRM/LAW C149	Violence in Society [3]
PP&D 151	Environmental Psychology
PSY BEH 103H	Health Psychology [3]
PSY BEH 135H	Introduction to Biopsychology [3]

PSY BEH 136H	Behavioral Medicine [3]
PSY BEH 137H	Human Stress [3]
PSY BEH 138H	Child Health Psychology [3]
PSY BEH 141H	Clinical Health Psychology [3]
PSY BEH 171S	Environmental Psychology [3]
PSY BEH 178S	Violence in Society [3]
PSY BEH 183S	Social Epidemiology [3]
PUBHLTH 102	Social Epidemiology [3]
PUBHLTH 140–159 [3]	
PUBHLTH 176	War and Public Health
SOCECOL 131	Social Ecology of Health Promotion [3]
C. Practicum Requirement	
PUBHLTH 195W	Public Health Practicum and Culminating Experience (8 units) [4]

1 Upon petition, PUBHLTH 100 may also be taken to fulfill upper-division course work in specific topic areas, depending on course content.

2 Course content requires approval by the Program.

3 Note additional prerequisites.

4 Taken for upper-division writing credit.

Minor in Public Health

The minor in Public Health provides students with the fundamental knowledge of principles, applications, and skills needed to develop a firm appreciation of health and disease prevention at the population level, and to use this special knowledge to transform the experience of their major education into innovative approaches for solving problems in health care and assessment.

Teaching and learning. Public Health education demands interdisciplinary engagement. The minor curriculum is intended to engage students from majors across the campus by introducing them to the main concepts and branches of public health, while also giving them the skills and values needed to translate their major education into meaningful projects in population health assessment and disease prevention. In concert with the major degrees in public health, the minor emphasizes learning through the ecological model of public health where the linkages and relationships among multiple determinants affecting health are examined to identify critical nodes of opportunities to improve the health of populations at various scales of analysis.

Research. Public Health education is most firmly embedded in knowledge systems through research and practice. The minor curriculum requires a period of directed or special studies where students have the opportunity to translate their didactic knowledge into tangible projects within the rubric of public health practice.

Service. Public Health education also demands community engagement. All students of Public Health are encouraged to incorporate public health impacts and benefit assessments into societal functions that ground their understanding of public problems. Experience in public health service may be acquired through participation in learning opportunities and by reflecting critically on those experiences under the auspices of vigorous campus organizations such as the Public Health Association (http://pha-uci.org).

Requirements for the Minor

Nine courses are required (36 units), no more than two of which may be taken on a Pass/Not Pass basis, distributed as follows:

A. Complete:	
PUBHLTH 1	Principles of Public Health
PUBHLTH 2	Case Studies in Public Health Practice
B. Six upper-division courses in Public Health with at least one from each of four subject-cluster areas as follows:	
Epidemiology, Genetics, and Health Informatics	
PUBHLTH 101–119	
Health Policy and Management	
PUBHLTH 120–139	
Social and Behavioral Health Sciences	
PUBHLTH 140–159	
Environmental and Global Health Sciences	
PUBHLTH 160–179	

Infectious and Chronic Diseases	
PUBHLTH 180–189	
C. Complete:	
PUBHLTH 198	Directed Studies (4 units) [1]
or	
PUBHLTH 199	Undergraduate Research (or equivalent) [1]

[1] Course work must be on topics demonstrably related to public health research and/or practice. The courses selected to fulfill this requirement must have Public Health number designations. Petitions to use alternative courses will be considered on a case-by-case basis.

No more than two courses may overlap between the student's major degree and the minor in Public Health.

Residence Requirement: A minimum of six courses required for the minor must be completed at UCI. Approved courses taken in the UC Education Abroad Program are considered to be in-residence courses.

Graduate Programs

The Program in Public Health offers a Master of Public Health (M.P.H.), a Doctor of Philosophy (Ph.D.) in Public Health, and a dual degree M.D./M.P.H. with the School of Medicine. Detailed information about the degree programs follows.

Master of Public Health

The distinctive mission of the UCI M.P.H. program is to create a motivated cadre of public health professionals who are prepared to implement effective strategies for reducing the burden of disease and disability in culturally diverse communities, and who are primed to draw from their broad training in the global dimensions of public health principles to lead and work collaboratively on precise assessments of health-risk factors and on the management of evidence-based prevention strategies.

In addition to meeting all the training requirements in the core competency subjects recommended by the Association of Schools and Programs in Public Health (ASPPH), students enrolled in the UCI M.P.H. program will have the opportunity for in-depth pursuit of one of three emphasis areas: Environmental Health, Epidemiology, or Sociocultural Diversity and Health. The M.P.H. is a 60-unit program. A full-time student must enroll in at least 12 units per quarter. Part-time enrollment is also allowed. To maintain residency, part-time students must enroll in four to eight units per quarter. All students are required to complete 240 hours of fieldwork at an approved public health practicum site. The Program is fully accredited by the Council on Education for Public Health (http://ceph.org).

Further information may be obtained from the Public Health (http://publichealth.uci.edu) website, by calling (949) 824-7095, or by sending e-mail to phgo@uci.edu.

Career Information

Graduates of the UCI M.P.H. program will find employment in both public and private agencies committed to preventing disease and promoting health in all aspects of society. Earning a graduate degree gives new professionals a competitive edge over students who complete their education at the bachelor's degree level. In particular, the curriculum of the M.P.H. program at UCI is specifically designed to create students who can combine knowledge of the five core disciplines in public health with leadership, communication, and problem-solving skills to meet the needs of culturally diverse communities. Earning an M.P.H. degree will allow graduates to pursue supervisory positions and career advancement opportunities that may be unattainable without an advanced degree. Students may also wish to combine an M.P.H. with a clinical degree in the health professions to increase opportunities for employment.

Course work in the M.P.H. program can also prepare a student to pursue doctoral programs in public health. The Ph.D. is a research-based degree that prepares the candidate for research and teaching positions in institutions of higher education. The Dr.P.H. is a professional degree that prepares candidates for careers as practitioners in high-level administration or teaching. The UCI Program in Public Health offers a Ph.D. in Public Health with concentrations in Disease Prevention and Global Health. More information about careers and graduate school in public health can be obtained through the ASPPH (http://www.aspph.org/discover) and the Council on Education for Public Health (http://ceph.org).

General Admission Requirements

The M.P.H. program accepts students for the fall quarter only. Students are encouraged to begin the application process early to facilitate the timely submission of the application. The deadline for receipt of all application materials for the M.P.H. program is December 15. There are no specific course prerequisites needed to enroll, and the program is open to students with bachelor's degrees in a variety of disciplines. Individuals from diverse cultural, geographic, and socioeconomic backgrounds are encouraged to apply.

To be eligible to apply for the M.P.H. program, applicants must meet certain minimum academic requirements. Applicants must hold a bachelor's degree from an accredited academic institution, have earned a minimum grade point average of 3.0 (B average) in undergraduate course work, and possess strong verbal and quantitative skills as reflected by Graduate Record Examination (GRE) General Test scores. Applicants may also submit standardized test scores from the MCAT, GMAT, or LSAT in lieu of the GRE. If the applicant has, from a UC-equivalent university, a Ph.D. in a health-related field, a medical degree, or is currently enrolled in medical school, a test score must be submitted, but the test score's date does not need to be within the

validity period. Evaluations of applicant files for admission to the M.P.H. program will consist of an assessment of transcripts of previous academic work, standardized graduate admission test scores, statement of purpose, letters of recommendation, and other relevant qualifications. Applicants must choose one of the three available emphases at the time of application.

Applicants must submit both the Application for Graduate Admission and the School of Public Health Application Service (SOPHAS) application in order to be considered for admission. For more information on admissions, visit the Public Health (http://publichealth.uci.edu) website or contact phgo@uci.edu.

Program Requirements

The M.P.H. is a 60-unit degree program consisting of fourteen courses taken over five quarters. Eight courses must be taken by all students. In addition, students choose three courses in their emphasis and three elective courses. The introductory course in the foundations of public health and the five core competency courses must be taken for a letter grade. Any foundation or core competency courses in which a minimum grade of B is not achieved must be re-taken.

Required Courses. All students begin the program with a four-unit introductory course in the foundations of public health. The five core competency courses, each of which is four units, are Public Health Statistics (PUBHLTH 207), Introduction to Environmental Health Science (PUBHLTH 264), Graduate Epidemiology in Public Health (PUBHLTH 206), Health Policy and Management (PUBHLTH 222), and Health Behavior Theory (PUBHLTH 244). Students must also complete at least two quarters of the Graduate Seminar (PH 291) for two units each quarter, and the Graduate Practicum and Culminating Experience in Public Health (PUBHLTH 295) (eight units).

Emphasis Courses. Three courses (four units each) in one of the three emphases are required. Students choose their emphasis at the time of application and select courses with the help of a faculty mentor in that emphasis.

Elective Courses. Three elective courses (four units each) are required. Students select electives in light of their educational and career goals.

Practicum and Culminating Experience. Students are required to complete a supervised internship of 240 hours while registered in the Graduate Practicum and Culminating Experience in Public Health (PUBHLTH 295). The practicum experience follows the first three academic quarters of study in public health, the completion of all core competency courses, and advancement to candidacy. A compendium of approved practicum sites is available online to enrolled M.P.H. students. The student’s work at the practicum site is expected to culminate in a comprehensive written report.

All M.P.H. students are required to maintain an electronic portfolio to document their academic and practical progress throughout the curriculum. The portfolio facilitates reflection on core and emphasis area competencies defined for the M.P.H. degree. Students are required to give an oral presentation near the end of their studies to demonstrate competence for the degree.

Comprehensive Examination. A two-part comprehensive examination will be administered by the faculty of the student’s area of emphasis in the fall quarter. The normative time to take the exam is in the fall quarter, but it is also offered in the spring by special request. Part one consists of a multiple choice proctored examination on the core competency areas and the cross-disciplinary themes of public health. Part two consists of an analysis of case studies in the student’s area of emphasis. Students must pass both parts of the examination before they can be advanced to candidacy for the M.P.H. degree.

For students enrolled full-time, the normative time for completion of the M.P.H. degree is six quarters, and the maximum time permitted is nine quarters. For students enrolled part-time, the normative time is nine quarters, and the maximum is fifteen quarters. Students admitted with advanced standing due to prior graduate-level training may receive credit for up to one-fifth of the total units required toward the M.P.H. degree, upon petition and demonstration of competency associated with those courses. Such credits are not applicable to the graduate practicum and graduate seminar.

M.D/M.P.H. Dual Degree Program

The M.D./M.P.H. program requires five years for completion. It is aimed at individuals who are seeking a career as physicians concerned about making a significant difference in community disease prevention. Students in this program pursue a combined curriculum for an M.D. degree from the School of Medicine and an M.P.H. degree from the Program in Public Health.

Students must be currently enrolled in the M.D. program in order to apply to the dual M.D./M.P.H. program. During their second or third year of medical school, interested students submit both the Application for Graduate Admission and the School of Public Health Application Service (SOPHAS) application in order to be considered for admission. Final acceptance to the program is granted by the Program in Public Health, and M.P.H. coursework begins following the student's third year of medical school. Students should be aware that enrollment in the M.D. program does not guarantee acceptance into the M.P.H. program.

The MCAT, along with the completion of three years of medical school training in good standing, currently serve as a waiver for the GRE entrance examination usually required for application to the M.P.H. program. The total number of units required to graduate from each program separately are satisfied in the M.D./M.P.H. program.

Contact the M.D./M.P.H. Student Affairs Officer at 949-824-7095 for more information.

Doctor of Philosophy in Public Health

The distinctive mission of the Ph.D. in Public Health is to train graduate students to conduct original research on the determinants of health status of populations, and the translation of such knowledge to improve strategies for preventing disease and disability. Graduates of the Ph.D. program will be prepared for independent and collaborative research careers, and to teach at advanced levels of instruction. Students enrolled in the Ph.D. in Public Health must concentrate in either Global Health or Disease Prevention.

Concentration in Global Health

The focus of the Ph.D. research concentration in Global Health is to train excellence in research through engagement in hypothesis-driven projects to investigate the global context of disease burden and the improvement of population health status. The program will attract candidates who seek to analyze problems at the intersection of risk, vulnerability, and disease. Activities may include investigation of strategies to make research results that have already produced benefits in one country or region effective in underprivileged regions. The program trains students in integrative expertise essential for global health research with hypotheses in the nexus of content (risk analysis), context (vulnerability assessments), and process (translation of knowledge to reduce the burden of disease).

The specific learning objectives of the Concentration in Global Health are for graduates of the degree to:

1. Demonstrate knowledge of the major theoretical underpinnings of advances in global health research.
2. Explain the relationship between theory and research methods focused on understanding the association of risk, vulnerability, and outcome in global health.
3. Compare and contrast the health status of different populations with respect to their burden of disease.
4. Formulate research hypotheses in the intersection of risk factors, vulnerable populations, and burden of disease.
5. Compose research proposals and conduct original research resulting in discoveries that contribute to improved understanding of risk factors and variations in disease burden in a population, and strategies to alleviate the burden at the global level.

Concentration in Disease Prevention

The focus of the Ph.D. concentration in Disease Prevention is to train excellence in research to discover insights into how human behavior, social constraints, and other contextual factors influence strategies to prevent disease in populations that are vulnerable to risk factors. The program emphasizes the ecological model of disease prevention, with research hypotheses emerging through multi-layered analysis of determinants of health status, including individual, interpersonal, organizational, community, and overarching policy. Students generate the hypotheses for their research in the nexus of risk factors, health behavior, and vulnerable populations.

The specific learning objectives of the Concentration in Disease Prevention are:

1. Demonstrate knowledge of the major theoretical underpinnings of strategies for disease prevention.
2. Explain the relationship between theory and research methods focused on understanding the association of risk, behavior, and vulnerability with respect to disease pathways.
3. Analyze interrelationships among the determinants of illness and maladaptive health behaviors using theories of health behavior.
4. Formulate research hypotheses in the intersection of health risk factors, health behavior, and health promotion and policies toward disease prevention.
5. Compose research proposals and conduct original research resulting in discoveries that contribute to improved understanding of the role of behavior and health promotion strategies in mitigating the vulnerability to health risk factors in specific populations, with the goals of applying the knowledge to disease prevention.

Career Information

The Ph.D. in Public Health prepares graduates to initiate independent and collaborative research careers in academic institutions, to teach at advanced levels of instruction, and to lead research efforts at agencies dedicated to public health at all levels of organization. Graduates of the Ph.D. in Public health will gain employment at research universities, government agencies, or private sector organizations including research institutes, hospitals, and public health foundations.

General Admission Requirements

Students enroll in the Ph.D. in Public Health in the fall quarter of each year. Applicants are encouraged to start the application process early by consulting with faculty members whose research activities align with the applicant’s interests and academic background. The deadline for receipt of all application materials is December 1. Applicants must choose one of the two available concentrations at the time of application. Master’s level degrees in health-related disciplines are the preferred preparation for admission to the Ph.D. in Public Health. Applicants to the Ph.D. in Public Health who come

with undergraduate degrees from other related majors might be required to take supplementary courses in addition to the preparatory module of the Ph.D. program.

All applicants must have an overall grade point average of B (3.0 on a 4.0 scale) or better and take the Graduate Record Examination (GRE) general test. Applicants must meet the general admission requirements of the UCI Graduate Division and submit both the Application for Graduate Admission and the School of Public Health Application Service (SOPHAS) application in order to be considered for admission.

Each Ph.D. student must serve as a teaching assistant for at least two quarters during the graduate program. If English is not the student's first language, the student must pass a campus-approved oral English proficiency exam prior to serving as a teaching assistant.

For more information on admissions, visit the Public Health (http://publichealth.uci.edu) website or contact phgo@uci.edu.

Program Requirements

A main feature of the Ph.D. in Public Health is the situation of dissertation research in an ecological framework that considers multi-level analysis of public health questions. We integrate this feature in the two concentrations, each with knowledge modules and creative activity that must be satisfied in partial fulfillment of the degree requirements. All Ph.D. students are required to complete a minimum of 88 quarter-units according to the following modules:

1. Preparatory Module: Courses on the following topics:
    a. Development of research proposals (PUBHLTH 288).
    b. Research design (PUBHLTH 297).
    c. Statistical analysis (STATS 201, STATS 202, STATS 203).
    d. Qualitative methods.
    e. Epidemiologic methods (PUBHLTH 205).
    f. Contemporary ethical and regulatory issues governing research in public health (PUBHLTH 292).
    g. Communication of research findings to various audiences (PUBHLTH 294).
    h. Team research through participation in directed research with a faculty research group (PUBHLTH 298).
2. Concentration Module: Seven core courses:
    a. Global Health Research (One course each in Advances in Global Health (PUBHLTH 282), Global Burden of Disease (PUBHLTH 280), International Epidemiology (PUBHLTH 213), and Geographic Information Science (PUBHLTH 283), and t wo courses each in the thematic areas of Risk Factors and Vulnerable Populations);
    b. Disease Prevention Research (One course each in Health Promotion (PUBHLTH 245), Social Research Methods (PUBHLTH 246), Social Epidemiology (PUBHLTH 208), and Health Behavior (PUBHLTH 244), and two courses each in the thematic areas of Risk Factors and Vulnerable Populations).
3. Research Module: Requires students to:
    a. Establish a dissertation committee of faculty members.
    b. Submit a research proposal and advance to Ph.D. candidacy by defending the proposal.
    c. Consistently enroll in research course units (Students must register for at least three quarters of the dissertation research course (PUBHLTH 296) under the supervision of the Chair of the dissertation committee).
    d. Conduct research under the supervision of faculty member(s) to complete original research.
    e. Submit and defend a dissertation to the faculty committee.
4. Elective Module: elective courses are not designated, and may be used to fill any deficiency in a student's background or advance knowledge in a particular subject. Students consult with faculty mentor and research dissertation committee to select elective courses, subject to review by the Program's curriculum committee.

The qualifying examination consists of two parts. The first part is a written test based on the breadth of knowledge of subjects within the Ph.D. concentration. The second part is an oral defense of the student's research proposal. Students must submit a detailed research proposal to a committee of five faculty members consisting of four members with formal appointments in Public Health, and an external member. Advancement to doctoral candidacy is contingent on passing the qualifying examination. We expect students to sit for the qualifying examination by the beginning of their third

year in the program. Ph.D. completion requires submission of an acceptable dissertation and oral defense. The normative time to degree is six years, and the maximum time permitted is eight years.

Teaching Requirement

Students enrolled in the Ph.D. in Public Health are required to serve as Teaching Assistants in public health courses for two quarters during their graduate study. Teaching is an important component of graduate training, as it helps graduate students learn how to communicate effectively about their field of knowledge. In addition, teaching experience is valuable to those planning for a career in academia. Graduate students with comparable prior teaching experience (e.g., through postgraduate degrees earned at UC Irvine or other comparable institution) may request a waiver of the teaching requirement.

Faculty

Dean B. Baker, M.D. University of California, San Diego, *Professor of Medicine; Environmental Health Sciences; Program in Public Health*

Scott Bartell, Ph.D. University of California, Davis, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology; Social Ecology; Statistics*

Hans-Ulrich Bernard, Ph.D. University of Goettingen, *Professor of Molecular Biology and Biochemistry; Program in Public Health*

Zuzana Bic, Dr.P.H. Loma Linda University, *Lecturer with Security of Employment of Program in Public Health*

Stephen C. Bondy, Ph.D. University of Birmingham, *Professor of Medicine; Environmental Health Sciences; Pharmacology; Program in Public Health*

Brandon J. Brown, Ph.D. Johns Hopkins University, *Lecturer with Potential Security of Employment of Program in Public Health*

Tim-Allen Bruckner, Ph.D. University of California, Berkeley, *Assistant Professor of Program in Public Health; Planning, Policy, and Design*

Bharath Chakravarthy, M.D. Boston University, *Assistant Professor of Emergency Medicine; Program in Public Health*

Wayne Wei Chung Chang, M.D. Saint Louis University, *Health Sciences Associate Clinical Professor of Medicine; Program in Public Health*

Yunan Chen, Ph.D. Drexel University, *Associate Professor of Informatics; Program in Public Health* (medical informatics, human-computer interaction)

Bongkyoo Choi, Sc.D. University of Massachusetts, *Assistant Professor of Medicine; Program in Public Health*

Ralph W. Cygan, M.D. State University of New York Downstate Medical Center, *Health Sciences Professor of Medicine; Program in Public Health*

Robert Detrano, M.D. University of Rome, *Health Sciences Clinical Professor of Radiological Sciences; Program in Public Health*

Rufus D. Edwards, Ph.D. Rutgers, The State University of New Jersey, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology*

Aviane Forde, J.D. Thomas M. Cooley Law School, *Lecturer of Program in Public Health*

Chad P. Garner, Ph.D. Oxford University, *Associate Professor of Epidemiology; Program in Public Health*

Daniel L. Gillen, Ph.D. University of Washington, *Associate Professor of Statistics; Epidemiology; Program in Public Health*

Elisabeth Gonzalez, Ph.D. University of California, Irvine, *Lecturer of Program in Public Health*

Lisa B. Grant Ludwig, Ph.D. California Institute of Technology, *Professor of Program in Public Health*

F. Allan Hubbell, M.D. Baylor University, *Professor Emeritus of Medicine; Program in Public Health*

Kamyar Kalantar-Zadeh, M.D. University of Bonn, *Professor of Medicine; Program in Public Health*

Michael T. Kleinman, Ph.D. New York University, *Adjunct Professor of Community & Environ Medicine; Environmental Health Sciences; Program in Public Health*

Elliott H. Kornhauser, M.D. University of Toronto, *Health Sciences Professor of Medicine; Program in Public Health*

Cynthia Lakon, Ph.D. University of North Carolina at Chapel Hill, *Assistant Professor of Program in Public Health*

Shahram Lotfipour, M.D. University of Iowa, *Professor of Emergency Medicine; Program in Public Health*

Ulrike Luderer, M.D., Ph.D. Northwestern University, *Professor of Medicine; Developmental and Cell Biology; Environmental Health Sciences; Program in Public Health* (reproductive toxicology, developmental toxicology, developmental basis of ovarian toxicity, ovarian cancer)

Frank L. Meyskens, M.D. University of California, San Francisco, *Daniel G. Aldrich, Jr. Endowed Chair* and *Professor of Medicine; Biological Chemistry; Epidemiology; Program in Public Health*

Michael J. Montoya, Ph.D. Stanford University, *UCI Chancellor's Fellow* and *Associate Professor of Anthropology; Chicano/Latino Studies; Culture and Theory; Program in Public Health* (social inequality and health, race and ethnicity, social and cultural studies of science, technology, and medicine, participation of ethnic populations in biomedical research, the U.S./Mexican border, critical bioethics)

Dana Mukamel, Ph.D. University of Rochester, *Professor of Medicine; Program in Public Health*

Andrew Noymer, Ph.D. University of California, Berkeley, *Associate Professor of Program in Public Health*

Oladele A. Ogunseitan, Ph.D. University of Tennessee, *Professor of Program in Public Health; Environmental Health Sciences*

Annie E. Ro, Ph.D. University of California, Los Angeles, *Assistant Professor of Program in Public Health*

Abbas-Jean Roayaei, Ph.D. Florida State University, *Lecturer of Program in Public Health*

Miryha G. Runnerstrom, Ph.D. University of California, Irvine, *Lecturer of Program in Public Health*

Terry L. Schmidt, Dr.H.A. Medical University of South Carolina, *Lecturer of Program in Public Health; Paul Merage School of Business*

Peter L. Schnall, M.D. Stanford University, *Health Sciences Clinical Professor of Medicine; Program in Public Health*

Tonya L. Schuster, Ph.D. University of California, Riverside, *Lecturer of Sociology; Program in Public Health*

Behjat Sharif, Ph.D. Southern Illinois University Carbondale, *Lecturer of Program in Public Health*

Roxane C. Silver, Ph.D. Northwestern University, *Professor of Psychology and Social Behavior; Program in Public Health* (coping with traumatic life events (personal losses and collective traumas), stress, social psychology, health psychology)

Lisa Sparks, Ph.D. University of Oklahoma, *Adjunct Professor of Program in Public Health*

Sharon M. Stern, Ph.D. University of Utah, *Senior Lecturer with Security of Employment Emerita of Program in Public Health*

Daniel S. Stokols, Ph.D. University of North Carolina at Wilmington, *Professor Emeritus of Psychology and Social Behavior; Epidemiology; Planning, Policy, and Design; Program in Public Health* (environmental psychology, science of team science, transdisciplinary public health)

David Timberlake, Ph.D. University of California, San Diego, *Associate Professor of Program in Public Health; Epidemiology*

Veronica M. Vieira, D.Sc. Boston University, *Associate Professor of Program in Public Health; Environmental Health Sciences*

Lari B. Wenzel, Ph.D. Arizona State University, *Professor of Medicine; Program in Public Health*

Jun Wu, Ph.D. University of California, Los Angeles, *Associate Professor of Program in Public Health; Environmental Health Sciences*

Guiyun Yan, Ph.D. University of Vermont, *Professor of Program in Public Health; Ecology and Evolutionary Biology; Program in Public Health*

Courses

PUBHLTH 1. Principles of Public Health. 4 Units.
Introduces the major concepts and principles of public health and the determinants of health status in communities. Emphasizes the ecological model that focuses on the linkages and relationships among multiple natural and social determinants affecting health. Course may be offered online.

Restriction: Public Health Sciences, Public Health Policy, and Nursing Science majors have first consideration for enrollment.

PUBHLTH 2. Case Studies in Public Health Practice. 4 Units.
Presents case studies in various themes of public health practice to demonstrate how the principles of public health were established and continue to evolve.

Prerequisite: PUBHLTH 1.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 7. Introduction to Public Health Statistics. 4 Units.
Introduces the development and application of statistical reasoning and methods in addressing, analyzing, and solving problems in public health, health care, and biomedical, clinical, and population-based research and practice.

Overlaps with SOCECOL 13, STATS 7, STATS 8, MGMT 7.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

(Va)

PUBHLTH 10. Special Topics in Public Health . 2-4 Units.
Introduction to emerging topics in public health. Topics addressed vary each quarter. Course may be offered online.

Repeatability: Unlimited as topics vary.

PUBHLTH 30. Human Environments. 4 Units.
Study of natural and physical components of earth's environmental problems due to human activities. Topics include global air, water, soil, biodiversity, rainforests, energy, demographics, agriculture, and urbanization. Theme is sustainability. Integrated into the science are social, legal, and economic considerations.

(II)

PUBHLTH 60. Environmental Quality and Health. 4 Units.
A survey of how pollution in the natural and physical environment affects human health. Topics are toxicology, epidemiology, risk assessment, water, food, air, radiation, pesticides, solid and hazardous waste. Included are interdisciplinary elements of environmental regulations, environmental education, consumer protection.

(II)

PUBHLTH 80. AIDS Fundamentals. 4 Units.
Considers the biological and sociological bases of the AIDS epidemic. Topics include the history of AIDS, current medical knowledge, transmission, risk reduction, and how the community can respond.

Same as BIO SCI 45.

(II)

PUBHLTH 90. Natural Disasters. 4 Units.
Natural disasters are natural processes that adversely affect humans. By examining these processes students develop a basic understanding of Earth's physical environment. Topics include: tectonics, earthquakes, volcanoes, landslides, severe weather, flooding, climate change, mass extinctions and impacts with space objects.

(II)

PUBHLTH 91. Disparities in Health Care. 2-8 Units.
Student participatory course practicing initiation, planning, and coordination of various speakers on the subject of Disparities in Health Care.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

PUBHLTH 100. Special Topics in Public Health. 4 Units.
Studies in selected areas of public health. Topics addressed vary each quarter. Course may be offered online when topic is Public Health in the Corporate World.

Prerequisite: PUBHLTH 1.

Repeatability: Unlimited as topics vary.

PUBHLTH 101. Introduction to Epidemiology. 4 Units.
The distribution of disease and injury across time, space and populations. Covers basic concepts and methods of descriptive epidemiology including the natural history of disease, data, and indices of health.

Prerequisite: STATS 7 or STATS 8.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 102. Social Epidemiology. 4 Units.
Overviews evidence linking environmental factors to mental and physical disorders including such variables as socioeconomic status, income inequality, work stress, job loss, social capital, location, and other demographic characteristics. Measurement and research design issues of both individual and aggregate levels.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and SOCECOL 10 and SOCECOL 13.

Same as PSY BEH 183S.

Restriction: Psychology and Social Behavior, Social Ecology, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 103. Introduction to Genetic Epidemiology. 4 Units.
Examines the methodological approaches for studying the importance of genetic factors and gene-environment interactions in human diseases. Topics include: genetic and epidemiological concepts, population studies, family studies, and applications in medicine and public health.

Prerequisite: PUBHLTH 101.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 104. Analytic and Applied Epidemiology. 4 Units.
Covers basic concepts of analytic epidemiology and applications, including experimental and observational designs, prevention, screening, treatment and rehabilitation, infectious disease, and injury prevention.

Prerequisite: PUBHLTH 101.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 105. Introduction to Medical Informatics. 4 Units.
Broad overview of medical informatics for students with varied backgrounds. Electronic medical records, online resources, mobile technologies, patient safety, and computational design. Legal, ethical, and public policy issues. Health systems management. Evaluation and fieldwork for health systems.

Same as IN4MATX 171.

Restriction: Upper-division students only.

PUBHLTH 106. Project in Health Informatics. 4 Units.
Students undertake significant quarter-long projects related to health informatics. Topics may include field evaluations of health care technologies, prototypes, iterative design, and system implementations.

Prerequisite: PUBHLTH 105 or IN4MATX 171.

Same as IN4MATX 172.

PUBHLTH 107. Epidemiology of Drug Use and Misuse. 4 Units.
Applies epidemiologic concepts to the use and misuse of licit/illicit substances. Emphasizes descriptive aspects of drug use and determinants of progressing from experimental use to misuse. Assesses subgroups of abusers, risk factors, trends, and surveillance techniques for estimating drug prevalence.

Prerequisite: PUBHLTH 1.

Restriction: Upper-division students only. Public Health Policy and Public Health Sciences majors have first consideration for enrollment.

PUBHLTH 119. Special Topics in Epidemiology and Genetics. 4 Units.
Studies in selected areas of epidemiology and genetics. Topics addressed vary each quarter.

Prerequisite: PUBHLTH 1.

Repeatability: Unlimited as topics vary.

PUBHLTH 120. Nutrition and Global Health. 4 Units.
Global issues related to nutrition and public health. Evaluation of nutritional risk factors associated with the development of chronic diseases and the role of nutritional medicine in prevention. Topics include food safety, communicable diseases, supplements, and regulatory issues.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 121. Introduction to Complementary and Alternative Medicine. 4 Units.
Examines health and disease in contemporary American culture/society with definitions, models, and practices of what has come to be known as "orthodox" or "conventional" medicine. Selected "alternative" or "complementary" modes of promoting health and well-being including homeopathy, herbology, and chiropractic.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 122. Health Policy. 4 Units.
Considers social and economic aspects of health and disease in the United States. What are the proper roles of the individual, community, and government in improving health and health care? International comparisons will be made wherever possible.

Same as PP&D 170.

Restriction: Urban Studies, Social Ecology, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 123. Public Issues in Biotechnology. 4 Units.
An assessment of developments in biotechnology potentially affecting various facets of human society, or warranting significant public debate. Covers the implications of genetic engineering and other biotechnological developments for public health, environment, agriculture, legislation, research ethics, public policy, and commerce.

Prerequisite: PUBHLTH 1 and PUBHLTH 2.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 124. Environmental and Public Health Policy. 4 Units.
Examines factors involved in shaping public health and environmental policy. Topics include the role of science in public health policy, the function of governmental regulatory agencies, citizen participation, and economic and sociopolitical aspects of controlling infectious diseases and regulating carcinogens.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 125. Foundations of Community Health. 4 Units.
A social ecological framework for understanding community health is presented. Measures of individual and community health are compared, and the influence of personal and environmental factors on individual, group, and population health is examined. Community health promotion strategies are discussed.

Same as PP&D 112.

Restriction: Urban Studies, Social Ecology, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 126. Public Health Law: Fundamentals in Action. 4 Units.
Addresses the relationship of U.S. public health law to health systems at the individual and population levels. Examines legislative and judicial concepts and how they are applied to disease prevention strategies, health services, management, and policy.

PUBHLTH 127. Public Health Programs for the Corporate World. 4 Units.
International perspective on workplace health promotion. Strategies for developing programs to improve employee health and to decrease risks of chronic degenerative diseases. Case studies include assessment of employee health, program design, implementation, and evaluation. Emphasis on disease prevention. Course may be offered online.

PUBHLTH 129. Public Health Administration. 4 Units.
Examines historical aspects of public health administration including policies, procedures, trends, and development of organizations. Addresses information and skills necessary to succeed in public health leadership roles. Discusses strategic planning, collaborations, and ethical considerations for successful management in public health.

Prerequisite: PUBHLTH 1.

Restriction: Upper-division only. Public Health Policy and Public Health Sciences majors have first consideration for enrollment.

PUBHLTH 134. Asian American Community Public Health. 4 Units.
Focuses on major issues and concepts of community health and their application to public health programs for Asian American populations. Analyzes individual, institutional, community, and policy factors that influence a person's health status within a larger environmental context.

Same as ASIANAM 134.

PUBHLTH 139. Special Topics in Health Policy and Administration. 4 Units.
Studies in selected areas of health policy and administration. Topics addressed vary each quarter.

Prerequisite: PUBHLTH 1.

Repeatability: Unlimited as topics vary.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 141. Clinical Health Psychology. 4 Units.
Behavioral role in etiology, treatment, and prevention of certain diseases. Behavioral intervention including biofeedback, stress-, pain-management, health habit counseling, and other skills to assist patients make cognitive, emotional, and behavioral changes needed to cope with disease or achieve better health.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSY BEH 141H.

Restriction: Public Health Sciences, Public Health Policy, and Psychology and Social Behavior majors have first consideration for enrollment.

PUBHLTH 142. The Human Pain Experience. 4 Units.
Examines the physiological and sociocultural correlates of human pain perception. Emphasis on laboratory and clinical methods of measuring acute and chronic pain; social influences on the experience and communication of pain; biopsychosocial approaches to pain control.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and any upper-division course from the Health or Pre-clinical Psychology areas.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 143. Social Ecology of Health Promotion. 4 Units.
Core themes of Social Ecology are examined as they apply to major areas of health promotion research and practice. Students attend lectures and work collaboratively on team projects conducted in university and community settings.

Same as SOCECOL 131.

Restriction: Public Health Sciences, Public Health Policy, and Social Ecology majors have first consideration for enrollment.

PUBHLTH 144. Health Behavior Theory. 4 Units.
Introduces theoretical perspectives from the social sciences to understand health behavior from the vantage point of individuals, their interpersonal contacts, communities, and ecological contexts. Application of theory to public health problems is a central focus.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 146. Health Promotion Programs. 4 Units.
Examines ecological perspectives of health promotion programs and risk factors related to mortality/morbidity. Analyzes effectiveness of health promotion strategies and issues in the existing healthcare systems in light of sociocultural beliefs and economical/political conditions.

Prerequisite: PUBHLTH 1.

Restriction: Upper-division students only. Public Health Policy and Public Health Sciences majors have first consideration for enrollment.

PUBHLTH 147. Drug Abuse and Its Prevention. 4 Units.
Theoretical and practical underpinnings of drug abuse and its prevention at the individual and population levels. Students practice developing drug abuse prevention schemes for specific populations. Recent developments in pharmacological and biobehavioral theories of drug dependence are explored.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 148. Public Health Communication. 4 Units.
Theoretical underpinnings and practical applications of communication sciences in public health practice. Techniques of effective communication, including fear appeal and deterrence; social marketing; public-private partnerships; health service delivery; and outreach in rural and urban settings, and for international health strategies.

Prerequisite: PUBHLTH 1 and PUBHLTH 2.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 151. Environmental Psychology. 4 Units.
Impact of the physical environment on individual and group behavior. Three basic concerns examined: (a) environmental determinants of behavior at the individual and interpersonal level; (b) social planning and urban design; (c) methodological approaches to the study of environmental issues.

Prerequisite: SOCECOL E8 or SOCECOL 10 or PP&D 4.

Same as PSY BEH 171S, PP&D 151.

Restriction: Urban Studies, Social Ecology, Psychology and Social Behavior, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 159. Special Topics in Social and Behavioral Health Science. 4 Units.
Studies in selected areas of social and behavioral health sciences. Topics addressed vary each quarter.

Prerequisite: PUBHLTH 1.

Repeatability: Unlimited as topics vary.

PUBHLTH 160. Environmental Pollution and Remediation. 4 Units.
The study of pollution—its identification, risks, and remediation. Analysis of sources of natural and anthropogenic environmental pollutants using ecological concepts, chemical fate and transport, engineering technologies, economics, and policy to provide understanding and solutions to these problems.

Restriction: Upper-division students only. Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 161. Environmental Geology. 4 Units.
Introduction to geologic principles and applications to environmental problems. Topics include: tectonic processes, earth materials, soils, river processes, groundwater, the coastal environment, slope failures, seismic hazards, mineral resources, and land-use evaluation based on geologic conditions. Examples from case studies.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 162. Human Ecology of Health. 4 Units.
Many human health problems are directly associated with ethnicity, sex, and age. Integrates the science of these issues with anthropology, geography, economics to understand the relationship, management, treatment. Involves lectures and discussions to probe these factors.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 163. Introduction to Environmental Health Science. 4 Units.
Focuses on processes of exposure to environmental toxins/agents and their impact to human health and the environment. Media transport, exposure assessment, susceptibility, behavior, and health effect of several toxins are discussed.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 164. Toxic Chemicals in the Environment. 4 Units.
Explores the sources, transformation, and sinks of toxic chemicals in the environment, and their effects on public health. Covers regulatory issues and design-for-the-environment initiatives to reduce or eliminate the adverse effects of toxic chemicals.

Prerequisite: PUBHLTH 1 and PUBHLTH 2.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 164L. Toxic Chemicals in the Environment Laboratory. 4 Units.
Covers field sampling techniques and laboratory analysis methods for assessing the occurrence and effects of toxic chemicals in environmental compartments, including water, soils, sediments, air, and food resources.

Prerequisite: PUBHLTH 1 and PUBHLTH 2. Prerequisite or corequisite: PUBHLTH 164.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 165. Issues in Potable Water Reuse. 4 Units.
Provides an in-depth study of the treatment and subsequent reuse of wastewater for drinking. Analyzes existing regulations for both drinking water and reuse situations, microbial and chemical contaminants, health concerns and risk assessment.

Prerequisite: SOCECOL E8.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 166. Geographic Information Systems. 4 Units.
Basic geographic, cartographic, and GIS concepts including computer representation of physical, political, statistical, and social aspects of space using vector and grid-based maps. Experience with extensive geographic base map files and databases through use of GIS software (ArcView 3.x).

Same as CRM/LAW C148.

Restriction: Public Health Sciences, Public Health Policy, and Criminology, Law and Society majors have first consideration for enrollment.

PUBHLTH 167. Air Pollution, Climate, and Health. 4 Units.
Introduction to how air pollutants are emitted into the atmosphere, how people are most exposed to air pollutants in developed and developing areas, physical and meteorological processes that affect transport, and the influence of air pollutants on global warming.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 168. Nuclear Environments. 4 Units.
Understanding the impact of the nuclear age on the environment and human health through interrelated developments of nuclear power and nuclear weapons. The early years of weapon development, catastrophic environmental pollution, perils of nuclear power in the U.S. and Russia.

Same as INTL ST 122, SOCECOL E127.

PUBHLTH 169. Human Exposure Modeling. 4 Units.
Indirect methods in estimating human exposure to environmental agents. Topics include air, noise, dermal and ingestion exposure assessment, time-activity and micro-environmental approach, uncertainty and variability analysis, and the use of GIS and remote sensing in exposure assessment.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 170. Introduction to Global Health. 4 Units.
Provides a foundational interdisciplinary understanding of global health issues and their importance to various societal goals, including poverty reduction, economic productivity, and peace promotion. Covers major communicable and non-communicable diseases and demographic patterns of disease burden.

Prerequisite: PUBHLTH 1.

PUBHLTH 171. Human Exposure to Environmental Contaminants. 4 Units.
Introduces origins of human's realization that chemicals in the environment may adversely affect health. Introduces the theory and principles of exposure assessment. Covers estimation of exposure, variability of measures, the way exposure assessment is incorporated into the risk-assessment paradigm.

PUBHLTH 173. Health and Global Environmental Change . 4 Units.
Overview of scientific underpinnings of global environmental change and human health consequences. Provides an understanding of the fundamental dependency of human health on global environmental integrity. Encourages disciplinary cross-fertilization through interaction of students in environmental, health, and policy sciences.

Prerequisite: One upper-division course in environmental science, public health, environmental policy, and/or environmental management.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 175. Environmental Modeling and Risk Assessment. 4 Units.
Surveys the general principles, basic mathematical methods, and practices of environmental modeling and human health risk assessment. Topics include advection-dispersion models, risk management, and risk perception. Students conduct an original risk assessment as a final group project.

Prerequisite: MATH 2A and STATS 7.

Concurrent with PUBHLTH 275 and TOX 275.

PUBHLTH 176. War and Public Health. 4 Units.
Explores how war impacts public health both globally and domestically in the United States. Focus on the link between war and the burden that it ultimately places on physical, mental, environmental, and societal health as well as on health systems.

PUBHLTH 179. Special Topics in Environmental and Global Health Science. 4 Units.
Studies in selected areas of environmental and global health sciences. Topics addressed vary each quarter.

Prerequisite: PUBHLTH 1.

Repeatability: Unlimited as topics vary.

PUBHLTH 180. Epidemiology of Infectious Disease. 4 Units.
Examines the distribution of infectious disease and the health and disease risk among human populations. Introduces basic methods for infectious disease epidemiology. Case studies of important diseases, including HIV and malaria, are conducted.

Prerequisite: PUBHLTH 1.

PUBHLTH 189. Special Topics in Infectious Diseases. 4 Units.
Studies in selected areas of infectious diseases. Topics addressed vary each quarter.

Prerequisite: PUBHLTH 1.

Repeatability: Unlimited as topics vary.

Restriction: Public Health Sciences and Public Health Policy majors have first consideration for enrollment.

PUBHLTH 190. Geographical Information Systems for Public Health. 4 Units.
Provides a broad introduction to the use of Geographic Information Systems software to carry out projects for visualizing and analyzing spatial data to address significant issues of health care and policy-planning.

Overlaps with PUBHLTH 166, CRM/LAW C148.

Concurrent with PUBHLTH 283.

PUBHLTH 191A. Seminar: Advances and Challenges in Public Health. 2 Units.
Forum for exploring recent advances and challenges in all disciplines of public health research and practice. Features case studies exemplifying the integration of core competencies with cross-cutting interdisciplinary themes of public health.

Grading Option: Pass/no pass only.

Concurrent with PUBHLTH 291A.

PUBHLTH 191B. Seminar: Advances and Challenges in Public Health. 2 Units.
Forum for exploring recent advances and challenges in all disciplines of public health research and practice. Features case studies exemplifying the integration of core competencies with cross-cutting interdisciplinary themes of public health.

Grading Option: Pass/no pass only.

Concurrent with PUBHLTH 291B.

PUBHLTH 191C. Seminar: Advances and Challenges in Public Health. 2 Units.
Forum for exploring recent advances and challenges in all disciplines of public health research and practice. Features case studies exemplifying the integration of core competencies with cross-cutting interdisciplinary themes of public health.

Grading Option: Pass/no pass only.

Concurrent with PUBHLTH 291C.

PUBHLTH H192A. Public Health Honors Seminar and Thesis I. 4 Units.
Provides an opportunity for selected students to pursue advanced work in research and earn Public Health Honors. Students will conduct their honors research project with faculty through lectures, guest speakers, creating timelines and assignments.

Corequisite: PUBHLTH 199.

Repeatability: May be repeated for credit unlimited times.

Restriction: Public Health Policy and Public Health Sciences graduate students only.

PUBHLTH H192B. Public Health Honors Seminar and Thesis II. 1 Unit.
Students undertake research and summarize results while preparing research grants and practicing oral presentations.

Corequisite: PUBHLTH 199.
Prerequisite: PUBHLTH H192A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Public Health Policy and Public Health Sciences graduate students only.

PUBHLTH H192C. Public Health Honors Seminar and Thesis III. 1 Unit.
Students complete the final writeup of their research project, present their research at conferences/seminars, and write an academic manuscript.

Corequisite: PUBHLTH 199.
Prerequisite: PUBHLTH H192B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Public Health Policy and Public Health sciences graduate students only.

PUBHLTH 193. Ethics and Responsible Conduct of Research in Public Health. 4 Units.
Issues of scientific integrity and satisfies the requirements for training in public health ethics. Includes guidelines for responsible conduct of research, federal and international codes, administrative review and approval, conflict of interest, and privacy and safety of research participants.

Restriction: Public Health Sciences and Public Health Policy majors only. Upper-division students only.

Concurrent with PUBHLTH 292.

PUBHLTH 194A. Clinical and Translational Research Preparatory I. 4 Units.
Provides training for students with an interest in clinical and translational research in the health care setting. Cultivates skills for study design, research literature review, ethics, responsible conduct of research, and cultural competence while emphasizing professionalism and personal responsibility.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only.

PUBHLTH 194B. Clinical and Translational Research Preparatory II. 1-4 Units.
Provides opportunities for students to participate in clinical and translational research through rotations in at least two health care settings. Builds on preparation through the first course (194A) in the sequence to support exploration of various research topics.

Prerequisite: PUBHLTH 194A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only.

PUBHLTH 194C. Clinical and Translational Research Preparatory III. 4 Units.
Provides opportunities for students to work closely in a particular clinical and translational research setting. Builds on preparation through the didactic instruction presented in first course of the sequence (194A) to support deeper engagement on a particular research topic.

Prerequisite: PUBHLTH 194A. Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

PUBHLTH 195W. Public Health Practicum and Culminating Experience. 8 Units.
Provides direct opportunities for Public Health majors to observe and participate in public health activities and/or research; and to cultivate skills for verbal and written communication of contemporary public health topics for an integrative culminating experience.

Prerequisite: PUBHLTH 1 and PUBHLTH 2. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. Public Health Sciences and Public Health Policy majors only.

(Ib)

PUBHLTH 197. Field Studies in Public Health. 2-12 Units.
For students who may either accompany faculty members on field trips or engage in post-practicum work at a field agency.

Prerequisite: PUBHLTH 1 and PUBHLTH 2.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 12 units.

PUBHLTH 198. Directed Studies. 1-4 Units.
Student participation in a series of research-related activities performed in an individual or small-group setting under the guidance of a faculty advisor.

Prerequisite: PUBHLTH 1.

Grading Option: Pass/no pass only.

Repeatability: May be repeated for credit unlimited times.

PUBHLTH 199. Undergraduate Research. 1-4 Units.
Original research with Public Health faculty. Attendance at regular research group meetings is also generally expected, and a quarterly written report is required. Strongly recommended for students considering research careers and/or graduate degree programs.

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

PUBHLTH 200. Foundations of Public Health. 4 Units.
Presents the overarching framework, principles, and core responsibilities of public health research and practice from a multidisciplinary perspective. Provides necessary foundation for further studies toward advanced cross-cutting approaches essential for public health practice.

Restriction: Graduate students only.

PUBHLTH 203. Epidemiology. 4 Units.
Presents descriptive and experimental approaches to the recognition of the causal association of disease in the general population, as these approaches apply to populations using different student designs and models free from the literature.

Same as EPIDEM 203.

Restriction: Graduate students only.

PUBHLTH 204. Biostatistics. 4 Units.
Designed to help students develop an appreciation for statistician's view of the research process, emphasizing biomedical research. Instills an understanding of how statistical models are used to yield insights about data that form evidence-based understanding of the world around us.

Same as EPIDEM 204.

Restriction: Graduate students only.

PUBHLTH 205. Advanced Epidemiologic Methods. 4 Units.
Advanced topics in the design and statistical analysis of epidemiologic studies. Topics include simulation methods, counter-matching and multiphase study designs, missing data, and Bayesian analysis. Published simulation studies are discussed and replicated using the R software package.

Prerequisite: PUBHLTH 101B or STATS 111 or STATS 211.

Same as EPIDEM 217.

Concurrent with PUBHLTH 119.

PUBHLTH 206. Graduate Epidemiology in Public Health. 4 Units.
Presents descriptive and experimental approaches to the recognition of the causal association of disease in the general populations, as these approaches apply to populations using different student designs and models from the literature.

Restriction: Graduate students only.

PUBHLTH 207. Public Health Statistics. 4 Units.
Surveys statistical methods for public health. Topics include descriptive statistics, probability models, likelihood functions, estimation, and hypothesis testing for categorical and continuous date. Student learn to use statistical software to perform epidemiologic data analysis.

Prerequisite: PUBHLTH 203 and MATH 2A.

Restriction: Graduate students only.

PUBHLTH 208. Advances in Social Epidemiology. 4 Units.
Advances understanding of social distribution and social determinants of disease through multiple risk factor models and mechanisms that emphasize developmental and socio-environmental risk factors on mental and physical health across the life span.

Restriction: Graduate students only.

PUBHLTH 209. Methods of Demographic Analysis. 4 Units.
Introduces basic demographic methods used in social science and public health research. Topics include sources and limitations of demographic data; components of population growth; measures of nuptiality, fertility, mortality, and population mobility projection methods; and demographic models.

Same as SOCIOL 226A.

Restriction: Graduate students only.

PUBHLTH 210. Cancer Epidemic and Prevention. 4 Units.
Explores the global burden of various cancers, including geographical and societal distribution. Includes causes, diagnosis, and interactions among genetic, environmental, and behavioral risk factors. Covers major cancer preventative strategies.

Prerequisite: PUBHLTH 203.

Restriction: Graduate students only.

PUBHLTH 211. Public Health Genomics. 4 Units.
Explores the role of genetic predisposition in the occurence of the human diseases with emphasis on population screening and prevention of disease. Includes interactions between genetic factors and environmental situations, policies, and ethics of population genomics.

Prerequisite: PUBHLTH 203.

Restriction: Graduate students only.

PUBHLTH 212. Intermediate Epidemiology. 4 Units.
Learn to design and conduct epidemiologic studies using common designs. Determine why bias and measurement error arise in observational studies, and how they influence effect estimates. Perform and interpret epidemiologic data analyses using statistical software.

Corequisite: PUBHLTH 207.
Prerequisite: PUBHLTH 203.

Restriction: Graduate students only.

PUBHLTH 213. International Epidemiology. 4 Units.
Explores methodological approaches in the literature on international trials and requires formulation of proposals to answer public health questions of interest in a developing country setting. Students develop case study aims, ideal teams, and budget in an international context.

Restriction: Graduate students only.

PUBHLTH 214. Surveillance Systems. 4 Units.
Surveillance as a fundamental element of the practice of public health is examined in terms of the application and evaluation of monitoring systems. Topics include surveillance of infectious and chronic diseases, environmental constituents, and other indicators of population health.

Prerequisite: PUBHLTH 206.

Restriction: Graduate students only.

PUBHLTH 219. Special Topics in Biostatistics, Epidemiology, and Health Informatics. 4 Units.
Current research in biostatistics, epidemiology, and health informatics. Topics vary from quarter to quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PUBHLTH 220. Public Health Cost-Effectiveness Analysis. 4 Units.
Examines using cost-effectiveness information to allocate limited resources to maximize health benefits to a population; defining and measuring cost, survival and health-related quality of life; and how to calculate cost-effectiveness using decision trees and Markov simulation models.

Same as PP&D 226.

Restriction: Graduate students only.

PUBHLTH 221. Health Promotion and Planning. 4 Units.
Focuses on health and health care in the United States, but discussion of global health issues and/or international comparisons will be made whenever possible. Considers both the social and economic aspects of health and disease.

Same as PP&D 241.

Restriction: Graduate students only.

PUBHLTH 222. Health Policy and Management. 4 Units.
Multidisciplinary inquiry into theory and practice concerned with delivery, quantity, costs of health care for individuals and populations. Explores managerial and policy concerns regarding structure, process, outcomes of health services including the costs, financing, organization, outcomes, and accessibility of care.

Same as PP&D 243.

Restriction: Graduate students only.

PUBHLTH 223. Risk Communication. 4 Units.
Examines theory and research related to the communication of scientific information in risk communication contexts, risk perceptions, and behavior as related to decision-making under risk.

Restriction: Graduate students only.

PUBHLTH 224. Public Health Leadership. 4 Units.
Integrates theory and practice of public health leadership through lectures on global health leadership, case studies on leadership issues, and course assignments that include assessment of leadership traits, and development of individual career mission, vision, and values statements.

Restriction: Graduate students only.

PUBHLTH 239. Special Topics in Health Policy and Management. 4 Units.
Current research in health policy and management. Topics vary from quarter to quarter.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PUBHLTH 240. Topics in Environmental Health Promotion and Education. 4 Units.
Focuses on design of intervention strategies dependent on the environmental agent, exposure to assessment, SES, health effects, stakeholders, and support base. Programmatic design includes media selection, communication/education, and pre/post surveys. Analysis of transborder and local environmental health promotion programs.

Restriction: Graduate students only.

PUBHLTH 241. Environmental Policy and Global Sustainability. 4 Units.
Seminar organized around four transcendent questions: does the world value sustainability, what challenges must be met to move toward it, what are the roots of inequality, and is capitalism compatible with sustainability.

Same as SOCECOL 250.

Restriction: Graduate students only.

PUBHLTH 242. Theories of Health Communication. 4 Units.
Explores the concepts, constructs, and theories of communication in health and risk contexts. Examines interpersonal, family, organizational, and mediated communicative processes about health care and conditions from a global perspective.

Restriction: Graduate students only.

PUBHLTH 244. Health Behavior Theory. 4 Units.
Introduces the field of Health Behavior and then segues into major theoretical perspectives. Focus on health behavior change from the vantage point of individual health behavior and theoretical abstraction. Explores how to relate theory to behavior-change intervention programs.

Restriction: Graduate students only.

PUBHLTH 245. Health Promotion Planning. 4 Units.
Introduces strategic planning integral to intervention planning in public health practice and research, emphasizing the fundamental domains of social and behavioral health science and practices. Students develop an intervention plan for a specific health problem, health behavior, and target population.

Restriction: Graduate students only.

PUBHLTH 246. Social Research Methods. 4 Units.
An interactive graduate seminar covering topics related to the research process and study design. Begins with conceptualizing research questions, hypotheses, and then turns to topics in measurement and concludes with experimental, quasi-experimental, and observational study designs.

Restriction: Graduate students only.

PUBHLTH 247. Program Evaluation. 4 Units.
Introduces methods, tools, and procedures for systematic investigation of the effectiveness of programs in health and social services for disease intervention, prevention, and health promotion. Includes development of program evaluation plans, logic models, contextual frameworks, study designs, and data analyses.

Restriction: Graduate students only.

PUBHLTH 248. Fundamentals of Maternal and Child Health - Programs, Problems, and Policy. 4 Units.
Overview of issues facing women, children, and families from a public health perspective. Discusses role of socio-economic, political, biological, environmental factors on population health. Studies historical foundations and current factors impacting Maternal Child Health programs and legislation in the US.

Restriction: Graduate students only.

PUBHLTH 250. Health Status and Care Disparities. 4 Units.
Expert health care providers present viewpoints and interdisciplinary strategies for addressing sociocultural, economic, gender, age, and other disparities in population health status and care provision.

Restriction: Graduate students only.

PUBHLTH 259. Special Topics in Social and Behavioral Health Sciences. 4 Units.
Current research in Social and Behavioral Health Sciences. Topics vary from quarter to quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PUBHLTH 261. Environmental Hydrology. 4 Units.
Provides an overview of the occurrence, distribution, and movement of water in the environment. Quantitative methods are introduced for analyzing hydrologic processes. Human impacts on water distribution and quality are considered.

Restriction: Graduate students only.

PUBHLTH 262. Earthquakes and Seismic Hazard. 4 Units.
Provides an overview of earthquakes and introduction to seismic hazard. Topics include characteristics and effects of earthquakes, sources of earthquakes, seismic hazard assessment, introduction to earthquake loss estimation and mitigation. California examples are emphasized.

Restriction: Graduate students only.

PUBHLTH 263. Seminar in Paleoseismology. 4 Units.
Provides an introduction to paleoseismology and its applications. Topics include data collection methods, data analysis, earthquakes in different tectonic environments, and applications to seismic hazard assessment and fault characterization.

Restriction: Graduate students only.

PUBHLTH 264. Introduction to Environmental Health Science. 4 Units.
Convergence of agents (chemical, physical, biological or psychosocial) in environment can emerge as diseases influenced bu social, political, and economic factors allowing them to become rooted in society. How these agents from various spheres come together and impact human health.

Same as EPIDEM 264, TOX 264.

Restriction: Graduate students only.

PUBHLTH 265. Advanced Environmental Health Science. 4 Units.
Explores the complex relationships among exposure processes and adverse health effects of environmental toxins focusing on specific chemicals, sources, transport media, exposure pathways, and human behaviors. Techniques of environmental sampling for exposure assessment are discussed.

Same as EPIDEM 265.

Restriction: Graduate students only.

PUBHLTH 269. Air Pollution, Climate, and Health. 4 Units.
Emission of air pollutants into the atmosphere, physical and meteorological processes that affect transport, and influence on global warming. Concepts of how and where people are most exposed, and how exposures and health effects differ in developed and developing regions.

Same as EPIDEM 269, TOX 269.

PUBHLTH 270. Human Exposure to Environmental Contaminants. 4 Units.
Introduces founders of conceptual thought that environmental contaminants can impact health. Theory and principles of exposure assessment, the continuum from emissions of a containment into the environment to evidence of health effects in a population.

Same as EPIDEM 270, TOX 270.

PUBHLTH 271. Health Impacts of Environmental Change. 4 Units.
Seminar on health impacts of environmental change at various scales of analysis. Uses numerical models such as "MIASMA" and "TARGETS" to analyze alternative outcomes of environmental-change scenarios. Presentations from experts are featured.

Restriction: Graduate students only.

PUBHLTH 272. Environmental Health and Quality. 4 Units.
Concepts and principles of environmental health. Focuses on industrial hygiene, water and air quality, noise pollution, and environmental carcinogens. Discusses theory and implementation practices through review of legislative measures and enforcement procedures. Examines social and biological interactions surrounding each topic.

Restriction: Graduate students only.

PUBHLTH 273. Environmental Health, Science, and Policy. 2 Units.
Topics relevant to the field of environmental health, science, and policy are covered in depth. Included are: hazardous and biological pollutants in soil, water, air; remediation technologies; water conflicts; and regulations pertaining to contaminants.

Restriction: Graduate students only

PUBHLTH 275. Environmental Modeling and Risk Management. 4 Units.
Surveys the general principles, basic mathematical methods, and practices of environmental modeling and human health risk assessment. Topics include advection-dispersion models, risk management, and risk perception. Students conduct an original risk assessment as a final group project.

Prerequisite: MATH 2A and STATS 7.

Same as TOX 275.

Restriction: Graduate students only.

Concurrent with PUBHLTH 175.

PUBHLTH 276. Toxic Chemicals in Environment. 4 Units.
Industrial ecology of toxicants and their impacts on environmental quality and human health. Explores theoretical basis of toxicity thresholds and regulatory issues. Uses classic and contemporary research articles to understand the legacy of traditional toxicants, and to identify emerging threats.

Same as EPIDEM 244.

Restriction: Grad students only or Consent of instructor to enroll

PUBHLTH 277A. Target Organ Toxicology I. 6 Units.
Analysis of responses occurring in 12 organ systems of humans exposed to environmental chemicals at toxic levels; distinctive cellular and tissue structure and physiological function; toxicological responses discussed in terms of phenomena, mechanisms of action, and methods of study.

Same as TOX 206A.

PUBHLTH 277B. Target Organ Toxicology II . 6 Units.
Analysis of responses occurring in 12 organ systems of humans exposed to environmental chemicals at toxic levels; distinctive cellular and tissue structure and physiological function; toxicological responses discussed in terms of phenomena, mechanisms of action, and methods of study.

Prerequisite: PUBHLTH 277A or TOX 206A.

Same as TOX 206B.

PUBHLTH 278. Industrial Toxicology. 4 Units.
Analysis of responsibilities toxicologists have in industry, including product safety generating material safety, data sheets, animal testing, ecotoxicological testing, risk/hazard communication, and assisting industrial hygienists and occupational physicians; emphasis on interdisciplinary nature of industrial toxicology and communication skills.

Prerequisite: (PUBHLTH 277A or TOX 206A) and (PUBHLTH 277B or TOX 206B).

Same as TOX 220.

PUBHLTH 279. Special Topics in Environmental & Occupational Health. 4 Units.
Current research in environmental and occupational health. Topics vary from quarter to quarter.

Repeatability: May be repeated for credit unlimited times.

Restriction: Grad students only

PUBHLTH 280. Global Burden of Disease. 4 Units.
Introduces composite measures of disease burden, including Disability Adjusted Life Years and their use in prioritizing disease burden at local, regional, and global levels. Focuses on WHO's landmark assessments and introduces DISMOD software for specific analyses.

Restriction: Graduate students only.

PUBHLTH 281. Infectious Disease Epidemiology. 4 Units.
Geographical distribution of infectious diseases and the health and disease risk in diverse human populations. Introduces basic methods for infectious disease epidemiology and case studies of important diseases. Includes surveillance, outbreak investigation, emerging pathogens, traditional and molecular epidemiology.

Restriction: Graduate students only.

PUBHLTH 282. Advances in Global Health. 4 Units.
Critical appraisal of advances in taming the global burden of disease. The underlying sectoral determinates of health, and health systems development through multiple frames, including economics, infectious and chronic disease, nutrition, injury, culture, social/political organization, humanitarian emergencies, and international organizations.

Restriction: Graduate students only.

PUBHLTH 283. Geographical Information Systems for Public Health. 4 Units.
Provides a broad introduction to the use of Geographic Information Systems software to carry out projects for visualizing and analyzing spatial data to address significant issues of health care and policy-planning.

Restriction: Graduate students only.

Concurrent with PUBHLTH 190.

PUBHLTH 284. Graduate Field Studies. 2-12 Units.
Field studies with Public Health faculty.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit for 12 units.

Restriction: Graduate students only.

PUBHLTH 285. Global Health Law and Diplomacy . 4 Units.
Extends theory and practice of law and diplomacy from the scope of health to trade, intellectual property, national security, human rights, and environmental protection. Focuses on negotiations that shape and manage the global policy environment for health.

Restriction: Graduate students only.

PUBHLTH 287. Qualitative Research Methods in Public Health. 4 Units.
General introduction to qualitative research methods for investigating public health questions at various scales from community level to global populations. Emphasizes systematic approaches to the collection, analysis, interpretation of qualitative data.

Restriction: Graduate students only.

PUBHLTH 288. Research Proposal Writing in Global Health. 4 Units.
Overview of financial support for research in global health and disease prevention. Collaborative agreements, guidelines for proposal writing, team building, budgeting, peer-review process, and transitioning from proposal to research project implementation.

Restriction: Graduate students only.

PUBHLTH 289. Special Topics in Global Health and Disease Prevention. 4 Units.
Current research in global health and disease prevention. Topics vary from quarter to quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PUBHLTH 290. Special Topics in Public Health. 4 Units.
Studies in selected areas of public health. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PUBHLTH 291A. Seminar: Advances and Challenges in Public Health. 2 Units.
Forum for exploring recent advances and challenges in all disciplines of public health research and practice. Features case studies exemplifying the integration of core competencies with cross-cutting interdisciplinary themes of public health.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only .

Concurrent with PUBHLTH 191A.

PUBHLTH 291B. Seminar: Advances and Challenges in Public Health. 2 Units.
Forum for exploring recent advances and challenges in all disciplines of public health research and practice. Features case studies exemplifying the integration of core competencies with cross-cutting interdisciplinary themes of public health.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

Concurrent with PUBHLTH 191B.

PUBHLTH 291C. Seminar: Advances and Challenges in Public Health. 2 Units.
Forum for exploring recent advances and challenges in all disciplines of public health research and practice. Features case studies exemplifying the integration of core competencies with cross-cutting interdisciplinary themes of public health.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

Concurrent with PUBHLTH 191C.

PUBHLTH 292. Ethics and Responsible Conduct of Research in Public Health. 4 Units.
Issues of scientific integrity and satisfies the requirements for training in public health ethics. Includes guidelines for responsible conduct of research, federal and international codes, administrative review and approval, conflict of interest, and privacy and safety of research participants.

Restriction: Graduate students only.

PUBHLTH 293. Foundations of Clinical and Translational Science. 4 Units.
Introduces rationale and imperative for clinical translational science and various approaches being developed to speed-up discoveries and their transformation into health care practices. Compares and contrasts current impediments to clinical research with the potential and transformative power of translational science.

Restriction: Graduate students only.

PUBHLTH 294. Research Communication in Public Health. 4 Units.
Strategies for effective writing and oral presentation of research characteristics and results to various audiences. Includes exercises in writing for the public, for scholarly journals, and at conferences.

Restriction: Graduate students only.

PUBHLTH 295. Graduate Practicum and Culminating Experience in Public Health. 8 Units.
Provides opportunities for hands-on experience for graduate students at agencies or organizations engaged in public health practice. Students are matched with placement sites based on academic preparation and students' career goals. The practicum report is integrated into the culminating experience.

Prerequisite: PUBHLTH 200 and PUBHLTH 291.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Master of Public Health students only.

PUBHLTH 296. Doctoral Dissertation Research and Writing. 1-12 Units.
Dissertation research with Public Health faculty.

Prerequisite: Advancement to candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit for 12 units.

Restriction: Graduate students only.

PUBHLTH 297. Research Design. 4 Units.
Provides training in research design and methods. Students learn how to evaluate the strength of research findings based on the methods used by a researcher and learn to use lessons from the course to develop a research proposal.

Same as PP&D 297.

Restriction: Graduate students only.

PUBHLTH 298. Directed Studies in Public Health. 2-4 Units.
Directed study with Public Health faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PUBHLTH 299. Independent Study in Public Health . 2-8 Units.
Independent research with Public Health faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PUBHLTH 399. University Teaching. 2-4 Units.
Limited to teaching assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

School of Social Ecology

Valerie Jenness, **Dean**

5300 Social & Behavioral Sciences Gateway
Social Ecology Student Services: 949-824-6861
Graduate Counseling: 949-824-5918
http://socialecology.uci.edu/

Overview

The School of Social Ecology is an interdisciplinary academic unit committed to scholarly research and instruction that is informed by and contributes to knowledge in the social, behavioral, legal, and health sciences. It promotes discipline and boundary-crossing research and teaching that is inspired by pressing social problems and directed toward the betterment of society. It is committed to the pursuit of theory development, the creation of empirically derived knowledge, the practical application of scholarly knowledge, and civic engagement.

The School is home to three academic departments: Criminology, Law and Society; Planning, Policy, and Design; and Psychology and Social Behavior; offers four undergraduate and eight graduate degrees; and currently has about 2,360 undergraduate majors, 360 graduate students, 61 faculty, and more than 21,000 alumni.

Social Ecology faculty apply scientific methods to the study of a wide array of recurring social, behavioral, and environmental problems and specialize in conducting research “with considerations of use” in society. Among issues of long-standing interest in the School are crime and justice in society, social influences on human development over the life cycle, and the effects of the physical environment on health and human behavior. While the field of ecology focuses on the relationships between organisms and their environments, social ecology is concerned with the relationships between human populations and their environments.

Social Ecology’s faculty is multidisciplinary, including psychologists with a variety of specialties (e.g., developmental, social, and health psychology); criminologists; sociologists; anthropologists; political scientists; lawyers; urban and regional planners; and program evaluation experts. The School’s research and teaching is distinguished by an emphasis on the integration of the concepts and perspectives of these multiple disciplines. This focus is based on the School’s core belief that the analysis and amelioration of complex societal problems requires interdisciplinary efforts.

Many Social Ecology faculty are involved in developing policies and interventions directed toward improving the functioning of individuals, families and other groups, organizations, institutions, and communities. Social Ecology undergraduate students benefit from the multidisciplinary instructional expertise of the School’s faculty in the classroom and are afforded opportunities to engage in field-based and laboratory-based learning, as well, through the School’s well-established and highly regarded Field Study Program. Graduate training in the School of Social Ecology is organized around the study of contemporary problems in the social and physical environment. Emphasis is placed primarily upon theory and research that have implications for policy and intervention. Problems are investigated from the complementary perspectives of a multidisciplinary faculty that includes specialists in social, developmental, clinical, environmental, and health psychology; urban and regional planning and architecture; urban sociology; law; criminology; and environmental health. Graduate students work closely with the faculty in the classroom and in laboratories, as well as collaborating on important research projects that enhance their research skills while advancing knowledge and addressing important societal problems.

Research Facilities

Social Ecology I and II and the nearby Social & Behavioral Sciences Gateway building are wireless environments that house the School’s research centers and feature many facilities for experimental research, such as behavioral assessment laboratories for research in human development, social relations, and legal studies. Behavioral assessment laboratories are used for studying social phenomena such as parent-child interaction, cooperation among children, memory functions, hyperactivity, social support processes, and mock jury discussions.

The School also offers students up-to-date computing facilities, including the state-of-the-art Janice R. Green Instructional Computing Lab, and assistance to ensure that their skills prepare them for either advanced (graduate) work or for the changing needs of today’s workplace, which increasingly demands skills in computing and information technology.

Centers for Research

The **Center for Evidence-Based Corrections (CEBC)** has administered millions of dollars in state-funded research on juvenile and adult correctional programs, including research on rehabilitation, parole and reentry programs, monitoring of sex offenders, and correctional options for female offenders. CEBC, which consists primarily of Criminology, Law and Society faculty, has become a nexus for policy-oriented research and graduate training. Given the importance of this topic for law and policy, the faculty expects CEBC will also develop close ties with UCI’s new School of Law. More information is available at the Center for Evidence-Based Corrections (http://ucicorrections.seweb.uci.edu) website.

The **Center in Law, Society and Culture (CLSC)** brings together faculty in the Schools of Social Ecology, Social Sciences, and Humanities who share an interest in the role of social, cultural, and historical factors in the development of law and the importance of social and cultural assumptions in

understanding and interpreting law. Law and culture has emerged as an exciting area of legal scholarship and UC Irvine already has significant strength in this area. More information is available at the Center in Law, Society and Culture (http://clsc.soceco.uci.edu) website.

UC Irvine has enjoyed a long tradition of innovative, interdisciplinary organizational research that dates back to the founding of the campus in the mid-1960s. The **Center for Organizational Research** continues that tradition by providing a focal point for organization scholars from Social Ecology, Social Sciences, The Merage School of Business, and The Bren School of Information and Computer Sciences. More information is available at the Center for Organizational Research (http://www.cor.web.uci.edu) website.

The **Community Outreach Partnership Center (COPC)** is an initiative to apply scholarly research to community needs. COPC leverages campus assets to equip nonprofit organizations with research that increases their capacity to effectively assess needs, analyze issues, build community, and impact change. COPC projects are guided by a commitment to “civic engagement.” This model of applied scholarship is widely embraced by research universities across the country and promotes collaborative approaches to problem solving using applied research, training and instruction, and public outreach to help address issues and support actions which build and sustain healthy communities. More information is available at the Community Outreach Partnership Center (http://sites.uci.edu/copc) website.

The **Center for Psychology and Law (CPL)** draws together faculty in the Department of Criminology, Law and Society and the Department of Psychology and Social Behavior. UC Irvine has emerged as one of the world’s leading centers for research in the field of psychology and law. The Center’s primary goals are to *foster collaboration and communication* among academics, legal professionals, policy makers, and the general public, and to address areas of inquiry where social sciences and legal systems intersect. Our mission is to *bridge the gap between scientific evidence and public policy*. More information is available at the Center for Psychology and Law (http://psychlaw.soceco.uci.edu) website.

New threats such as global terrorist networks, environmental change, and cyber attacks dominate the security agenda. The **Center for Unconventional Security Affairs** addresses these and other security challenges of the twenty-first century and provides opportunities for student involvement in research and outreach. The Center serves as the hub of a global network of academics and practitioners that study and develop solutions to human and environmental security challenges. Through basic, translational and applied research, we leverage emerging technologies to better understand and meet the most urgent needs of current and future generations. Our innovative education and learning programs inspire, train and develop future leaders and entrepreneurs to further this work throughout their lifetimes.More information is available at the Center for Unconventional Security Affairs (http://www.cusa.uci.edu) website.

The **Newkirk Center for Science and Society** finds ways to develop and share research knowledge with the public and policymakers so they can make informed decisions on vital policy issues of law, education, environment, health care, crime, and public infrastructure. The Center carries out its mission in several ways: through workshops, colloquia, town hall meetings, distinguished visitors, and communication programs. One area in which the interests of several CLS faculty members overlap with the focus of the Newkirk Center relates to expert testimony and, more broadly, the use (and misuse) of science in legal proceedings. More information is available at the Newkirk Center for Science and Society (http://www.newkirkcenter.uci.edu) website.

In the Community

The **Community Outreach Partnership Center (COPC)** is an initiative to apply scholarly research to community needs. COPC leverages campus assets to equip nonprofit organizations with research that increases their capacity to effectively assess needs, analyze issues, build community, and impact change. COPC projects are guided by a commitment to “civic engagement.” This model of applied scholarship is widely embraced by research universities across the country and promotes collaborative approaches to problem solving using applied research, training and instruction, and public outreach to help address issues and support actions which build and sustain healthy communities. More information is available at the Community Outreach Partnership Center (http://sites.uci.edu/copc) website.

The **Criminology Outreach Program (COP)** was established in 1999 to address the needs of under-served students in the community through an education on the legal system. The mission is to create higher-education aspirations for junior high and high school students from neighboring districts that do not send a high proportion of graduates to college. The program acquaints students with college course content and procedures to familiarize them with the issues of student life and intellectual pursuit, and to involve the students in the type of policy debates that occur in the field of criminology. The Criminology Outreach Program emphasizes four elements: critical thinking, writing, library research, and oral presentation skills. More information is available at the Criminology Outreach Program (http://socialecology.uci.edu/pages/criminology-outreach-program-cop) website.

The **Field Study Program** (SOCECOL 195) is designed to provide students with the opportunity to examine social problems, evaluate the merit of ideas presented in the classroom, and educate students in conducting naturalistic observations and investigations. Students have the opportunity to participate in the ongoing activities of an organization and develop interpersonal as well as technical competencies. Field Study also offers students the opportunity for data collection projects, theory-testing, and social interaction. There are over 215 community partners participating in the program. The students have a major presence in the community with over 900 students completing a minimum of 100 hours each year. In addition, students and community partners seeking an in-depth, three-quarter field study experience focused on civic and community engagement may wish to apply for **Advanced Field Study** (SOCECOL 195A, 195B, 195C). More information is available at the Field Study Program (http://students.soceco.uci.edu/pages/field-study) website.

The **Metropolitan Futures Initiative (MFI)** aims to develop an improved understanding of communities and their potential for integrative and collaborative planning and action to ensure a bright future for the region. With initial focus on Orange County and its location within the larger Southern California area, the MFI is a commitment to build communities that are economically vibrant, environmentally sustainable, and socially just by partnering Social Ecology’s world-class, boundary-crossing scholarship with expertise throughout Southern California. More information is available at the Metropolitan Futures Initiative (http://socialecology.uci.edu/mfi) site.

The University of California, Irvine (UCI) is proud to offer a unique research opportunity for advanced undergraduate students studying at Historically Black Colleges and Universities (HBCUs) who are committed to pursuing doctoral education in Criminology, Law and Society (CLS) and Psychology and Social Behavior (PSB), the **Summer Research Program in Social Ecology**. The eight-week program at the UCI campus provides summer scholars with hands-on research experience, participation in graduate-style seminars, and experience disseminating scholarly research in academic forums. This program aims to build relationships with HBCU campus communities (faculty and students), strengthen pathways to graduate and professional programs at UCI, and promote academic careers. More information is available at the Summer Research Program (http://socialecology.uci.edu/mfi) website.

Degrees

Criminology, Law and Society	B.A., M.A.S., Ph.D.
Planning, Policy, and Design	Ph.D.
Psychology and Social Behavior	B.A., Ph.D.
Public Policy	M.P.P.
Social Ecology	B.A., M.A., Ph.D.
Urban and Regional Planning	M.U.R.P.
Urban Studies	B.A.

Honors, Awards, and Scholarships

Graduation with Honors. Honors at graduation will be awarded to approximately 12 percent of the graduating seniors who have completed at least 72 units at a University of California campus by the end of the final quarter prior to graduation, including approximately 1 percent *summa cum laude*, 3 percent *magna cum laude,* and 8 percent *cum laude*. The student's cumulative record at the end of the final quarter is the basis for consideration for awarding Latin Honors. For more information about honors criteria contact the Social Ecology Student Services Office at (949) 824-6861 or visit the Social Ecology (http://students.soceco.uci.edu/pages/frequently-asked-questions-faqs) website. Other important factors are also considered visit at Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext).

Dean's Honor List. Quarterly recognition for students who earned a 3.5 grade point average while carrying a minimum of 12 graded units. Recognition is noted on the student's transcript.

Dean's Award for Community Engagement. This award recognizes students who demonstrate both scholarly achievement and community service participation.

Fudge Family Foundation Scholarship. Two scholarships are awarded to students who have a strong academic record and who have established financial need because they are self-supporting or have other personal hardships that would make it difficult for them to complete their studies without this assistance.

School Awards. The School of Social Ecology recognizes the most outstanding undergraduate and graduate students for their academic achievements, contributions to the School, and service to the campus and community.

Social Ecology Honors Program. The Social Ecology Honors Program provides the opportunity for selected School of Social Ecology students to pursue advanced independent study. Admission to the program is based on formal invitation and an application submitted by the prospective student in the spring quarter of the junior year. In order to be considered, a student must have satisfied the following requirements: completion of all lower-division Social Ecology courses required for the major; completion of at least five upper-division Social Ecology courses with a grade point average of at least 3.5 in these courses; and achievement of an overall grade point average at UCI of at least 3.2. Acceptance into the program is based upon evidence of the student's ability, interest in research, and proposed thesis project. Successful completion of the program requires three quarters, including supervised independent work on a thesis research project (SOCECOL H190A-SOCECOL H190B) and written and oral presentation of an honors thesis (SOCECOL H190W).

Excellence in Undergraduate Research Award in Honor of Gilbert Geis. This award was created to encourage and support undergraduate students interested in research related to Criminology, Law and Society.

Michelle Smith Pontell Memorial Fellowship. This award is given annually to a graduate student in the Department of Criminology, Law and Society for excellence in both research and course work.

Outstanding Achievement in Field Study. This award recognizes students who have gone "above and beyond" in their field study placements and/or who have completed an exceptional academic project as part of their field study.

Strauss Scholarship. This scholarship is awarded to a junior who is planning for a career in public service.

- School Requirements (p. 1446)
- B.A. Social Ecology (p. 1447)
- Social Ecology minor (p. 1448)

Undergraduate Program

The School of Social Ecology offers either a general interdisciplinary degree in Social Ecology or a more focused experience through degree programs in Criminology, Law and Society; Psychology and Social Behavior; and Urban Studies.

Change of Major. Students who wish to change their major to one offered by the School should contact the Social Ecology Student Services Office for information about change-of-major requirements, procedures and policies. Information is also available at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Career Opportunities

Graduates of the School of Social Ecology bring a distinctive cross-disciplinary perspective to the job market. The School provides a solid foundation for those students who seek jobs in planning departments, mental health settings, educational institutions and a variety of community and governmental agencies, including, for example, criminal justice agencies. Many Social Ecology students find that their interdisciplinary training is also useful for careers in public management, law and business.

The School also provides useful preparation for students who wish to apply to graduate and professional schools of law, public policy/public administration, public health, social welfare, psychology, sociology, criminology and urban planning.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library and workshops on resume preparation, job search and interview techniques. Additional information is available in the Career Center (p. 124) section.

Field Study

From criminal justice agencies to elementary schools to nonprofit agencies to local cities, counties and beyond, Social Ecology students have the opportunity to take what they learn in the classroom out into the community, effectively serving our communities and enhancing the value of their education. The Field Study program is a unique experiential learning program for undergraduates in Social Ecology and a key element of the School's commitment to training future leaders. The general goal of Field Study is to integrate academic and experiential learning. This approach is based on evidence that learning is maximized when it is active, when students are engaged and when theories and research are informed by their application to "real world" problems. Students reflect on how to apply what they have learned in the classroom to address societal challenges in a seminar led by ladder rank faculty. At the same time, through fieldwork with one or more of the School's 225-plus community partners, students gain pre-professional experience and develop their resume along with their academic and research skills. The settings provided for field study include a wide range of problem-oriented institutions and agencies in both the private and the public sector (e.g., Orange County Public Defender's Office; California State Parks; United Cerebral Palsy of Orange County; primary and secondary schools; Fairview Development Center; planning, law enforcement, legal and design corporations). Students must select a placement site from those listed and approved by the School of Social Ecology. Unlisted or inappropriate placements, as well as those that could give the appearance of nepotism or preferential treatment, will not be approved. Departmental approval for field study will be determined by the Field Study Director.

Field study is open only to upper-division School of Social Ecology students who are in good academic standing and have completed all prerequisite course work. All field studies are taken on a Pass/Not Pass grading basis. Further information, including field study sign-up procedures and prerequisites, is available at the Field Study Program (http://fieldstudy.soceco.uci.edu) website.

Advanced Field Study

Advanced Field Study offers a small number of undergraduate students in the School of Social Ecology an in-depth, three-quarter field study experience focused on civic and community engagement. Students work together with a local community, government, or business organization to prepare a professional research client report which helps the organization better understand the social or community problems it hopes to address, helps inform the organization's strategic goals, and/or helps enhance the organization's operations or services. Students draw upon academic training, local insights of people living and working in the community, personal reflections, and in-class discussions to guide these problem-solving efforts and other civic education experiences. Advanced Field Study embodies the School's commitment to engaged scholarship, developing interdisciplinary approaches to social problems, and improving and making positive and lasting contributions to communities. Students must apply for acceptance into the program. Application materials are available on our Field Study Program (http://fieldstudy.soceco.uci.edu) website.

Planning a Program of Study

Because there are many alternative ways to plan a program, some of which may require careful attention to specific major requirements, students should consult with the Social Ecology Student Services Office, 102 Social Ecology I, to design an appropriate program of study.

Students who elect one of the majors in the School of Social Ecology in their freshman year might begin by taking the introductory courses required by their major. It is a good idea to take these courses early because they include fundamental concepts that are widely applicable in more advanced courses. In addition, the lower-division writing requirement of the general education requirement (category I) should be completed during the first year. In the sophomore year, the student might complete three courses toward the general education requirement, four courses in their major, and four electives. Students who are planning to go on to graduate school can use their freshman and sophomore years to advantage by taking courses in theory, research methods, statistics and other areas important to graduate study. In the junior and senior years, the student should take courses in the major area and and should create an individualized program of study through a combination of courses and course modules which fall in an area of interest. Particular

attention should be paid to planning a program of study that will ensure that major requirements are met prior to graduation. In the plan, students are encouraged to include core courses for their major in their junior or early in their senior year.

Additional Curricular Options

Students in the School of Social Ecology may combine their course work with the following University programs and should consult an academic counselor for further information.

Campuswide Honors Program

The Campuswide Honors Program is available to selected high-achieving students from all academic majors from their freshman through senior years. For more information contact the Campuswide Honors Program, 1200 Student Services II; (949) 824-5461; honors@uci.edu; or visit the Campuswide Honors Program (http://www.honors.uci.edu) website.

School of Education

Students who plan to obtain a teaching credential or a higher degree in the field of education should consult with counselors in the UCI School of Education early in their college career. Students completing a degree program in the School of Social Ecology may qualify for a waiver of the Single Subject Credential Examination. For additional information about teaching credentials, refer to the School of Education (p. 414) section.

UC Education Abroad Program

Upper-division students have the opportunity to experience a different culture while making progress toward degree objectives through the UC Education Abroad Program (EAP). UCEAP is an overseas study program which operates in cooperation with host universities and colleges in countries throughout the world. Visit the Study Abroad Program (http://www.studyabroad.uci.edu) website for additional information.

Interdisciplinary Minors

These minors are available to all UCI students. Information is available in other sections of the *Catalogue,* as noted.

The **minor in Civic and Community Engagement** seeks to provide students with the knowledge, skills, attitudes and values to engage as citizens and active community members in the twenty-first century. The minor is distinguished both by *what* students learn, and by *how* they learn it. See the Interdisciplinary Studies (p. 1081) section for information.

The **minor in Conflict Resolution** provides skills in conflict analysis and resolution and a useful understanding of integrative institutions at the local, regional and international levels. See the School of Social Sciences (p. 1877) section for information.

The **minor in Global Sustainability** trains students to understand the changes that need to be made in order for the human population to live in a sustainable relationship with the resources available on this planet. See the Interdisciplinary Studies (p. 1081) section for information.

The **minor in Native American Studies** is an interdisciplinary, interschool program which focuses on history, culture, religion and the environment. See the Interdisciplinary Studies (p. 1081) section for information.

Requirements for the Bachelor's Degree

All students must meet the University Requirements (p. 71)**.**

School Requirements

A. Three lower-division courses	
CRM/LAW C7	Introduction to Criminology, Law and Society
SOCECOL 10	Research Design
SOCECOL 13	Statistical Analysis in Social Ecology
B. Select one of the following courses:	
PSY BEH 9	Introduction to Psychology
PSY BEH 11B	Psychology Fundamentals
PSY BEH 11C	Psychology Fundamentals
C. Select one of the following courses:	
SOCECOL E8	Introduction to Environmental Analysis and Design
PP&D 4	Introduction to Urban Studies
D. One research course	
SOCECOL 194W	Naturalistic Field Research
E. Select one of the following courses:	
SOCECOL 195	Field Study (four units)
SOCECOL 195A	Advanced Field Study
SOCECOL 195B	Advanced Field Study

SOCECOL 195C	Advanced Field Study
F. One additional upper-division course	
One additional upper-division course (four units) chosen from any department in the School of Social Ecology or an additional four units of SOCECOL 195 or SOCECOL 195A, SOCECOL 195B, SOCECOL 195C. [1]	

[1] SOCECOL 198 and SOCECOL 199 may not be used to fulfill this requirement.

School requirements for Psychology and Social Behavior majors:

A. Psychology and Social Behavior major requirements [1]	
PSY BEH 11A	Psychology Fundamentals
PSY BEH 11B	Psychology Fundamentals
PSY BEH 11C	Psychology Fundamentals
B. Three lower-division courses	
SOCECOL 10	Research Design
SOCECOL 13	Statistical Analysis in Social Ecology
CRM/LAW C7	Introduction to Criminology, Law and Society
C. One research course	
SOCECOL 194W	Naturalistic Field Research
D. Select one of the following courses:	
SOCECOL 195	Field Study (four units)
SOCECOL 195A	Advanced Field Study
SOCECOL 195B	Advanced Field Study
SOCECOL 195C	Advanced Field Study

[1] Students majoring in Psychology and Social Behavior are required to take PSY BEH 11A, PSY BEH 11B, PSY BEH 11C as a departmental requirement, in lieu of SOCECOL E8 or PP&D 4, PSY BEH 9 or PSY BEH 11B or PSY BEH 11C, and the additional upper-division course.

Departmental Requirements: Refer to individual departments.
Grade Requirement

A minimum grade average of at least C (2.0) is required (1) overall; (2) in all courses required for the major program, including the School requirements; and (3) in the upper-division courses required for the major.

Overlap Restrictions

Double Majors. In order to double major within the School of Social Ecology, major requirements must be met for both majors without any overlap of upper-division courses.

Other Double Majors. In fulfilling degree requirements for multiple majors, a maximum of two courses may overlap between any two majors.

Major and Minor Requirements: In fulfilling minor requirements, a maximum of two courses may overlap between a major and a minor. No course overlap is permitted between minors.

Undergraduate Major in Social Ecology

Requirements for the B.A. Degree in Social Ecology

All students must meet the University Requirements (p. 71)**.**
All students must meet the School Requirements (p. 1446)**.**

Requirements for the Major

Ten upper-division courses (40 units) as specified below:

A. Three courses (12 units)—one course (numbered 100–193) selected from each of the three departments—Criminology, Law and Society; Planning, Policy, and Design; and Psychology and Social Behavior.	
B. Seven additional courses (28 units) selected from Social Ecology or the departments of Criminology, Law and Society; Planning, Policy, and Design; and Psychology and Social Behavior. Course prerequisites established by the individual departments must be satisfied.	

Students may petition to have two SOCECOL 199 courses (total of 8 units) count toward upper-division major credit, provided that the courses (1) were taken for a letter grade; (2) required a written term paper or research presentation at an academic conference; and (3) were taught by a Social Ecology

faculty member whose name appears on a list maintained in the Social Ecology Student Services Office. Students may also petition graduate courses (numbered 200–209) to fulfill upper-division major requirements.

Social Ecology Minor Requirements

A. Three lower-division courses (12 units)	
CRM/LAW C7	Introduction to Criminology, Law and Society
SOCECOL E8	Introduction to Environmental Analysis and Design
or PP&D 4	Introduction to Urban Studies
Select one of the following courses:	
PSY BEH 9	Introduction to Psychology
PSY BEH 11B	Psychology Fundamentals
PSY BEH 11C	Psychology Fundamentals
B. Six upper-division courses (24 units):	
Three courses (12 units). One upper-division course (numbered 100-196) selected from each of the three departments-Criminology, Law and Society; Planning, Policy and Design; and Psychology and Social Behavior.	
Three additional courses (12 units). Selected from Social Ecology or the departments of Criminology, Law, and Society; Planning, Policy and Design; and Psychology and Social Behavior. Course prerequisites established by the individual departments must be satisfied.	
NOTE: Students pursuing a major in the School of Social Ecology may not use upper-division coursework for both school major or minor requirements. No overlap is permitted. SOCECOL 198 and SOCECOL 199 may not be applied toward the minor.	

Graduate Programs

Graduate training in the School of Social Ecology is organized around the study of contemporary problems in the social and physical environment. Emphasis is placed primarily upon theory and research that have implications for policy and intervention. Problems are investigated from the complementary perspectives of a multidisciplinary faculty that includes specialists in social, developmental, clinical, environmental, and health psychology; urban and regional planning, public policy, and architecture; urban sociology; law and society; and criminology.

Among issues of long-standing interest in the School are crime and justice in society, social influences on health and human development over the life course, and the effects of the physical environment on health and human behavior. The graduate curriculum emphasizes an interdisciplinary orientation, training students to draw upon the knowledge offered by several of the traditional academic fields in order to examine important social, legal, and environmental problems from a perspective of breadth as well as depth.

The School offers M.A., M.A.S., M.P.P., M.U.R.P., and Ph.D. degree programs. Doctoral students have the opportunity to pursue an individualized course of study in the principles and methods of social ecology for the Ph.D. in Social Ecology, a concentration in Epidemiology and Public Health, or a concentration in Environmental Analysis and Design. Additional degree programs offered are as follows: Ph.D. in Criminology, Law and Society; Ph.D. in Planning, Policy, and Design; and Ph.D. in Psychology and Social Behavior. Master's degrees include the M.A. in Social Ecology; the M.A. in Social Ecology with a concentration in Demographic and Social Analysis; the Master of Advanced Studies (M.A.S.) in Criminology, Law and Society (an online degree program); the Master of Public Policy (M.P.P.); and the Master of Urban and Regional Planning (M.U.R.P.). In addition, many students in the Ph.D. programs in Criminology, Law and Society and in Psychology and Social Behavior obtain an M.A. in Social Ecology on the way to their Ph.D.

Social Ecology faculty members apply diverse methods of scientific inquiry to study social, behavioral, and environmental problems. Evaluation research, legal research, questionnaire and survey methods, field research, naturalistic observation, and quasi-experimental techniques receive emphasis along with behavioral laboratory experimentation. Collaborative research with faculty members is an important component of graduate education in the School.

A sampling of faculty research and teaching interests includes human stress; health promotion; biobehavioral bases of health and illness; program evaluation; economic change and behavioral disorders; a typical child development; adaptive aging; end-of-life medical decision-making; violence and aggression; legal sanctions and deterrence; the socio-cultural context of law; white-collar and organized crime; gangs; police work; wrongful conviction/miscarriages of justice; transitions to parenthood; personality and psychopathology; effects of chemical and social environments on early child development; urban growth management and policies; transportation policies; poverty and homelessness; community design and development; regional economic development; the use of scientific information in public policy formation and litigation; and the health impacts of work environments.

Admission

Students should submit their complete application file including the application form, transcripts, three letters of recommendation, and Graduate Record Examination (GRE) scores (see exceptions below) by December 15 if they are applying to the Psychology and Social Behavior, Criminology, Law and Society, or Social Ecology Ph.D. program and by January 15 if they are applying to the Planning, Policy, and Design Ph.D. program.

GRE scores are not required for applicants to the M.A.S. in Criminology, Law and Society. However, applicants may submit them if they believe the scores will strengthen their file. Applicants must answer a short writing question provided by the M.A.S. Director and Admissions Committee. The deadline for M.A.S. applications is March 1 and specific program information is available at the M.A.S. in Criminology, Law and Society (http://

clsmas.soceco.uci.edu) website. Applicants may also contact the Assistant Director, Adrianna Lopez, at (949) 824-5462 or adriannl@uci.edu, for more information.

Applicants to the Master of Urban and Regional Planning should also submit the application form, transcripts, and three letters of recommendation but need not submit GRE scores if they are U.S. citizens or permanent residents whose cumulative grade point average is at least 3.3 on a 4-point scale. All other planning master applicants (including international students or those whose grade point average falls below the threshold) must include GRE scores. The deadline for Master of Urban and Regional Planning applications is January 15. For more information contact the Graduate Coordinator, Janet Gallagher, at janetg@uci.edu or at (949) 824-9849.

Career Opportunities

Ph.D. graduates enjoy a wide variety of career opportunities and have succeeded in obtaining positions in academic institutions such as Stanford University; Rutgers University; Johns Hopkins University; Temple University; University of California, Los Angeles; University of California, San Diego; University of Colorado; University of Kansas; University of Minnesota; University of Oregon; University of Wisconsin; Indiana University; Carnegie-Mellon University; University of Texas at Austin; Arizona State University; and City University of New York. Other graduates have established research and administrative careers in government agencies and private firms throughout the United States and Canada, including National Institutes of Health; Toronto Department of Public Health; Environmental Protection Agency; Centers for Disease Control; Food and Drug Administration; U.S. Department of Agriculture; Metropolitan Water District; Air Resources Board; Orange County Department of Health Services; United Cerebral Palsy Foundation; Philadelphia Geriatric Center; New Mexico Tumor Registry; Orange County Superior Court; Southern California Metropolitan Water District; and in marketing and research firms such as the Yankelovich Group and McGuire Environmental Consultants. Master of Urban and Regional Planning graduates are employed in top urban planning consulting firms and in cities and counties throughout California and beyond.

Master’s Programs

M.A. in Social Ecology

The M.A. degree in Social Ecology option is available to those students who have been admitted to one of the Ph.D. degree programs in Criminology, Law and Society; Psychology and Social Behavior; or Planning, Policy, and Design. In very rare circumstances a student may be admitted directly to the M.A. degree program in Social Ecology. Consult with the Graduate Student Services Office before submitting an application or for additional questions; telephone (949) 824-5918.

Each M.A. degree student is assigned a faculty advisor with whom the student discusses an individual program of education. The M.A. degree program in Social Ecology requires a thesis and satisfactory completion of seven approved courses (28 units), including the Seminar in Social Ecology (SOCECOL 200), Research Methods (CRM/LAW C201, PSY BEH P201, PP&D 297, or equivalent), and at least one additional approved course in statistics or methodology. Other courses should be selected with regard to the student’s academic and career objectives, and must be approved by the faculty advisor. The seven required courses must include at least five graduate courses and must be exclusive of any directed study, independent study, or thesis courses (SOCECOL 298, SOCECOL 299, or SOCECOL 295). A grade of B or better must be achieved in all courses. Students are advanced to candidacy for the M.A. degree, and a thesis committee is appointed, after a review of their graduate work and thesis plans by a faculty committee.

M.A. in Social Ecology with a Concentration in Demographic and Social Analysis

The M.A. in Social Ecology with a concentration in Demographic and Social Analysis offers training in the practical research skills needed to address analytical problems confronting society, business, government, and the nonprofit sector. The concentration emphasizes the Pacific Rim and issues defining Southern California’s population, such as immigration, changing household and family structure, racial and economic inequalities, and the impact of local and regional population growth. Informed by the interdisciplinary field of demography, the program draws on faculty and courses in the Schools of Social Ecology and Social Sciences.

The concentration in Demographic and Social Analysis offers the option of additional professional certification for doctoral students already admitted to the School of Social Ecology. Admission, core course, and thesis requirements are identical to those for the general M.A. in Social Ecology. In addition, students must complete 12 units of designated electives in population issues or research methods. Up to two upper-division undergraduate courses may be approved to fulfill the elective requirement. Students interested in this concentration should call the Graduate Student Services Office at (949) 824-5918 for more information.

Ph.D. Programs

The doctoral programs offered by the School of Social Ecology prepare students for academic careers in research and teaching. Graduates also are well qualified for employment in private or government agencies, where they can bring advanced academic training, strong methodological and statistical skills, and special expertise to such issues as environmental design; urban and regional planning; criminal justice; and social policies affecting mental and physical health across the life course. The normative time for completion of the Ph.D. degree is either five or six years, depending upon the specific program.

Each incoming Ph.D. student is assigned a faculty advisor with whom the student should meet at least once every quarter to discuss an individualized program of graduate education.

A student may be formally advanced to candidacy for the Ph.D. degree when all requirements except the dissertation have been completed, and when the student’s dissertation plan has been approved by the candidacy committee appointed by the School of Social Ecology, on behalf of the Dean of the

Graduate Division and the Graduate Council. The student will appear before this committee for an oral examination. The dissertation plan will include a thorough examination of the history of the problem being proposed for investigation, its current status, the way in which the proposed research will further knowledge, a detailed specification of the proposed method of investigating the problem, and a description of the planned methods for analyzing the data collected. The normative time for advancement to candidacy is either three or four years, depending upon the program. In no case will students be allowed to advance to candidacy after the end of their fifth year of study.

Formal advancement to candidacy for the Ph.D. degree will be approved by the Dean of the Graduate Division upon recommendation by a unanimous vote of the student's candidacy committee. Alternatively, the committee may recommend a course of action to strengthen the student for advancement to candidacy at a future date. When the student is advanced to candidacy, a doctoral committee will be appointed on behalf of the Graduate Council. The doctoral committee, ordinarily consisting of three members of the faculty, will supervise the preparation and completion of the doctoral dissertation. The dissertation should be completed and accepted within one to two years, and no later than three calendar years after the student's advancement to candidacy.

All Ph.D. students who have not been advanced to candidacy will be formally evaluated by members of the Social Ecology faculty at the end of each year. At that time, the faculty may recommend that the student continue toward the Ph.D. degree, complete the M.A. degree only, or cease graduate studies in the School. A negative evaluation at this point is evidence of failure to maintain satisfactory academic progress. Evaluation of Ph.D. students who have advanced to candidacy is the responsibility of the student's doctoral dissertation committee.

Ph.D. in Social Ecology

The Ph.D. program in Social Ecology allows students to develop a tailored course of graduate study that draws upon the knowledge of several traditional academic disciplines. This is a small distinguished program intended for genuinely interdisciplinary doctoral students. The emphases of this training program are in keeping with the academic mission of the School, namely, its emphases on an ecological approach to research and policy, an interdisciplinary approach to research and community intervention, and the application of theory and research to community problem solving. Students are encouraged to integrate the diverse theoretical and methodological insights of several disciplines in order to analyze important social and environmental problems from a perspective of breadth as well as depth. In doing so, students gain familiarity with the classic and contemporary literature in social ecology and with the application of the ecological paradigm, as it has evolved in the natural and behavioral sciences. This program is ideally suited for independent students who wish to develop a unique interdepartmental program of study in consultation with faculty from several departments.

Each incoming student takes Seminar in Social Ecology (SOCECOL 200), Research Methods (CRM/LAW C201, PSY BEH P201, PP&D 297, or equivalent), two approved quarters of graduate-level statistics from the Data Analysis, SE 264A and SE 264B, one additional approved research methods or statistics course, and a minimum of six elective courses, chosen in consultation with the faculty advisor. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years. Students are encouraged to become involved in research in their first year of study by participating in the research projects of the faculty. Students complete a supervised research project before they begin work on their doctoral dissertation. Research is broadly construed to include experimental methods, questionnaire and interview studies, systematic field observation, secondary analyses, and legal analyses. This predissertation research project should be completed during the second year in residence and must be evaluated and approved by a committee of three faculty members.

Students complete the breadth requirement during their third year of study. This is accomplished through successful completion of either a written comprehensive examination or the submission of a major paper or series of papers that intensively examine specific substantive problems and bodies of research. Preferably, the perspective taken should be multidisciplinary, but a single disciplinary approach is acceptable if it is more congruent with the student's educational goals and is acceptable to the student's committee. Each student's plans for completing the breadth requirement are developed in collaboration with a committee of three Social Ecology faculty members. Students are encouraged to meet with this committee as early as possible during their graduate career and are required to do so no later than the third quarter of their second year. When the student's plans have been approved and implemented, the examining committee will determine whether the breadth requirement was successfully completed, and will recommend additional academic work if it is deemed necessary. The normative time for advancement to candidacy is three years. The fourth, and possibly fifth, years of study are devoted to developing and defending a dissertation proposal and conducting dissertation research.

Ph.D. in Social Ecology with a Concentration in Environmental Analysis and Design

The doctoral concentration in Environmental Analysis and Design prepares students to conduct research on questions of vital importance to professionals in environmental analysis and evaluation and on related questions on the formulation of environmental and health policy. These questions reflect an overarching concern with the effects of the natural and built environments on the health and social well-being of humans.

This doctoral concentration particularly focuses on insights from a social ecological perspective. One of the concentration's strengths is its research sequence which spans the disciplines within the School. Students are encouraged to take classes across the campus to improve their knowledge of related fields as well.

Students conduct analyses of sociocultural, behavioral, biological, chemical, and physical factors that influence health and well-being of humans, including public and private sector policy as well as the environment as a whole. They are also trained to evaluate the effectiveness of interventions designed to enhance the health of individuals and the community as a whole. The curriculum and diversity of faculty within the concentration afford unique opportunities for multidisciplinary research and training.

Potential employment sources for graduates include academic and research institutions; state and federal agencies; policy-making organizations; national, community, and workplace health-promotion programs; and a diverse range of consulting firms ranging from engineering to design.

Each incoming student takes the five core courses required of most Ph.D. students, noted earlier, and eight elective courses drawn from the focal areas within this concentration. The elective courses cover topics such as environmental health risks, behavioral epidemiology, demography, and technological hazards and change. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years. Students are expected to become involved in research activities in their first year of graduate study. Students complete a supervised research project before they begin work on their doctoral dissertation. This predissertation research project should be completed during the second year in residence (preferably by the end of the winter quarter of the second year). The research project must be evaluated and approved by a committee of three faculty members. Students complete the breadth requirement, described earlier, during their third year of study. The normative time for advancement to candidacy is three years. The fourth and fifth years of study are devoted to developing and defending a dissertation proposal and conducting dissertation research.

Faculty

Dean B. Baker, M.D. University of California, San Diego, *Professor of Medicine; Environmental Health Sciences; Program in Public Health*

Mario Barnes, LL.M. University of Wisconsin-Madison, *Professor of School of Law; Criminology, Law and Society* (criminal law, constitutional law, critical race theory)

Scott Bartell, Ph.D. University of California, Davis, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology; Social Ecology; Statistics*

Mary V. Basolo, Ph.D. University of North Carolina at Chapel Hill, *Associate Professor of Planning, Policy, and Design*

Susan C. Bibler Coutin, Ph.D. Stanford University, *Associate Dean of the Graduate Division and Professor of Criminology, Law and Society; Anthropology; Culture and Theory* (law, culture, immigration, human rights, citizenship, political activism, Central America)

Arnold Binder, Ph.D. Stanford University, *Professor Emeritus of Criminology, Law and Society* (research methodology, juvenile delinquency, police organization and methods)

Bruce Blumberg, Ph.D. University of California, Los Angeles, *Professor of Developmental and Cell Biology; Biomedical Engineering; Environmental Health Sciences; Pharmaceutical Sciences* (gene regulation by nuclear hormone receptors in vertebrate development physiology, endocrine disruption)

Scott A. Bollens, Ph.D. University of North Carolina at Chapel Hill, *Drew, Chace and Erin Warmington Chair in the Social Ecology of Peace and International Cooperation* and *Professor of Planning, Policy, and Design*

Stephen C. Bondy, Ph.D. University of Birmingham, *Professor of Medicine; Environmental Health Sciences; Pharmacology; Program in Public Health*

Tim-Allen Bruckner, Ph.D. University of California, Berkeley, *Assistant Professor of Program in Public Health; Planning, Policy, and Design*

Jan K. Brueckner, Ph.D. Stanford University, *Department Chair and Professor of Economics; Planning, Policy, and Design*

Vincent J. Caiozzo, Ph.D. University of California, Irvine, *Professor in Residence of Orthopaedic Surgery; Environmental Health Sciences; Physiology and Biophysics*

Kitty C. Calavita, Ph.D. University of Delaware, *Professor Emerita of Criminology, Law and Society; Sociology* (sociology of law, criminology, social deviance, immigration, inequality)

Belinda Campos, Ph.D. University of California, Berkeley, *Associate Professor of Chicano/Latino Studies; Psychology and Social Behavior* (culture, relationships, positive emotion, health)

Sarah L. Catz, J.D. Santa Clara University, *Lecturer of Planning, Policy, and Design*

Elizabeth E. Cauffman, Ph.D. Temple University, *UCI Chancellor's Fellow* and *Professor of Psychology and Social Behavior; Education; Psychology and Social Behavior; School of Law* (adolescent development, mental health, juvenile justice, legal and social policy)

Jefferson Chan, Ph.D. University of California, San Francisco, *Associate Professor of Pathology and Laboratory Medicine; Environmental Health Sciences*

Susan T. Charles, Ph.D. University of Southern California, *UCI Chancellor's Fellow* and *Professor of Psychology and Social Behavior* (emotional processes across the adult life span, subjective experience and cognitive processes, health and emotion)

Chuansheng Chen, Ph.D. University of Michigan, *Professor of Psychology and Social Behavior; Education* (cross-cultural psychology, adolescent development, cognitive neuroscience, genes and behavior)

Jacqueline Chen, Ph.D. University of California, Santa Barbara, *Assistant Professor of Psychology and Social Behavior* (experimental social psychology, diversity and intergroup relations, social cognition, cultural psychology)

Joey Cheng, Ph.D. University of British Columbia, *Assistant Professor of Psychology and Social Behavior* (social hierarchies, psychology of social status, nonverbal cues of power and status, social contagion)

Kenneth S. Chew, Ph.D. University of California, Berkeley, *Senior Lecturer of Planning, Policy, and Design*

Simon A. Cole, Ph.D. Cornell University, *Professor of Criminology, Law and Society; History* (science, technology, law, criminal justice)

Ross F. Conner, Ph.D. Northwestern University, *Professor Emeritus of Planning, Policy, and Design*

William J. Cooper, Ph.D. University of Miami, *Professor of Civil and Environmental Engineering; Chemical Engineering and Materials Science; Planning, Policy, and Design* (environmental chemistry, advanced oxidation processes for water treatment, aquatic photochemistry of carbon cycling)

Thomas J. Crawford, Ph.D. Harvard University, *Senior Lecturer with Security of Employment Emeritus of Psychology and Social Behavior* (attitude theory and social problems research)

Elliott P. Currie, Ph.D. University of California, Berkeley, *Professor of Criminology, Law and Society* (criminal justice policy in the U.S. and other countries, causes of violent crime, social context of delinquency and youth violence, etiology of drug abuse and assessment of drug policy, race and criminal justice)

Teresa A. Dalton, Ph.D. University of Denver, *Lecturer with Potential Security of Employment of Criminology, Law and Society* (quantitative methodology, criminology, law and social sciences)

Ralph J. Delfino, M.D., Ph.D. McGill University, *Professor in Residence of Epidemiology; Environmental Health Sciences*

Joseph Di Mento, Ph.D. University of Michigan, *Professor of School of Law; Criminology, Law and Society; Paul Merage School of Business; Planning, Policy, and Design* (planning, land use and environmental law, use of social science in policy making, legal control of corporate behavior)

Sally S. Dickerson, Ph.D. University of California, Los Angeles, *Associate Professor of Psychology and Social Behavior* (health psychology, stress physiology, effects of social and emotional processes on physiology and health)

Peter H. Ditto, Ph.D. Princeton University, *Professor of Psychology and Social Behavior* (social psychology, judgment and decision making, political and moral reasoning)

John D. Dombrink, Ph.D. University of California, Berkeley, *Professor of Criminology, Law and Society; Sociology* (crime and criminal justice, deviance and social control)

C. David Dooley, Ph.D. University of California, Los Angeles, *Professor Emeritus of Psychology and Social Behavior* (community psychology, epidemiology, economic change)

Greg Duncan, Ph.D. University of Michigan, *UCI Distinguished Professor of Education; Economics; Psychology and Social Behavior* (economics of education, program evaluation, child development)

Derek Dunn-Rankin, Ph.D. University of California, Berkeley, *Professor of Mechanical and Aerospace Engineering; Civil and Environmental Engineering; Environmental Health Sciences* (combustion, optical particle sizing, particle aero-dynamics, laser diagnostics and spectroscopy)

Jacquelynne S. Eccles, Ph.D. University of California, Los Angeles, *UCI Distinguished Professor of Education; Psychology and Social Behavior* (academic motivation and achievement, school and family influences on adolescent development, gender and ethnicity in STEM fields)

Rufus D. Edwards, Ph.D. Rutgers, The State University of New Jersey, *Associate Professor of Program in Public Health; Environmental Health Sciences; Epidemiology*

David Feldman, Ph.D. University of Missouri-Columbia, *Professor of Planning, Policy, and Design; Political Science*

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Michelle Fortier, Ph.D. University of Nebraska, *Assistant Professor in Residence of Anesthesiology and Perioperative Care; Psychology and Social Behavior* (pediatric pain management, pediatric oncology, family-centered medicine, complementary and alternative medicine (CAM), health information technology, coping with illness-related Stress)

Ajay Garde, Ph.D. University of Southern California, *Associate Professor of Planning, Policy, and Design*

Howard A. Gillman, Ph.D. University of California, Los Angeles, *Provost and Interim Chancellor* and *Professor of Political Science; Criminology, Law and Society; History; School of Law*

Wendy A. Goldberg, Ph.D. University of Michigan, *Professor of Psychology and Social Behavior; Education* (developmental psychology, work and family, infant sleep, transition to parenthood, autism)

Michael R. Gottfredson, Ph.D. University at Albany, State University of New York, *Professor of Criminology, Law and Society* (criminology, theory, crime, policy)

Ellen Greenberger, Ph.D. Harvard University, *Professor Emerita of Psychology and Social Behavior* (developmental psychology, social and cultural influences on adolescent and young adult development, family relationships and consequences throughout the lifespan)

Sora Han, Ph.D. University of California, Santa Cruz, *Assistant Professor of Criminology, Law and Society; African American Studies; Culture and Theory* (law and popular culture, critical race theory, philosophies of punishment, feminism and psychoanalysis)

Jutta Heckhausen, Ph.D. University of Strathclyde, *Professor of Psychology and Social Behavior* (life-span developmental psychology, motivation, individual agency and social context)

Barb J. Heine, Ph.D. Saint Louis University, *Lecturer of Psychology and Social Behavior*

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Valerie Jenness, Ph.D. University of California, Santa Barbara, *Dean of the School of Social Ecology* and *Professor of Criminology, Law and Society; Sociology* (links between deviance and social control (especially law), the politics of crime control and criminalization, social movements and social change, corrections and public policy)

Paul D. Jesilow, Ph.D. University of California, Irvine, *Professor of Criminology, Law and Society* (healthcare regulation, in particular the role of fraud; the police, in particular police-community relations)

C. Sunny Jiang, Ph.D. University of South Florida, *Professor of Civil and Environmental Engineering; Environmental Health Sciences* (water pollution microbiology, environmental biotechnology, aquatic microbial ecology)

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Angela F. Lukowski, Ph.D. University of Minnesota, *Assistant Professor of Psychology and Social Behavior* (memory development in infancy and early childhood, individual differences in long-term memory in infancy, the impact of sleep on cognitive functioning from infancy to adulthood)

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Elizabeth Martin, Ph.D., University of Missouri, *Assistant Professor of Psychiatry and Human Behavior* (transdiagnostic emotional and social functioning, affective control and regulation, relations between affect and cognition)

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Cheryl Lee Maxson, Ph.D. University of Southern California, *Associate Professor of Criminology, Law and Society* (crime and delinquency, youth violence, street gangs, juvenile justice system and policing)

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Karen S. Rook, Ph.D. University of California, Los Angeles, *Professor of Psychology and Social Behavior* (gerontology, social relationships and health)

Shawn W. Rosenberg, M.S. Oxford University, *Professor of Political Science; Psychology and Social Behavior* (political psychology, deliberative democracy, ideology, social theory, social and development psychology)

Michael Ruane, M.A. University of California, Los Angeles, *Lecturer of Planning, Policy, and Design*

Ruben G. Rumbaut, Ph.D. Brandeis University, *Professor of Sociology; Criminology, Law and Society; Education* (international migration, immigration laws, criminalization, incarceration, inequality)

Jean-Daniel M. Saphores, Ph.D. Cornell University, *Professor of Civil and Environmental Engineering; Economics; Planning, Policy, and Design* (transportation economics, planning and policy, environmental and natural resource economics and policy, quantitative methods)

Sabrina E. Schuck, Ph.D. University of California, Riverside, *Health Sciences Assistant Clinical Professor of Pediatrics; Psychology and Social Behavior* (ADHD, autistic spectrum disorders, disorders of reading and written language, human-animal intervention, non-pharmacological treatment of disruptive behavior, cognitive-behavioral school-based and family-based interventions)

Donna Schuele, Ph.D. University of California, Berkeley, *Lecturer with Potential Security of Employment of Criminology, Law and Society* (law and society, American legal/constitutional history, constitutional law, civil rights and civil liberties, women and law, crime and gender, judicial process and politics, California legal history)

Nicholas I. Scurich, Ph.D. University of Southern California, *Assistant Professor of Psychology and Social Behavior; Criminology, Law and Society* (judgment and decision making, juridical proof, violence risk assessment)

Carroll S. Seron, Ph.D. New York University, *Professor of Criminology, Law and Society; School of Law; Sociology* (sociology of law, sociology of professions, law and society, sociology of legal profession, methods and police misconduct)

Ronald C. Shank, Ph.D. Massachusetts Institute of Technology, *Professor Emeritus of Medicine; Environmental Health Sciences*

Roxane C. Silver, Ph.D. Northwestern University, *Professor of Psychology and Social Behavior; Program in Public Health* (coping with traumatic life events (personal losses and collective traumas), stress, social psychology, health psychology)

David A. Smith, Ph.D. University of North Carolina at Chapel Hill, *Professor of Sociology; Planning, Policy, and Design* (world systems analysis, urbanization, development, comparative-historical sociology, dependent development in east asia)

David M. Snow, J.D. Loyola Marymount University, *Lecturer of Planning, Policy, and Design*

Ann Southworth, J.D. Stanford University, *Professor of School of Law; Criminology, Law and Society*

Eric Spangenberg, Ph.D. University of Washington, M.B.A. Portland State University, *Dean of The Paul Merage School of Business* and *Professor of Paul Merage School of Business; Psychology and Social Behavior* (sensory cues in the retail environment and the effects of self-prediction on behavior)

Mark Steyvers, Ph.D. Indiana University, *Professor of Cognitive Sciences; Psychology and Social Behavior* (wisdom of crowds, aggregating human judgments, computational models of the mind, machine learning and statistics, memory and decision making)

Daniel S. Stokols, Ph.D. University of North Carolina at Wilmington, *Professor Emeritus of Psychology and Social Behavior; Epidemiology; Planning, Policy, and Design; Program in Public Health* (environmental psychology, science of team science, transdisciplinary public health)

Luis Suarez-Villa, Ph.D. Cornell University, *Professor of Planning, Policy, and Design*

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Bryan Sykes, Ph.D. University of California, Berkeley, *Assistant Professor of Criminology, Law and Society; Sociology* (demography, criminology, research methods, health, social inequality, statistics)

Shauhin A. Talesh, J.D. University of Connecticut, *Acting Professor of School of Law; Criminology, Law and Society; Sociology* (civil procedure, consumer law, insurance, business organizations, empirical legal studies, law and society)

William C. Thompson, Ph.D. Stanford University, *Professor of Criminology, Law and Society; Psychology and Social Behavior; School of Law* (psychology and law, criminal justice, forensic science, expert evidence, human judgment and decision making, use of social science in appellate litigation)

Kara L. Thorsen, Ph.D. University of California, Irvine, *Lecturer of Social Ecology*

George E. Tita, Ph.D. Carnegie Institute of Technology, *Professor of Criminology, Law and Society; Planning, Policy, and Design* (criminology, community context of violence, urban youth gangs, homicide studies)

Christopher L. Tomlins, Ph.D. Johns Hopkins University, *UCI Chancellor's Professor of School of Law; Criminology, Law and Society* (law and humanities, law and society, legal history)

Rudolfo D. Torres, Ph.D. Claremont Graduate University, *Professor of Planning, Policy, and Design; Culture and Theory*

Susan F. Turner, Ph.D. University of North Carolina at Chapel Hill, *Professor of Criminology, Law and Society* (sentencing and corrections, applied research methods)

Kristin E. Turney, Ph.D. University of Pennsylvania, *Assistant Professor of Sociology; Criminology, Law and Society* (social inequality, family demography, population health, incarceration and punishment, intergenerational transmission of disadvantage, child well-being)

Benjamin van Rooij, Ph.D. , *John S. and Marilyn Long Chair in U.S.-China Business and Law* and *Professor of Criminology, Law and Society; School of Law*

Deborah Lowe Vandell, Ph.D. Boston University, *Dean of the School of Education* and *Professor of Education; Psychology and Social Behavior* (P-20 education, longitudinal studies of development)

Kerry Vandell, Ph.D. Massachusetts Institute of Technology, *Professor of Paul Merage School of Business; Planning, Policy, and Design; School of Law*

Veronica M. Vieira, D.Sc. Boston University, *Associate Professor of Program in Public Health; Environmental Health Sciences*

James D. Vigil, Ph.D. University of California, Los Angeles, *Professor Emeritus of Criminology, Law and Society* (urban research, urban poverty, culture change, socialization and education, psychological anthropology, street gangs in cross-cultural perspective, Mexico and U.S. southwestern ethnohistory, comparative ethnicity)

Linda T. Võ, Ph.D. University of California, San Diego, *Associate Professor of Asian American Studies; Culture and Theory; Planning, Policy, and Design; Sociology* (race and ethnic relations, immigrants and refugees, gender relations, community and urban studies)

Geoff Ward, Ph.D. University of Michigan, *Associate Professor of Criminology, Law and Society; Sociology* (race relations, courts and sentencing, juvenile justice, social movements, justice workers)

Carol K. Whalen, Ph.D. University of California, Los Angeles, *Professor Emerita of Psychology and Social Behavior* (developmental psychopathology, childhood behavior disorders, child therapies, health psychology)

Jun Wu, Ph.D. University of California, Los Angeles, *Associate Professor of Program in Public Health; Environmental Health Sciences*

Ilona S. Yim, Ph.D. University of Trier, *Associate Professor of Psychology and Social Behavior* (stress, pregnancy and postpartum depression, biopsychology of stress, developmental psychobiology)

Joanne F. Zinger, Ph.D. University of California, Riverside, *Lecturer with Security of Employment of Psychology and Social Behavior* (expressive writing, meta-analysis, positive psychology, health psychology, preventive medicine, educational psychology)

Criminology, Law and Society Courses

CRM/LAW C7. Introduction to Criminology, Law and Society . 4 Units.
Introduces characteristics of the U.S. criminal justice system, including responses to crime, components of the system, and current challenges to the system. Examines structure and function of police and courts, criminal procedure, and sentencing and incarceration policies. Course may be offered online.

Restriction: Criminology, Law and Society, Social Ecology, Urban Studies, and Psychology and Social Behavior majors have first consideration for enrollment.

(III)

CRM/LAW C10. Fundamentals of Criminology, Law and Society . 4 Units.
Introduces three interdisciplinary literatures—criminology, socio-legal studies, and justice studies. Focuses on theoretical and empirical work addressing law making, law breaking, and legal systems.

Prerequisite: CRM/LAW C7.

(III)

CRM/LAW C40. Forms of Criminal Behavior. 4 Units.
Undergraduates are introduced to the subjects of crime and criminal behavior. Topics include "street" and "white-collar" crimes. Histories of the offenses, the types of people who commit the crimes, and society's reactions to the offenses are presented.

(III)

CRM/LAW C100. Special Topics in Criminology, Law and Society. 4 Units.
Special topic courses are offered from time to time. Course content varies with interest of the instructor.

Prerequisite: CRM/LAW C7.

Repeatability: Unlimited as topics vary.

CRM/LAW C101. American Law. 4 Units.
Introduction to substantive and procedural law governing private dispute resolution, including common law (tort, property, contracts), lawsuits (civil procedure), and alternative dispute resolution; emphasis on the socio-legal ramifications of private disputes, particularly the modern tort system and tort reform movement.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C102. Introduction to the Comparative Study of Legal Cultures. 4 Units.
Traces the anthropological and comparative cultural study of law from the nineteenth century to the present; briefly surveys the diversity of recorded legal cultures and critically examines key concepts which have been used to describe and classify them.

Same as INTL ST 124A.

Restriction: Criminology, Law and Society, Social Ecology, and International Studies majors have first consideration for enrollment.

CRM/LAW C103. American Legal Thought. 4 Units.
Evolution of legal thought in socio-historical context from nineteenth century to present; emphasizes the rise and fall of legal classicism and modern socio-legal critiques, including the law and society movement, critical legal studies, feminist legal theory, and critical race studies.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C104. Sociology of Law. 4 Units.
Examines law creation and law enforcement in their social and political context. Discusses the major theories of law and the modern state, and presents case studies in order to evaluate the strengths and weaknesses of these theoretical perspectives.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C105. Psychology and the Law. 4 Units.
Psychological assumptions of American legal system and mental health aspects of provision of criminal justice services. Civil commitment, insanity defense, competence to stand trial, jury selection, eye-witness identification. Use of police, courts, correctional institutions in prevention of behavior disorder.

Prerequisite: CRM/LAW C7 or CRM/LAW C101.

Same as PSY BEH 193E.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

CRM/LAW C106. Crime and Public Policy. 4 Units.
Explores nature and dimensions of crime in America and uses and limits of various strategies to control it. Topics include growth of imprisonment, the problem of domestic violence, the death penalty, gun control, and the potential of crime prevention programs.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C107. Deviance. 4 Units.
Perspectives on deviance and criminality in behavior, institution, community, and myth. The suitability of contemporary theories of deviant behavior.

Same as SOCIOL 156, PSYCH 177D.

Restriction: Criminology, Law and Society, Social Ecology, Sociology, and Psychology majors have first consideration for enrollment.

CRM/LAW C108. Criminological Theory. 4 Units.
Explores the question of crime causation from a number of theoretical perspectives in the social sciences. Schools of thought examined include utilitarianism, positivism, human ecology, social structural approaches, social process (learning) theories, labeling, and radical-critical (political) perspectives.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C109. Juvenile Delinquency. 4 Units.
Patterns of delinquent behavior, theories that explain behavior, current research aimed at enhancing exploratory power. Attempts to prevent and control delinquency are put in historical perspective. Development of the current juvenile justice system and evolution of modern juvenile law.

Prerequisite: CRM/LAW C7.

Same as PSY BEH 193B.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

CRM/LAW C110. Community Context of Crime. 4 Units.
Examines the social context of high-crime communities, with special emphasis on the problems of poverty, joblessness, economic inequality, and racial discrimination. Assesses debates on the causes of these problems, and on the most effective policies to combat them.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C111. Theories of Punishment. 4 Units.
Survey of the various schools of thought regarding formal punishment theory. The purposes of legal sanctions are examined, including those of deterrence, rehabilitation, retribution, and incapacitation. Considers problems in realizing formal goals of punishment in practice.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C112. Legal Sanctions and Social Control. 4 Units.
Examination of criminal sanctions as mechanisms of social control. Includes the nature, function, and organization of courts as sanction generating institutions, and problems associated with punishing white-collar and corporate illegalities.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C113. Gender and Social Control. 4 Units.
Examines the legal system's use of sex as an organizing characteristic, focusing particularly on sameness and difference feminism, and tracing the evolution of equal treatment of men and women in the areas of constitutional rights, employment, education, and military service.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C114. Miscarriages of Justice. 4 Units.
Systematically describes, explains, and analyzes the causes and consequences of the wrongful accusation, prosecution, incarceration, and sometimes even execution, of the innocent in the American criminal justice system.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C115. Prisons, Punishment, and Corrections. 4 Units.
A review of how the U.S. punishes and rehabilitates convicted law violators. The conflicts among the major purposes of sentencing—rehabilitation, deterrence, incapacitation—are discussed, as well as the effects of different sanctions on public safety, offender rehabilitation, and justice system costs.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C116. Race, Ethnicity, and Social Control. 4 Units.
Provides a historical and sociological survey of racial and ethnic group relations in contexts of crime control, emphasizing the roles of racial ideology, structural racism, and social movements in shaping these dynamic relations, and their significance to American liberal democracy.

Prerequisite: CRM/LAW C7.

Same as CHC/LAT 152A.

CRM/LAW C117. Imprisonment and Reentry. 4 Units.
Offers an overview of imprisonment and reentry in the contemporary United States. Examines the development of the prison in the United States and explores changes in its composition, structure, and purpose over time.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C120. Law and Inequality. 4 Units.
Various aspects of the law as related to three specific areas of inequality: immigration and immigrants, race, and gender. The role of law as a tool of social reform and limitations of the legal system historically in resolving inequality issues.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C122. Constitutional Law. 4 Units.
Examines the First and Fourteenth Amendments, focusing on freedom of speech and religion, and the incorporation of the Bill of Rights. Topics include political, symbolic, offensive, and obscene speech, student speech rights, and the free exercise and disestablishment of religion.

Prerequisite: CRM/LAW C7.

Overlaps with POL SCI 174A.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C123. Family Law. 4 Units.
Examines legal issues surrounding marriage, cohabitation, divorce, child custody and support, adoption, and the rights of parents and children in the family context. The findings of social science research are used to illuminate the legal issues.

Prerequisite: CRM/LAW C7 or CRM/LAW C101.

Same as PSY BEH 193F.

Restriction: Psychology and Social Behavior, Social Ecology, and Criminology, Law and Society majors have first consideration for enrollment.

CRM/LAW C125. Child Development, the Law, and Social Policy. 4 Units.
Examines how psychology research and practice can inform areas of law and social policy affecting children and adolescents. Topics include education, mental health, reproductive rights, and delinquency. Goals are to evaluate research and identify the costs/benefits of current policies.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C. Recommended: PSY BEH 111D OR PSY BEH 112D.

Same as PSY BEH 120D.

Restriction: Psychology and Social Behavior, Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C126. Drugs, Crime, and Social Control. 4 Units.
Drug abuse in the U.S.; the psychopharmacology of various drugs; biological, psychological, and sociological explanations for drug abuse. Policy issues are discussed; students will develop and defend a set of strategies for limiting harm done by drugs and drug laws.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C127. Hate Crimes. 4 Units.
Examines the causes, manifestations, and consequences of hate crimes and the larger social context within which they occur. The politics and dynamics of intergroup violence born of bigotry and manifested as discrimination; social policy designed to control bias-motivated violence.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C130. Seminar on Gangs. 4 Units.
An overview of gangs, including the nature and definition of gangs; types of gangs; diversity of membership; theoretical explanations; criminal behavior; drug use and sales; law enforcement responses; gangs in correctional institutions; intervention and prevention strategies; and public policy issues.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C131. Organized Crime and American Society. 4 Units.
Examination of the phenomenon of American organized crime from a sociological perspective. Explanation of methods by which organized crime is tolerated at various levels of society. Emphasis on ways in which "underworld" interests interact with legitimate economic and political institutions.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C132. Forensic Science, Law, and Society. 4 Units.
Examines use of "forensic science" to resolve issues arising in criminal cases including crime scene analysis, DNA testing, fingerprints, trace evidence comparisons, profiling, lie detectors, other forensic techniques; evaluation, statistical characterization, and legal admissibility of evidence; regulation of forensic laboratories.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C133. Homicide and Suicide. 4 Units.
Examines similarities and differences among homicide and suicide, two major causes of death.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C134. Victimless Crimes. 4 Units.
Examines major theoretical, empirical, and policy-oriented research related to the design, implementation, and analysis of government intervention, through the criminal sanction, in the spheres of vice and morality.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C136. Forensic Psychology: Advanced Seminar. 4 Units.
The focus is on the psychology of criminal offending, particularly violent behavior. Examines violence, sexual offending, and mental disorder related to crime with regard to clinical assessment and treatment; mental health services within forensic institutions.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and (PSY BEH 178S or CRM/LAW C149).

Same as PSY BEH 156C, PSYCH 177F.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Criminology, Law and Society majors have first consideration for enrollment.

CRM/LAW C137. Criminal Procedure. 4 Units.
Examines the law governing arrests (with and without a warrant); police detention; search and seizure; interrogation; use of informers, eavesdropping, wiretapping; examination and identification of suspects. Pretrial motions such as speedy trial and discovery of evidence may be covered.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C139. Police and Change. 4 Units.
Organizational efforts to modify police conduct are addressed by focusing on the history of policing in the United States including training, education, and the contributions of women.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C142. White-Collar Crime. 4 Units.
Examines criminal activity in business and corporate enterprise, organizations, and the professions. Theories regarding the causes and control of white-collar and corporate crime are covered as well as the numerous definitions of these terms.

Same as SOCIOL 142.

Restriction: Sociology, Criminology, Law and Society, and Social Ecology majors have first consideration for enrollment.

CRM/LAW C144. Criminal Law. 4 Units.
Deals specifically with the substantive nature of criminal law and its historical development. Focuses on understanding the development of fundamental doctrinal principles upon which criminal law is based, including mens rea, actus reus, homicide, causation, group criminality, and exculpation.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C145. Government Crime. 4 Units.
Examines the legal, organizational, and political issues involved in the generation and control of government lawlessness. Readings present historical and theoretical perspectives in the abuse of government authority and the ability of the legal system to control such behavior.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C147. Law and Social Change. 4 Units.
Explores the relationship of law to its social setting by considering both law as a product of social change and law as a source or medium of change.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C148. Geographic Information Systems. 4 Units.
Basic geographic, cartographic, and GIS concepts including computer representation of physical, political, statistical, and social aspects of space using vector and grid-based maps. Experience with extensive geographic base map files and databases through use of GIS software (ArcView 3.x).

Same as PUBHLTH 166.

Restriction: Public Health Sciences, Public Health Policy, and Criminology, Law and Society majors have first consideration for enrollment.

CRM/LAW C149. Violence in Society. 4 Units.
Current theory and research on aggression; anger and violence as problems in individual and social functioning. Process and functions of anger examined with regard to normal behavior and psychopathology. The determinants, prevalence, and implications of violence in society are analyzed.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSY BEH 178S.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

CRM/LAW C150. The Legal Profession. 4 Units.
Role of the legal profession in modern society, the diverse professional roles lawyers play, the American legal profession compared with that of other societies. "Litigation explosion," ethical problems, interactions between lawyers and other professionals, training and socialization of new lawyers.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C151. Cybercrimes, Investigation, Forensics and Prosecution. 4 Units.
Examines crimes committed against persons, property, society, and the government in which a computer is used. How these computer crimes are committed, investigated, and ultimately prosecuted.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C152. Interrogation, Confession, and the Law. 4 Units.
In-depth examination of social psychology of police interrogation in America, the evolution of American interrogation practices from the nineteenth century to the present, impact of law on police behavior and ideology, causes and consequences of false confessions, possibilities of reform.

Same as PSY BEH 193D.

Restriction: Psychology and Social Behavior, Social Ecology, and Criminology, Law and Society majors have first consideration for enrollment.

CRM/LAW C156. Cross-Cultural Research on Urban Gangs. 4 Units.
Taking an urban policy approach, examines the background and contemporary traditions of gangs in several ethnic groups including African-, Asian-, and Mexican-Americans. Cross-cultural exploration of the varied facets of gang life. The major social-control institutions affecting them.

Same as CHC/LAT 153.

(VII)

CRM/LAW C157. Language in Law and Society. 4 Units.
Considers the role of language in legal practice and power. Particular attention is paid to linguistic and discourse analytic research that covers topics such as: trial talk, language crimes, law talk in cross-cultural perspectives, and linguistic evidence.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C160. Forensic Psychology. 4 Units.
Forensic psychology is the interface between clinical psychology and the law. Emphasizes clinically relevant legal topics (insanity defense; competency to stand trial)and includes critical thinking about issues arising when psychologists are involved in legal proceedings.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSY BEH 11C.

Same as PSY BEH 161C.

CRM/LAW C162. Crime Hotspots. 4 Units.
Criminological theories of local public safety hazards or hotspots are introduced. Spatial statistics are developed for different types of hotspots. Hotspot policing theories are introduced and research on the effectiveness of policing strategies is reviewed.

CRM/LAW C163. Ethics and Politics of Justice. 4 Units.
Theoretical perspective on how ethics and politics relate to criminal justice through an introduction to moral philosophy; consideration of specific theories of punishment and justice; and consideration of practical and empirical illustrations of the intersection of ethics, politics, and justice.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C164. Social Control of Delinquency. 4 Units.
Assumes familiarity with theories of delinquency, the juvenile justice system, and elements of juvenile law. Explores socio-historical origins and evolution of juvenile justice, current research and policy on delinquency prevention and treatment, and future directions of law, policy, and practice.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7. Recommended: CRM/LAW C109.

Same as PSY BEH 193C.

Restriction: Psychology and Social Behavior, Social Ecology, Criminology, Law and Society, and Psychology majors have first consideration for enrollment.

CRM/LAW C165. The Death Penalty. 4 Units.
Examines why the U.S. continues to have a death penalty when so many other countries have abandoned it. Arguments for and against the death penalty are covered.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C167. Crime Measurement. 4 Units.
The strengths and weaknesses of three crime measures (police reports, victim surveys, and offender self-reports) are illustrated through analyses of research articles. Common measurement problems are analyzed with a focus on reliability and validity.

CRM/LAW C168. Extreme Punishment . 4 Units.
Explores the history and law of America’s Eighth Amendment prohibition against cruel and unusual punishment, examining the death penalty, long prison sentences, harsh confinement conditions, and other punishments. Students debate practical, legal, and moral arguments for and against these punishments.

CRM/LAW C170. Federal Law Enforcement. 4 Units.
The peculiar legal, organizational concerns of the federal system of law enforcement and some of the crimes it is uniquely designed to address—white-collar crime, drug trafficking, racketeering, public corruption. Roles, responsibilities of the FBI, DEA, Customs, other policing agencies.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

CRM/LAW C171. Latinos and the Law. 4 Units.
Examines a range of theoretical, empirical, and policy approaches to legal issues affecting the Latino population, with emphasis on California. Discusses topics concerning the purpose of law, the creation of law, and the enforcement of law.

Same as CHC/LAT 142.

(VII)

CRM/LAW C172. Culture Change and the Mexican People. 4 Units.
Reviews culture contact and colonization, innovation diffusion, acculturation, assimilation, culture conflict and marginality, modernization, urbanization, legal transformations. Mexico and the Southwestern U.S. are reviewed through several centuries to better appreciate the indigenous base of the Mexican people.

Same as CHC/LAT 155.

CRM/LAW C173. Maritime Piracy, Law and Society. 4 Units.
Explores the historical and contemporary images and reality of pirates and piracy since the 16th century across the globe through an analysis of primary sources, key historiographical and legal debates, and criminological theories. Course may be offered online.

CRM/LAW C176. Classics in Crime Cinema. 4 Units.
A multidimensional understanding of crime films and how they shape public thinking about crime and criminals.

Restriction: CRM/LAW C176 and CRM/LAW C20 may not be taken for credit.

CRM/LAW C177. Eyewitness Testimony. 4 Units.
Faulty eyewitness testimony is a major cause of wrongful convictions. Covers the fast-growing topic of eyewitness testimony and memory for real-world events, both how psychologists study eyewitness capacity, and how the legal system has dealt with eyewitness issues.

Prerequisite: SOCECOL 10.

Same as PSY BEH 193G.

Restriction: Psychology and Social Behavior, Criminology, Law and Society and Social Ecology majors have first consideration for enrollment. Seniors only.

CRM/LAW C178. Critical Race Theory. 4 Units.
Introduction to Critical Race Theory and key American cases on racial inequality. Using this literature, examines the possibilities and pitfalls of legal claims of race, gender, and sexuality discrimination in the age of colorblindness.

Same as AFAM 157.

Restriction: Upper-division students only.

CRM/LAW C185. Criminal Justice System Capacity. 4 Units.
Examines "system capacity" in criminological and criminal justice related research and how it is used to explain and describe current problems and practices in the American legal system. Limitations of sanctioning criminals due to political, physical space, and resource constraints.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society, Social Ecology, and Chicano/Latino Studies majors have first consideration for enrollment.

CRM/LAW C191. Law and Modernity. 4 Units.
The rise and spread of Enlightenment legal traditions, social contract theory, individual rights, ideologies of "liberty, equality, fraternity"; contradictions of liberal law, its understandings of "primitive" and "civilized"; pervasive myths of property, difference, race, and rights. Reading- and writing-intensive.

Same as ANTHRO 127A.

CRM/LAW C196. Research Seminar in Criminology, Law and Society. 4 Units.
Special topics research seminar. Content varies with interest of instructor. Capstone research opportunity with Criminology, Law and Society faculty members.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. Criminology, Law and Society, Social Ecology, and Anthropology majors have first consideration for enrollment.

CRM/LAW C201. Research Methods. 4 Units.
An introduction to techniques of inductive methodologies, including qualitative interviewing and participant observation, and deductive methodologies, including survey research and experimental and quasi-experimental design. Provides a sound overview of research methodology with tools to pursue specific methods in greater depth.

Restriction: Graduate students only.

CRM/LAW C207. Development Control Law and Policy. 4 Units.
Investigates legal and institutional frameworks for development control. Review of constitutional issues implicated in land-use regulation. Traces development control historically and analyzes contemporary approaches to land-use control which reflect environmental and economic development concerns.

Same as PP&D 207.

Restriction: Graduate students only.

CRM/LAW C210. Introduction to Criminology, Law and Society. 4 Units.
Familiarizes students with the interrelated fields of criminology, law and society studies, and criminal justice studies. Organized around three well-established interdisciplinary literatures: criminology, sociolegal studies, and criminal justice studies.

Restriction: Graduate students only.

CRM/LAW C211. Legal Institutions and Society. 4 Units.
Acquaints students with the institutions of U.S. legal system and its operations, as well as with the constitutional framework undergirding this system, and defines the relationship between U.S. citizens and government at a variety of levels.

Restriction: Graduate students only.

CRM/LAW C212. Police, Courts, and Corrections. 4 Units.
Focuses on basic policy issues in the administration of the criminal justice system. The key elements of the criminal justice system are police, courts, and corrections. Prepares students for continued study of these organizations.

Restriction: Graduate students only.

CRM/LAW C213. Crime and Social Deviance. 4 Units.
Examines the major social scientific perspectives on criminal and deviant behavior. Specific deviant and criminal activities are described and explained using established theoretical frameworks.

Restriction: Graduate students only.

CRM/LAW C214. Research Methods. 4 Units.
Structures research methodology, the approach to developing and evaluating knowledge of the sciences for use in criminal justice professional activities. Special emphasis on differentiating scientific approaches from pseudo-science.

Restriction: Graduate students only.

CRM/LAW C215. Applied Statistics. 4 Units.
Provides a basis for the use of fundamental statistical analysis techniques for solving public policy and management problems through a series of assignments, examinations, and online discussions and demonstrations.

Restriction: Graduate students only.

CRM/LAW C216. Public Policy, Crime, and Criminal Justice. 4 Units.
Increases understanding of crime, violence, and the criminal justice system. Assesses the state of knowledge on key policy issues of our time. Discusses the contribution of communities, schools, employment, drugs, guns, and alcohol to crime and violence.

Restriction: Graduate students only.

CRM/LAW C217. Leadership. 4 Units.
Introduces concepts, ideas, and theories about leadership and its operation. Explores leadership concepts through interviews with leaders from the community and fellow classmates.

Restriction: Graduate students only.

CRM/LAW C218. Social Problems, Law, and Policy. 4 Units.
Capstone course for M.A.S. program in Criminology, Law and Society. Students choose a social problem related to crime, criminal justice, and law; relate the problem to legal and social issues; and devise a plan of action to research the problem.

Restriction: Criminology, Law and Society M.A.S. students only.

CRM/LAW C219. Hate Crime. 4 Units.
Examines the causes, manifestations, and consequences of hate crimes, as well as the larger social context within which they occur, are reacted to, and seem to be proliferating.

Restriction: Graduate students only.

CRM/LAW C221. Sentencing and Corrections. 4 Units.
Reviews U.S. attempts to punish and rehabilitate convicted law violators. Conflicts among major purposes of sentencing (rehabilitation, deterrence, incapacitation, and retribution) are discussed, as well as effects of different sanctions on public safety, offender rehabilitation, and justice system costs.

Restriction: Graduate students only.

CRM/LAW C222. Street Ethnography. 4 Units.
Focuses on urban street populations, especially gangs, and outlines some of the major conceptual and theoretical issues related to this topic and the processes of street socialization. Methods of inquiry include mapping, ethnohistory, survey questionnaires, and other quantitative techniques.

Same as CHC/LAT 217.

Restriction: Graduate students only.

CRM/LAW C224. Organizational Perspectives on the Legal System. 4 Units.
Familiarizes students with organization theory and research as ways to make sense of, navigate, and act on the legal system. Acquaints students with major frameworks in organization theory and their application to the system of legal organizations.

Restriction: Graduate students only.

CRM/LAW C225. Consequences of Imprisonment. 4 Units.
Reviews imprisonment and its consequences in the United States. Views prison and inmates as part of (rather than separate from) society. Examines the effects of prison on American society, the family, the labor market, and the community.

Restriction: Graduate students only.

CRM/LAW C227. Alternative Conflict Resolution: Theory and Methods. 4 Units.
Provide an understanding of the major alternatives to the traditional system for the administration of justice, expanding on some of the newer theories and methods in the field. Key research on social conflict and its resolution examined. Course may be offered online.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

CRM/LAW C228. Criminology: Micro Approaches. 4 Units.
Introduces students to the dominant theories in modern criminology, their theoretical antecedents and extensions, major empirical tests and implications for programs, policy and practice, and focuses on micro-level, individual theories of crime causation. Formerly Criminology, Law and Society C233A.

CRM/LAW C229. Criminology: Macro Approaches. 4 Units.
Introduces students to the dominant theories in modern criminology, their theoretical antecedents and extensions, major empirical tests and implications for programs, policy and practices, and addresses macro-level theories of crime causation. Formerly Criminology, Law and Society C233B.

CRM/LAW C230. Crime and Public Policy. 4 Units.
Discusses the measurement of violent crime; violent offenders and their victims; theoretical explanations of violence; the contribution of the media, drugs, guns, and alcohol to violence; and how the justice system treats and punishes violent offenders.

Restriction: Graduate students only.

CRM/LAW C231. Crime and Gender . 4 Units.
Examines the legal, political, social, economic, and policy implications of making gender (primarily) and race (secondarily) the focus in the study of crime, criminal law, and the criminal justice system. Course may be offered online.

Restriction: Graduate students only.

CRM/LAW C232. Juvenile Delinquency. 4 Units.
Examines the major theoretical perspectives regarding the onset, persistence, and desistance of juvenile delinquency and examines empirical evidence for each perspective.

Restriction: Graduate students only.

CRM/LAW C234. Anthropology of Law. 4 Units.
Law has been a key site of anthropological inquiry since the discipline's nineteenth-century origins. Course introduces and critically assesses the contributions anthropology has made to sociolegal lytic trends.

Restriction: Graduate students only.

CRM/LAW C235. Theories of Crime. 4 Units.
Examines classical and contemporary theories of crime and crime control with special emphasis on the implications of theory for public and social action.

Restriction: Graduate students only.

CRM/LAW C236. Gender and Power in Law and Society. 4 Units.
Focuses on questions of gender and sexuality in law and society studies. Drawing on a variety of theoretical frameworks, especially feminist legal theory, examines social processes and structures related to legal regulation, inequality, and social change.

Restriction: Graduate students only.

CRM/LAW C237. Legal Reasoning. 4 Units.
Introduction to law and legal process; use of legal source materials; history and assumptions underlying modern legal reasoning. Key jurisprudential perspectives, development and application of constitutional doctrines (focus on equal protection and right of privacy), and procedure and evidence issues.

Restriction: Graduate students only.

CRM/LAW C238. White-Collar Crime. 4 Units.
Examines the illegal behavior of individuals who commit crimes in the course of their employment. Special attention will be paid to ways in which power and organizational structure affect the behavior of the white-collar offenders.

Restriction: Graduate students only.

CRM/LAW C239A. Law and Society I. 4 Units.
Provides an introduction to the law and society field from its origins in social scientific, legal, and philosophical scholarship during the eighteenth, nineteenth, and early-twentieth centuries. Formerly Criminology, Law, and Society C239.

Restriction: Graduate students only.

CRM/LAW C239B. Law and Society II. 4 Units.
Building on Law and Society I, addresses contemporary issues in the field from mid-twentieth century to the present with emphasis on the degree to which the field's foundational assumptions are being challenged, refined, or confirmed through current research.

Prerequisite: CRM/LAW C239A.

Restriction: Graduate students only.

CRM/LAW C241. Race, Ethnicity, and Social Control. 4 Units.
Origins and organization of racialized social control, with emphasis on criminal justice. Racial politics of criminal/juvenile justice considered in comparative (historical and international) perspective. Exploration of theoretical and methodological issues for research on race, ethnicity, and social control.

Same as CHC/LAT 221.

Restriction: Graduate students only.

CRM/LAW C245. Social Science and the Legal Process. 4 Units.
Examines the use (and misuse) of social science in the legal process, focusing on role of social science evidence in trial and appellate decision making. Test-case litigation in which social science has been used to challenge laws or support reform.

Restriction: Graduate students only.

CRM/LAW C248. Geographic Information Systems. 4 Units.
Prepares students to become proficient in the basic GIS functionality including visualization, data management, and spatial analysis.

Restriction: Graduate students only.

CRM/LAW C252. Issues in Environmental Law and Policy. 4 Units.
Treatment of legal and policy strategies for promoting environmental protection and deterring environmental degradation within the context of other societal objectives. Topical approach with a focus on problems of special interest to criminologists and to environmental policy specialists.

Same as PP&D 252.

Restriction: Graduate students only.

CRM/LAW C255. Public Policy. 4 Units.
Explores different approaches to public policy analysis, the diverse conceptions of the goals and objectives that should be served by policy, and the appropriate role of the policy analyst. Policy consequences are traced to indirect and subtle incentives and disincentives.

Same as POL SCI 221A, PP&D 221.

Restriction: Graduate students only.

CRM/LAW C263. Eyewitness Testimony. 4 Units.
Examines the evidence that shows that faulty eyewitness memory is the major cause of wrongful convictions. Explores what the legal system thinks of eyewitness testimony and how the legal system has dealt with eyewitness issues.

Same as PSY BEH P263.

Restriction: Graduate students only.

CRM/LAW C265. Memory and the Law. 4 Units.
Examines the controversial topic of repressed memory, or perception and memory of real-world events.

Same as PSY BEH P265.

Restriction: Graduate students only.

CRM/LAW C266. Psychology and the Law. 4 Units.
Overview of how psychology is applied to the civil and criminal justice systems, how case law shapes this application, and how legal decisions affect the direction of psychological research. Interdisciplinary approach to research in psychology, law, and/or criminology.

Same as PSY BEH P266.

Restriction: Graduate students only.

CRM/LAW C275. Special Topics in Criminology, Law and Society. 4 Units.
Topics covered vary with interests of instructor.

Repeatability: Unlimited as topics vary.

CRM/LAW C296. Doctoral Dissertation Research and Writing. 2-12 Units.
Dissertation research with Criminology, Law and Society faculty.

Prerequisite: Advancement to candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

CRM/LAW C298. Directed Study. 2-4 Units.
Directed study with Criminology, Law and Society faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CRM/LAW C299. Independent Study . 2-8 Units.
Independent research with Criminology, Law and Society faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Planning, Policy, and Design Courses

PP&D 4. Introduction to Urban Studies. 4 Units.
Introduces the substantive areas, concepts, and tools in the field of urban studies. Acquaints students with physical, environmental, social, economic, and political dimensions of cities. Examines the challenges facing cities, including poverty, sustainability, development, globalization, and others.

Restriction: School of Social Ecology and Urban Studies majors have first consideration for enrollment.

(III)

PP&D 40. Urban Sociology. 4 Units.
Overview of theoretical, substantive, and policy issues in urban sociology. History of urbanization, the school of human ecology, and recent trends regarding urbanism. Time is devoted to understanding the causes and possible solutions to urban problems.

Overlaps with SOCIOL 43.

PP&D 100. Special Topics in Urban Studies. 4 Units.
Special topics courses are offered from time to time. Course content varies with interest of the instructor.

Repeatability: Unlimited as topics vary.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 101. Urbanization and Social Change. 4 Units.
Surveys the global and historical co-evolution of cities and social institutions, including religion, the economy, governance, the arts, technology, and family life.

PP&D 102. Urban Inequality. 4 Units.
Examines structural inequality and the influence that urbanization has in affecting race, ethnic, and class relations. Explores how race/ethnicity, class, urban space, housing, economic development, public education and land policy intersect in cities, both historically and today.

Restriction: Urban Studies, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

PP&D 104. Urban America . 4 Units.
Students examine the historical, social, political and economic factors that contributed to the construction of the American urban context, one that is poverty concentrated and racially/ethnically segregated. Students also critically assess the consequence of growing up in America's urban neighborhoods.

PP&D 105. California's Population. 4 Units.
Surveys California's human population (past, present, and future) and its interactions with trends in society, government, the economy, and the environment.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 106. Technology and Economic Development. 4 Units.
Importance of technology for urban economic and social development. Concepts of technological innovation and diffusion, and their relevance for cities and metropolitan areas. Principles of networks and their importance for diffusion. Relationship of technology to urban infrastructure and metropolitan form.

Prerequisite: SOCECOL 10 and SOCECOL 13.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 107. Urban and Regional Planning. 4 Units.
Important substantive areas, concepts, tools in the field of urban and regional planning. Topics include: forces that have historically guided and are currently guiding U.S. urbanization; land use, economic development, housing and community development, environmental planning; legal, environmental, governmental contexts.

Prerequisite: PP&D 4.

Restriction: Urban Studies, Social Ecology, Earth System Science, and Environmental Science majors have first consideration for enrollment.

PP&D 108. Cities and Transportation. 4 Units.
The relationship between urban areas and transportation systems. Economic analysis of cities, transportation and urban form, highway congestion, environmental impacts of transportation, public transit, land use and transportation, and political influences on transportation planning.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 109. Housing and Urban Development Policy. 4 Units.
Surveys public policy issues and develops analytic techniques in the areas of housing and urban development. Examines a range of policy topics including housing assistance to low- and moderate-income families, housing finance system, incentives for economic development and neighborhood preservation.

Prerequisite: Recommended: previous course work in economics.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 110. Urban Economic Development Policy. 4 Units.
Theoretical and practical perspectives on local economic development policy. Integrates economic, planning, and political perspectives. Overview of economic role of cities and metropolitan areas. Specific development issues include: link between taxes, regulation, job growth; redevelopment planning; evaluation economic development policy.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 112. Foundations of Community Health. 4 Units.
A social ecological framework for understanding community health is presented. Measures of individual and community health are compared, and the influence of personal and environmental factors on individual, group, and population health is examined. Community health promotion strategies are discussed.

Same as PUBHLTH 125.

Restriction: Urban Studies, Social Ecology, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PP&D 113. Poverty in Developing Countries. 4 Units.
Focuses on poverty in developing countries. Analyzes the magnitude and changing nature of poverty in the global south. Critically examines poverty conceptualized in terms of economic deprivation, well-being, and social exclusion.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 131. Environmental Sustainability I. 4 Units.
Provides an introduction to sustainability from different points of view; historical, scientific, political, ethical, and economic.

Same as EARTHSS 180.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 132. Environmental Sustainability II. 4 Units.
Investigates how sustainability can be implemented in a variety of contexts including water, energy, non-renewable resources, biodiversity, and urban policy, and also how it could be measured.

Same as EARTHSS 182.

Restriction: Urban Studies, Social Ecology, Earth System Science, and Environmental Science majors have first consideration for enrollment.

PP&D 134. Human Ecology. 4 Units.
Explores the interaction of social choice and physical constraint in shaping the earth's human carrying capacity, including ramifications for local, regional, or global environmental issues.

Prerequisite: PP&D 4.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 139. Water Resource Policy. 4 Units.
Examination of contemporary water problems worldwide, with particular attention to the competing water demands in the western U.S., and water demand by the poor in developing countries. History and analysis of U.S. water policies at local, state, and federal levels.

Restriction: Urban Studies, Social Ecology, Earth System Science, and Environmental Science majors have first consideration for enrollment.

PP&D 140. Ethics and International Relations. 4 Units.
Introduces students to the dynamic field of ethics and international relations. A variety of traditional and emerging perspectives are examined, skeptical views are discussed in detail, and arguments are illustrated with current cases.

Same as POL SCI 146A, INTL ST 154D.

PP&D 150. Experience Design. 4 Units.
Explores functional, experiential, emotional, sensorial, and extra-sensorial aspects of built and modified natural environments. Examines methods for acquiring, evaluating, and presenting information and developing specifications for designers' information needs and for assuring great designed environments.

Prerequisite: PP&D 4 and PP&D 152.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 151. Environmental Psychology. 4 Units.
Impact of the physical environment on individual and group behavior. Three basic concerns examined: (a) environmental determinants of behavior at the individual and interpersonal level; (b) social planning and urban design; (c) methodological approaches to the study of environmental issues.

Prerequisite: SOCECOL E8 or SOCECOL 10 or PP&D 4.

Same as PSY BEH 171S, PUBHLTH 151.

Restriction: Urban Studies, Social Ecology, Psychology and Social Behavior, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PP&D 152. Cultural Ecology and Environmental Design. 4 Units.
Introduction to cultural ecology and environmental and architectural design. Addresses the understanding of people's relationships with their built environments, the basic elements of architecture, architectural analysis, and cultural analysis are covered. Examines values in design and design for multicultural societies.

Prerequisite: PP&D 4.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 153. Elements of Environmental Design. 4 Units.
Basic elements of environmental design such as scale, proportion, rhythm, color, sound, lighting, surfaces, texture, architectural definition of spaces, volumes, massing volumetric analysis, solids and voids, and cultural aspects of design. Excitement and creativity in design, imageability.

Prerequisite: PP&D 4 and PP&D 152.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 155. Urban Design Principles. 4 Units.
Introduction to principles of urban design and its applications. Study of contemporary and traditional theories of urban design formulated to improve physical characteristics of built environment to facilitate an enhanced quality of life. A variety of case studies are discussed.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 156. Urban Design and Graphics Studio. 4 Units.
Introductory course organized around a variety of assignments to encourage learning by design in a studio setting. Students work on design projects and graphic representation assignments to learn practical aspects of urban design.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 166. Urban Public Policy. 4 Units.
Examines why and how urban policies are enacted and carried out in contemporary U.S. cities and regions. Topics include: evolution and organization of city governments and policymaking over the past century; who directs public policy and controls how cities develop.

Prerequisite: SOCECOL 10 and PP&D 4.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 167. Public Policy and Management. 4 Units.
Exposes students to best management practices that assure effective planning and implementation of policies and programs in government, business, and nonprofit sectors. Includes guest lecturers who are proven leaders in four principal institutions of community: business, education, government, and nonprofit.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 169. Public Policy Analysis. 4 Units.
Examines different approaches to the analysis of public policy, what constitutes good policy, the role of government, and citizen participation in policy-making. Suggests a policy-design perspective which builds upon other frameworks but concentrates on goals, implementation structures, tools, and rationales.

Prerequisite: SOCECOL E8 and (PP&D 4 or PP&D 166).

Same as POL SCI 121E.

Restriction: Urban Studies, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

PP&D 170. Health Policy. 4 Units.
Considers social and economic aspects of health and disease in the United States. What are the proper roles of the individual, community, and government in improving health and health care? International comparisons will be made wherever possible.

Same as PUBHLTH 122.

Restriction: Urban Studies, Social Ecology, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PP&D 172. Latino Metropolis. 4 Units.
Explores the processes of Latino urbanization in the United States and the spatialization of Latino identities, particularly in the context of Southern California with selected comparisons drawing from other cities.

Same as CHC/LAT 154.

(VII)

PP&D 177. Chicano Movement. 4 Units.
Explores the history of Mexicans in the U.S. with particular attention paid to their integration into the U.S. capitalist economy. Examines this economic history and the Chicano movement, "El Movimiento," within the wide context of socio-economic change.

Same as CHC/LAT 166.

Restriction: Chicano/Latino Studies, Urban Studies, and Social Ecology majors have first consideration for enrollment.

PP&D 202. History of Urban Planning. 4 Units.
Introduction to the historical roots and fundamental perspectives of urban and regional planning. Exploration of the significant historical phases and personalities which have shaped the profession. The roles and responsibilities, the limitations and potential, of urban planning.

Restriction: Graduate students only.

PP&D 203. Theorectical Foundations of Planning. 4 Units.
Intellectual excursion into central themes in policy and planning, including philosophy of the market, institutionalization of space, hypostatizations of policy, constructions of communities, logics of spatial analysis. Objective is engagement of the professional in thoughtful reflections on practice and institutions.

Restriction: Graduate students only.

PP&D 204. Design and Planning Graphics: Fundamentals. 4 Units.
Graphic representation and communication of physical place characteristics, design and physical planning ideas and concepts using a variety of graphic techniques of free hand drawing, sketching, orthographic representations, scale drawings, 3D representations, maps, photo-documentation, and various media.

Restriction: Masters in Urban & Regional Planning graduate students only.

PP&D 205. Environmental Economics and Policy. 4 Units.
Provides a broad introduction to environmental economics and to environmental policy. Environmental problems facing the United States and Europe are analyzed, and whenever possible, the environmental problems facing developing countries.

Restriction: Graduate students only.

PP&D 206. Microeconomic Analysis for Urban Planning. 4 Units.
Provides students with a working knowledge of basic microeconomic concepts. Emphasizes applications related to urban planning and policy analysis. Topics covered include demand analysis, firm behavior, market structure, public goods, externalities, and the role of economics in land markets.

Restriction: Graduate students only.

PP&D 207. Development Control Law and Policy. 4 Units.
Investigates legal and institutional frameworks for development control. Review of constitutional issues implicated in land-use regulation. Traces development control historically and analyzes contemporary approaches to land-use control which reflect environmental and economic development concerns.

Same as CRM/LAW C207.

Restriction: Graduate students only.

PP&D 208. California's Population. 4 Units.
Provides a non-specialist introduction to social demography through a focus on California population. Surveys historical and current trends in the State's growth, its industries and occupations, and its ethnic and racial makeup.

Restriction: Graduate students only.

PP&D 209. Qualitative Research Methods: Overview. 4 Units.
Introduction to fundamentals of “qualitative” research and non-positivistic inquiry. Formulation of research questions, selection of method, data collection techniques, and analysis (briefly). Overview of selected methods from ethnography, naturalistic field research, phenomenology, ethnoarchaeology, critical approaches, and others.

Restriction: Graduate students only.

PP&D 210. Practice Experience . 4 Units.
Provides Master of Urban & Regional Planning Students an opportunity to link classroom knowledge with real Planning situations through a ten-week unpaid practice experience.

Restriction: Masters in Urban & Regional Planning graduate students only.

PP&D 211. Urban Design and Behavior. 4 Units.
Acquaints students with vocabulary, history, theories, process, and trends in urban design, and the relationship of design to human well-being. The local environment is used as a resource and a laboratory.

Restriction: Graduate students only.

PP&D 212. Transportation Planning. 4 Units.
Introduces current topics in transportation planning. Includes an analysis of the economic role of transportation in urban areas, land-use impacts of transportation projects, traffic congestion, air quality, alternatives to the automobile, and other transportation topics.

Restriction: Graduate students only.

PP&D 213. Advanced Qualitative Methods: Analyzing Qualitative Data. 4 Units.
Introduces students to the theory and practice of analyzing qualitative data. Students must have already learned about data collection and research design for qualitative research and they must have qualitative data they can analyze in the course.

Same as POL SCI 273A, SOCIOL 223, MGMTPHD 297K.

Restriction: Graduate students only.

PP&D 214. Quantitative Analysis for Planners. 4 Units.
Introduces students to the basic statistical concepts used to address issues of public concern. Prepares students to perform, interpret, and evaluate quantitative data analyses commonly used in professional studies.

Restriction: Graduate students only.

PP&D 215. Analytical Methods for Planning. 4 Units.
Emphasizes the development of analytical techniques proven useful in the fields of management and administration. Topics include multiple regression, cost-benefit analysis and discounting, decision trees, and other techniques useful for the purposes of community analysis and planning.

Restriction: Graduate students only.

PP&D 219. Advanced Planning Theory. 4 Units.
Readings and discussions aimed at developing a foundation for critical research into theories and epistemologies of planning and policy. Topics include the liberal, communitarian, communicative, and other conceptions of nationality; praxis, hermaneutics, and policy; topologies of justice and social fracture.

Restriction: Graduate students only.

PP&D 220. Qualitative Methods . 4 Units.
Fieldwork, data collections techniques, and related issues for anti-positivistic research. Data collection techniques include observation, physical traces, participation, in-depth interview. Data checks include veracity, detail, completeness, rigor.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 225.

Restriction: Master of Public Policy graduate students only.

PP&D 221. Public Policy . 4 Units.
Explores different approaches to public policy analysis, the diverse conceptions of the goals and objectives that should be served by policy, and the appropriate role of the policy analyst. Policy consequences are traced to indirect and subtle incentives and disincentives.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 221.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

PP&D 223. Regional Analysis. 4 Units.
Major concepts and techniques of regional analysis, with applications for urban and regional planning and public policy-making. Definition of regions, processes of economic change, regional structure, location of activities, and analysis of selected policy issues. Emphasis on practical applications.

Restriction: Graduate students only.

PP&D 224. Environmental Politics and Policy. 4 Units.
Reviews and critiques literature on discussion topics including: the nature and effectiveness of environmental movements and policies; the role of science and technology; the use of economic incentives in policy; decentralization of decision making; and creating arenas for public involvement.

Restriction: Graduate students only.

PP&D 225. Local Economic Development. 4 Units.
Analyzes the economic development process. Attention is given to economic theories of local development and practical implications of those theories. Topics include local economic development and poverty, tax incentives, infrastructure credits, effects of government competition for economic activity.

Restriction: Graduate students only.

PP&D 226. Public Health Cost-Effectiveness Analysis. 4 Units.
Examines using cost-effectiveness information to allocate limited resources to maximize health benefits to a population; defining and measuring cost, survival and health-related quality of life; and how to calculate cost-effectiveness using decision trees and Markov simulation models.

Same as PUBHLTH 220.

Restriction: Graduate students only.

PP&D 227. Qualitative Methods: Case Study. 4 Units.
Deals with case study as a qualitative, anti-positivistic research method. Discussion focuses on the essential nature of case study research, quality of case study, rigor, design, implementation, analysis, data collection techniques, analysis, and writing.

Restriction: Graduate students only.

PP&D 228. Demographics for Planning and Policy. 4 Units.
Provides planning and policy practitioners with a condensed, nonspecialist orientation to the sources, applications, and interpretation of population statistics, and conveys the steps used in constructing local-area population forecasts and projections.

Restriction: Graduate students only.

PP&D 231. Transportation and Environmental Health. 4 Units.
Critically evaluates how transportation can promote sustainable, healthy, and equitable cities. Examines the interaction of transportation systems with urban form, land use, community health, and environmental quality.

Restriction: Graduate students only.

PP&D 233. Transportation, Transit, and Land-Use Policy and Planning. 4 Units.
Places students into a specific transportation public policy situation to devise real solutions, with the goal of helping students understand factors in land use, travel behavior, politics, and finance that shape transportation planning policy choices.

Restriction: Graduate students only.

PP&D 235. Geographic Information Systems (GIS) Problem Solving in Planning. 4 Units.
Explores the application of geographic information systems (GIS) in urban planning. Steps through a GIS-based planning procedure that balances housing, jobs, tax base, utilities, transportation, and the natural environment.

Restriction: Graduate students only.

PP&D 236. Community Design. 4 Units.
Provides an overview of the current condition of urban design in the United States. Topics include the academic environment, the retail environment, multi- and single-family residential environments, the office environment, and new urban design tools.

Restriction: Graduate students only.

PP&D 237. Introduction to Geographic Information Systems. 4 Units.
Application of Geographic Information Systems (GIS) to the field of urban and regional planning. Emphasizes current issues that occur in actual implementation settings. Lecture/discussion followed by laboratory demonstrating the area of GIS discussed. Offers "hands-on" student usage of GIS software.

PP&D 238. Advanced Geographic Information Systems. 4 Units.
Extends study of geographic information systems to more advanced issues, including data sources, data conversion, relational database integration, software customization, and spatial and three-dimensional analysis.

Prerequisite: PP&D 237.

PP&D 239. Urban Design Theories and Applications. 4 Units.
Introduction to contemporary and traditional theories of urban design and their applications. Organized around one question: How might planning and design of built environment contribute to making a good city? National and international case studies are introduced.

Restriction: Graduate students only.

PP&D 240. International Environmental Policy. 4 Units.
Explores causes and effects of environmental problems and the effectiveness of different adaptation or restoration strategies and how they are closely linked to ways in which political, economic, demographic, and cultural systems interact among themselves and ecological systems.

PP&D 241. Health Promotion and Planning. 4 Units.
Focuses on health and health care in the United States, but discussion of global health issues and/or international comparisons will be made whenever possible. Considers both the social and economic aspects of health and disease.

Same as PUBHLTH 221.

Restriction: Graduate students only.

PP&D 242. Regional Development Theory. 4 Units.
Regional economic development concepts and studies, with applications for urban and regional planning, and public policy-making. Roles and performance of economic sectors, technological innovation, and communications in the process of development. Analysis of regional development policies and programs.

Restriction: Graduate students only.

PP&D 243. Health Policy and Management. 4 Units.
Multidisciplinary inquiry into theory and practice concerned with delivery, quantity, costs of health care for individuals and populations. Explores managerial and policy concerns regarding structure, process, outcomes of health services including the costs, financing, organization, outcomes, and accessibility of care.

Same as PUBHLTH 222.

Restriction: Graduate students only.

PP&D 244. Land-Use Policy. 4 Units.
Examination of the role of public policy in guiding growth and development in urban and suburban environments. Description of a wide-ranging set of growth policies, the rationales underlying their use, controversies and legal constraints, and evaluation of their effectiveness.

Restriction: Graduate students only.

PP&D 245. Urban Security. 4 Units.
Examines changing urban security landscape facing planners, businesses, policymakers, first responders, and academics. Identifies threats and vulnerabilities andhow they can be reduced . Focus on transnational networks where contemporary cities are enmeshed, and function as sources of threat and opportunity.

Restriction: Graduate students only.

PP&D 246. Housing Policy. 4 Units.
Examines theories and practices of housing policy and the relationship of housing to larger neighborhood, community, and regional development issues. Considers the roles of private for-profit and not-for-profit developers, lenders, and all levels of government in the provision of housing.

Prerequisite: Basic statistics.

PP&D 247. Neighborhood Planning. 4 Units.
Focuses on asset-based development and community-building tools. Public policies and neighborhood-based case studies are explored which provide practical skills for the planner of the future.

Restriction: Graduate students only.

PP&D 251. Poverty and Development . 4 Units.
Critical examines competing conceptualizations, methods of measurement, and poverty alleviation strategies widely used in developing countries. Focuses on poverty conceptualized as economic deprivation, well-being, vulnerability, and social exclusion.

Same as SOCIOL 235.

Restriction: Graduate students only.

PP&D 252. Issues in Environmental Law and Policy. 4 Units.
Treatment of legal and policy strategies for promoting environmental protection and deterring environmental degradation within the context of other societal objectives. Topical approach with a focus on problems of special interest to criminologists and to environmental policy specialists.

Same as CRM/LAW C252.

Restriction: Graduate students only.

PP&D 253. Site Planning. 4 Units.
Examines site specific, neighborhood, and community site planning from the site designer and local government perspectives. By reviewing actual discretionary case applications and case studies, students learn how regulatory, environmental, and government constraints influence site planning.

Restriction: Graduate students only.

PP&D 260. Grant Writing for Community Planning and Development. 4 Units.
Introduces students to grant writing and processes involved in generating funding for nonprofit programs and community research projects.

Restriction: Graduate students only.

PP&D 264. Planning, Policy and Design Seminar. 1 Unit.
For first- and second-year doctoral students. Topics include professional development; journal publication process; academic conference presentations; and the job market for doctoral students in and out of academia.

Restriction: Graduate students only.

PP&D 265. Urban and Community Development Seminar. 1 Unit.
For first- and second-year doctoral students. Topics include scholarship related to the urban and community development area. Discussion of assigned articles and book chapters and how they relate to urban and community development.

Restriction: Graduate students only.

PP&D 270. Environmental Ethics. 4 Units.
Introduction to major themes and debates in environmental ethics, with application to contemporary environmental issues.

Restriction: Graduate students only.

PP&D 273. Global Urbanization. 4 Units.
Examines the spread of cities worldwide in the twentieth century. What are the political and economic causes of this process? What are the social-cultural, political, and economic effects? How is contemporary urbanization linked to global restructuring of other kinds.

Same as SOC SCI 254J, SOCIOL 252A.

Restriction: Graduate students only.

PP&D 275. Special Topics in Urban Planning. 4 Units.
Special topics in urban and regional planning are offered from time to time, but not on a regular basis. Course content varies with interest of the instructor.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PP&D 278. Culture, Community, and Space. 4 Units.
Covers how cultures relate to natural and built physical environments. Ways in which culture influences space; ways space influences culture. Concepts for understanding the interrelationship, including values, norms, traditions, religion, and place attachment. Culture and cities, urban form, ethnic communities.

Restriction: Graduate students only.

PP&D 279. Theories of Power and Empowerment. 4 Units.
Studies different ways of thinking about power and its uses. Explores theories of power that inform various notions of empowerment, including resistance, participatory democracy, and workplace empowerment.

Same as POL SCI 223A, SOCIOL 271, MGMTPHD 297R.

Restriction: Graduate students only.

PP&D 282. Urban Design Studio for Planners: An Introduction. 4 Units.
Introductory urban design for planners. Organized around a variety of assignments to encourage learning by design in a studio setting. Students work on design projects and drawing assignments to learn practical aspects of urban design.

Restriction: Graduate students only.

PP&D 283. Collaborative Governance and Public Management. 4 Units.
Introduction to inclusive management. To make effective use of public resources, public managers are inventing ways of managing that alter relationships within organizations, between organizations, between sectors, and with the public. Requires rethinking fundamentals such as leadership and motivation.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 283.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

PP&D 284. Theories of Public Policy. 4 Units.
Focuses on two important theorists with the aim being to study not so much their theory, but their mode of theorizing. Taking them two at a time (e.g., Foucault, Bourdieu) allows us to understand each more deeply through the comparison.

Restriction: Graduate students only.

PP&D 288. Environment-Behavior Studies. 4 Units.
Provides an overview of major theoretical and research perspectives within the field of environment-design research/environment-behavior studies (EBS). Reviews contributions to EBS from architecture, planning, geography, psychology, sociology, and other fields.

Restriction: Graduate students only.

PP&D 292. Professional Report. 4 Units.
Workshop designed to assist M.U.R.P. students in conducting their professional reports. Students select topics, design projects, conduct professional investigations, and write up reports.

PP&D 292A. Professional Report Seminar I. 4 Units.
Provides an introduction to prepare students for writing a professional planning report. Students learn how to diagnose a planning problem; select appropriate analytical methods to assess the problem; pose, evaluate, and recommend alternative approaches to addressing the problem.

Restriction: Graduate students only.

PP&D 292B. Professional Report Seminar II. 4 Units.
Students write and deliver oral presentations in a manner appropriate for professional planning, which includes peer feedback from these presentations. Includes lectures, student assignments, and guest speakers. "Deliverables" and due dates are treated as fixed and contractual professional commitments.

Prerequisite: PP&D 292A.

Restriction: Graduate students only.

PP&D 293. Research Practicum. 4 Units.
Through reading, discussion, and review of existing research proposals, and implementation of preliminary work for dissertation research, students enhance their knowledge of research design and methods, as well as develop skills to write a proposal for dissertation funding.

Prerequisite: PP&D 297.

Restriction: Graduate students only.

PP&D 294A. Urban Planning Practicum I. 4 Units.
Engages students in practical planning projects in the community under a central theme within Planning. Students take a problem-solving approach and employ and further develop data gathering, analysis, graphic and oral communication, public engagement, and report writing skills.

Restriction: Graduate students only.

PP&D 294B. Urban Planning Practicum II. 4 Units.
Engages students in practical planning projects in the community under a central theme within Planning. Students take a problem-solving approach and employ and further develop data gathering, analysis, graphic and oral communication, public engagement, and report writing skills.

Prerequisite: PP&D 294A.

Restriction: Graduate students only.

PP&D 295. Master's Thesis Research and Writing. 1-8 Units.
Independent research with Planning, Policy, and Design faculty.

Prerequisite: Advancement to candidacy.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PP&D 296. Doctoral Dissertation Research and Writing. 2-12 Units.
Dissertation research with Planning, Policy, and Design faculty.

Prerequisite: Advancement to candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PP&D 297. Research Design. 4 Units.
Provides training in research design and methods. Students learn how to evaluate the strength of research findings based on the methods used by a researcher and learn to use lessons from the course to develop a research proposal.

Same as PUBHLTH 297.

Restriction: Graduate students only.

PP&D 298. Directed Studies in Urban Planning. 2-4 Units.
Directed Studies in Urban Planning.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PP&D 299. Independent Study in Urban Planning. 2-8 Units.
Independent Study in Urban Planning.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

Psychology and Social Behavior Courses

PSY BEH 9. Introduction to Psychology. 4 Units.
Introduction to field of psychology, addressing the application of scientific methods to the study of human development, learning, memory, problem solving, perception, biological mechanisms, emotions and motivation, personality, psychopathology, and effects of diverse social and cultural contexts on human behavior. Course may be offered online.

Same as PSYCH 7A.
Overlaps with PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B.

Restriction: Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSY BEH 11A. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSYCH 9A.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSY BEH 11B. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSYCH 9B.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSY BEH 11C. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSYCH 9C.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSY BEH 100. Special Topics in Social Behavior. 4 Units.
Special topics courses are offered from time to time. Course content varies with interest of instructor.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Repeatability: Unlimited as topics vary.

PSY BEH 101D. Life Span Developmental Psychology. 4 Units.
Addresses the major issues, concepts, and methods of life span developmental psychology. The fundamental theories, distinctive methods, and the physical, perceptual, cognitive, social, motivational, and emotional development for each developmental phase of the life course are considered. Course may be offered online.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Restriction: Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 102C. Abnormal Psychology. 4 Units.
Survey of disorders organized by the diagnostic categories of the American Psychiatric Association. Interdisciplinary orientation combines environmental, psychological, and organic perspectives on etiology and treatment.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and SOCECOL 10.

Overlaps with PSYCH 120A.

Restriction: Psychology and Social Behavior and Psychology majors have first consideration for enrollment.

PSY BEH 103H. Health Psychology. 4 Units.
Theory and research are considered as they contribute to an understanding of the role of psychological processes in health and illness. The distinction between prevention and treatment of illness is established, and a variety of psychosocial interventions are elaborated.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 104S. Social Animal: An Introduction to Social Psychology. 4 Units.
Theories and research exploring social behavior and social influences on behavior. Topics include methods of social research, attitude formation and change, social perception, the social self, stereotypes and prejudice, conformity, obedience, altruism, aggression, interpersonal relationships and love, and group behavior.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 110D. Infant Development. 4 Units.
Study of human development from conception through the first two years of life, covering processes and events in the domains of physical, social, and cognitive development.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 127I.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 111D. Child Development. 4 Units.
Examines social, emotional, and intellectual growth and development between the ages of 2 and 12 years.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Overlaps with PSYCH 120D.

Restriction: Psychology and Social Behavior and Social Ecology and Psychology majors have first consideration for enrollment.

PSY BEH 112D. Adolescent Development. 4 Units.
Examines current research on the biological, social, and cultural contexts of adolescent development. Topics include the impacts of puberty, adolescents' decision-making competencies, changes in family and peer relationships, identity development, and psychosocial problems such as depression and problem behavior.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Overlaps with PSYCH 21A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 113D. Adult Development. 4 Units.
Examines why and how we change (with attention to gains as well as losses) from ages 18-65 and the nature and sources of continuity over time. Topics include physical and intellectual functioning, personality, coping strategies, and social roles and relationships.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 127A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 114D. Gerontology. 4 Units.
Examines stereotypes and myths associated with aging; physiological and psychological changes that accompany old age; distinguishes behavior changes due to aging per se from those due to historical and socioeconomic factors; political, social aspects of old age in contemporary society.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 127G.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 116D. Human Development and Cross-Cultural Perspectives. 4 Units.
Human development in diverse cultures (e.g., Asian, American, and African). Special emphasis on East-West contrasts and when East meets West (i.e., Asian-American experiences). Topics include parenting, family relations, language and cognition, schooling and academic achievement, and morality.

Prerequisite: (PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B) and SOCECOL 10.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 117D. Development of Gender Differences. 4 Units.
Examination of research on how sexes differ in physiology, cognitive functioning, personality, and social behavior. Sex-differentiated development from the prenatal period through adulthood. Explanations for male-female differences are sought, focusing on biological (genetic, hormonal), and social (familial, cultural) mechanisms.

Prerequisite: PSY BEH 9 or PSYCH 9B or PSY BEH 11B or PSYCH 7A.

Same as PSYCH 127D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 118D. Human Sexuality. 4 Units.
A broad survey of human sexuality encompassing genetic factors, physiological and anatomical development, customary and atypical forms of behavior, reproductive processes, and cultural determinants.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 120D. Child Development, the Law, and Social Policy. 4 Units.
Examines how psychology research and practice can inform areas of law and social policy affecting children and adolescents. Topics include education, mental health, reproductive rights, and delinquency. Goals are to evaluate research and identify the costs/benefits of current policies.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C. Recommended: PSY BEH 111D OR PSY BEH 112D.

Same as CRM/LAW C125.

Restriction: Psychology and Social Behavior, Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

PSY BEH 121D. Work and Family. 4 Units.
Effects of employment and unemployment on mental health and marital quality; effects of work on parenting and child development; corporate and social policies for "families that work"; young adults' decision-making about work and family.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Upper-division students only. Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 123D. Child in the Family, School, and Community. 4 Units.
The ecological study of contexts in which the child develops and is socialized: the family, school, peer group, media, and community. Examines the impact of societal influences, such as culture, religion, economics, politics, and technology.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 135H. Introduction to Biopsychology. 4 Units.
Introductory overview of the biology of behavior with a focus on the structure and function of the brain. Selected behaviors (e.g., eating, sleeping) and psychological states (e.g., stress, psychiatric disorders) are addressed from a biopsychological perspective.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 136H. Behavioral Medicine. 4 Units.
Examines biobehavioral aspects of health and illness, focusing on how stress contributes to or exacerbates disease processes. Background information on psychosomatic medicine and stress models and detailed examination of specific organ systems emphasizing the reactivity of these systems to stress.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 137H. Human Stress. 4 Units.
Stress as a multidisciplinary topic. Biological, psychological, and sociological approaches to adaptation-related disorders. Effects of acute and chronic stress on emotions, physiology, and behavior. Methods of stress assessment, stress reduction, and intervention.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 138H. Child Health Psychology. 4 Units.
Exploration of psychological antecedents, concomitants, and consequences of medical illnesses in children. Children's beliefs about health, illness, and medication; the role of stress; coronary-prone behavior; therapeutic adherence and physician-patient interaction; coping with chronic illness; effects of child's illness on family.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 9C or PSYCH 7A. Recommended: SOCECOL 10.

Same as PSYCH 127H.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 139H. Sports Psychology. 4 Units.
Psychological components of athletic performance with regard to scientific and practical issues. Roles of cognitive processes, physiological arousal, and emotion. Various personality factors related to performance, competition, and coaching. Strategies for improving athletic performance for individual and team competition.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 140H. The Hardiness Approach to Stress Management. 4 Units.
New development within psychology involving a combination of motivations and skills that extensive research has shown enhances performance, conduct, morale, stamina, and health. Combines study of hardiness research with strategies for improvement of personal hardiness through a series of exercises.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 141H. Clinical Health Psychology. 4 Units.
Behavioral role in etiology, treatment, and prevention of certain diseases. Behavioral intervention including biofeedback, stress-, pain-management, health habit counseling, and other skills to assist patients make cognitive, emotional, and behavioral changes needed to cope with disease or achieve better health.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PUBHLTH 141.

Restriction: Public Health Sciences, Public Health Policy, and Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 150C. Clinical Psychology. 4 Units.
Overview of theories, assessment techniques, research methodologies and intervention approaches in clinical psychology. Psychodynamic, behavioral, humanistic, and cognitive perspectives are examined along with ethical and professional issues.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and SOCECOL 10.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 151C. Psychological Testing and Assessment. 4 Units.
Laboratory-seminar exploration of diverse methods of assessing, analyzing, and recording behavior. Includes methods of direct behavioral observation, structured (analog) assessments, rating scales, interviewing, and self-monitoring. Development of assessment skills and their application in intervention and research programs.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and PSY BEH 150C. Recommended: SOCECOL 10.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 152C. Clincal Child Psychology. 4 Units.
Examines research and theory concerning childhood psychopathology behavior disorders. Diagnosis and assessment, early identification of high-risk children, fears and phobias, antisocial behavior, childhood psychoses, autism, depression, attention deficit/hyperactivity disorders, and ethical and policy implications of identifying children who are different.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSYCH 127C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 153C. Developmental Psychopathology. 4 Units.
Research and theory of origins, course, and outcomes of disordered behavior. Continuity and change in patterns of behavior; environmental challenges and buffers; stress/competence in children; vulnerable/invincible children; children of mentally ill parents; families at risk; childhood antecedents of adult disorders.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 120A. Recommended: SOCECOL 10.

Same as PSYCH 177P.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 154C. Cognitive Behavior Therapy. 4 Units.
Presentation of principles and procedures of therapeutic interventions based on cognitive-behavior methods. Cognitive factors in learning, emotional arousal, psychological disorder, and psychotherapy reviewed. Introduces the application of cognitive behavioral methods to problems of depression, anxiety, anger, pain, and impulsivity.

Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSY BEH 11C) or PSYCH 7A or (PSYCH 9A and PSYCH 9C).

Same as PSYCH 147C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 155C. Child Therapies. 4 Units.
Examines research methodologies, empirical data, and implications of diverse intervention strategies. Primary topics include psychotherapy process and outcome, family therapies, behavioral intervention, cognitive behavior modification, pediatric psychopharmacology, and ethical and social policy implications of intervening in other people's lives.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 122C.

Same as PSYCH 127T.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 156C. Forensic Psychology: Advanced Seminar. 4 Units.
The focus is on the psychology of criminal offending, particularly violent behavior. Examines violence, sexual offending, and mental disorder related to crime with regard to clinical assessment and treatment; mental health services within forensic institutions.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and (PSY BEH 178S or CRM/LAW C149).

Same as CRM/LAW C136, PSYCH 177F.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Criminology, Law and Society majors have first consideration for enrollment.

PSY BEH 160C. Clinical Neuroscience. 4 Units.
Offers an introduction to the neuroclinical bases of human behavior, including neuropsychological approaches to mental disorders. Also includes case formulations, research articles, therapeutic approaches, and other discussions related to select psychopathology and other neurobehavioral topics.

PSY BEH 161C. Forensic Psychology. 4 Units.
Forensic psychology is the interface between clinical psychology and the law. Emphasizes clinically relevant legal topics (insanity defense; competency to stand trial)and includes critical thinking about issues arising when psychologists are involved in legal proceedings.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSY BEH 11C.

Same as CRM/LAW C160.

PSY BEH 162C. Psychodynamic Studies. 4 Units.
Introduction to psychoanalysis and contemporary psychodynamic studies. Emphasis on theories associated with psychoanalysis and psychodynamic psychotherapy, including unconscious determinants of behavior and influence of the past on the present. Exploration of links between psychodynamic studies and other disciplines(music, medicine, neuroscience).

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 170S. Personality. 4 Units.
Comparison of the major theories of personality. Provides a frame of reference for understanding lifestyles, development, maturity, and psychopathology. Emerging research themes are used to identify promising lines of personality theorizing.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Overlaps with PSYCH 120P.

Restriction: Sophomores only or upper-division students only. Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 171S. Environmental Psychology. 4 Units.
Impact of the physical environment on individual and group behavior. Three basic concerns examined: (a) environmental determinants of behavior at the individual and interpersonal level; (b) social planning and urban design; (c) methodological approaches to the study of environmental issues.

Prerequisite: SOCECOL E8 or SOCECOL 10 or PP&D 4.

Same as PP&D 151, PUBHLTH 151.

Restriction: Urban Studies, Social Ecology, Psychology and Social Behavior, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 173S. Social Relationships. 4 Units.
Examines major issues, concepts, and methods in the scientific study of social relationships. Topics include relationship formation and dissolution, friendships and love relationships, loneliness, bereavement, societal influences on close relationships, significance of close relationships for health and well-being.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and SOCECOL 10.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 174S. Error and Bias in Social Judgement. 4 Units.
Examines how people encode, reason about, and remember social information and explores how biases and shortcomings in social perception, judgment, and memory are central to understanding both effective social functioning and many forms of maladaptive behavior and social conflict.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 175S. Cognition and Emotion. 4 Units.
Examines relations between cognition and emotion. How have the relations between cognition and emotion been construed historically? How closely related are cognitive and emotional development? How do emotions influence reasoning and memory? How similar is emotional experience across cultures?.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 176S. Motivation. 4 Units.
History, major theories, methods, and applications of motivational psychology, with emphasis on European approaches. Origins of the field in personality, learning, cognition, and activation research. Recent innovations in motivational and volitional self-recognition. Current approaches, major debates, empirical research programs.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 101D and (PSY BEH 104S or PP&D 151).

Overlaps with PSYCH 121M.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 177S. Psychology and Emotion. 4 Units.
General theories of emotion and research regarding cognitive, behavioral, physiological, and subjective experience of emotion. Specific topics include emotion regulation, emotion and health, emotional intelligence, and emotional development.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSYCH 127E.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 178S. Violence in Society. 4 Units.
Current theory and research on aggression; anger and violence as problems in individual and social functioning. Process and functions of anger examined with regard to normal behavior and psychopathology. The determinants, prevalence, and implications of violence in society are analyzed.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as CRM/LAW C149.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 179S. Cultural Psychology. 4 Units.
An examination of culture's influence on human minds. Topics include culture's impact on perception, cognition, motivation, emotion, moral reasoning, communication, and health. Addresses cultural psychology's methods, history, and place within psychology and related fields.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSY BEH 11C or PSYCH 7A or PSYCH 9B or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 180S. Organizational/Industrial Psychology. 4 Units.
Introduction to applied psychology in organizations, including personnel testing, selection, training and evaluation, job and classification analysis, job satisfaction and motivation, organizational development, leadership, market research and consumer psychology. Potential ethical problems are discussed.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSY BEH 11B or PSY BEH 11C or PSYCH 7A or PSYCH 9A or PSYCH 9B or PSYCH 9C.

Same as PSYCH 122I.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 183S. Social Epidemiology. 4 Units.
Overviews evidence linking environmental factors to mental and physical disorders including such variables as socioeconomic status, income inequality, work stress, job loss, social capital, location, and other demographic characteristics. Measurement and research design issues of both individual and aggregate levels.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and SOCECOL 10 and SOCECOL 13.

Same as PUBHLTH 102.

Restriction: Psychology and Social Behavior, Social Ecology, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 184S. Positive Psychology . 4 Units.
The field of positive psychology focuses on what is right and positive about people and institutions. Course introduces findings associated with human strengths and positive emotions and provides clinical and personal applications and implications.

Prerequisite: PSY BEH 9 or PSY BEH 11C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 190. Applied Statistics in Psychological Research. 4 Units.
Covers statistical techniques used to describe and make generalizations about phenomena represented by data. Hands-on experience in data analysis and interpretation using statistical software (SPSS, STATA) is emphasized. Topics include data visualization, ANOVA, multiple regression, and categorical data analyses.

Prerequisite: SOCECOL 13.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192A. History of Psychology. 4 Units.
A history of the development of various schools and systems of psychological thought.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSYCH 120H.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192E. Perception and Sensory Processes. 4 Units.
A general introduction to the scientific study of sensory processes and perceptual phenomena, with special emphasis on the visual system.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.

Same as PSYCH 130A.
Overlaps with PSYCH 131A, PSYCH 131B.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192G. Cognitive Science. 4 Units.
Introduction to investigations of the structure and function of the mind, from viewpoints of computation, neuroscience, philosophy, and cognitive psychology. Topics include: perception, attention, knowledge representations, learning and memory, action, reasoning, and language.

Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSYCH 11B) or PSYCH 7A or (PSYCH 9A and PSYCH 9B).

Same as PSYCH 140C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192I. Principles of Learning Theory. 4 Units.
Investigation of the learning and memory processes of humans and animals. Basic experimental approaches to learning and memory, empirical results, and theoretical interpretations of the evidence are discussed.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.

Same as PSYCH 140L.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192J. Human Memory. 4 Units.
Developments in the area of memory; history of memory research; theories of the nature of memory. Visual memory, recognition memory, high-speed scanning, free recall, short-term memory, mnemonics, retrieval, relationship of memory to thinking. Selected theoretical formulations for memory.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 140M.
Overlaps with PSYCH 46A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192K. Human Problem Solving. 4 Units.
Modern developments in the psychology of human problem solving. Topics include: concept identification, arithmetic, sets, logic puzzles, story problems, group problem solving, and theorem proving.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 143P.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192L. Introduction to Cognitive Neuroscience. 4 Units.
Introduction to the neural basis of human perceptual, motor, and cognitive abilities. Topics include sensory perception, motor control, memory, language, attention, emotion, frontal lobe function, functional brain imaging, and neuropsychological disorders.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or BIO SCI 35 or BIO SCI N110.

Same as PSYCH 160A, BIO SCI N166.

Restriction: Psychology majors have first consideration for enrollment.

PSY BEH 192P. Perceptual Neuroscience. 4 Units.
Examines the physiology of cortical networks underlying human perceptual experience.

Prerequisite: PSYCH 160A or PSY BEH 192L.

Same as PSYCH 161P.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192Q. Chicano/Latino Social Psychology. 4 Units.
Examines theories, research, and major issues of relevance to understanding social psychological processes in Chicano/Latino populations. Topics include social development, cultural orientations, gender and sexuality, close relationships, happiness and well-being, stereotyping, prejudice and discrimination, and mental and physical health.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as CHC/LAT 168.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

PSY BEH 192R. Culture and Close Relationships. 4 Units.
Examines cultural influences on close relationship processes including attraction, love, friendship, family, social support, and significance of close relationships for health and well-being. National and ethnic sources of cultural variation examined include Latin America, Asia, Africa, and the Middle East.

Same as CHC/LAT 177.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

PSY BEH 192RW. Culture and Close Relationships. 4 Units.
Examines cultural influences on close relationship processes including attraction, love, friendship, family, social support, and significance of close relationships for health and well-being. National and ethnic sources of cultural variation examined include Latin America, Asia, Africa, and the Middle East.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as CHC/LAT 177W.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(Ib, VII)

PSY BEH 192S. Health and the Latino Paradox. 4 Units.
Examines research and theories concerning the physical and mental health of U.S. Latino populations. Contemporary accounts, health care implications, and new directions for understanding sources of risks and resilience for health in Latino populations are evaluated and discussed.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as CHC/LAT 178.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

PSY BEH 192T. Cognition and Learning in Educational Settings. 4 Units.
Foundational concepts in cognition and development as applied to student learning. Primary topics include historical behaviorism, basic cognitive structure and processes, complex cognition, cognitive development, and motivation.

Same as EDUC 173.

Restriction: Psychology and Social Behavior, Social Ecology, Education, and Psychology majors have first consideration for enrollment.

PSY BEH 192U. Psychology of Learning, Abilities, and Intelligence. 4 Units.
Overview of classic positions on the mind, human abilities, and intelligence, especially as related to academic achievement. Contrasting views: psychometric versus information processing; experimental versus correlational research.

Prerequisite: PSYCH 7A or PSY BEH 9.

Same as EDUC 176.

Restriction: Psychology and Social Behavior, Social Ecology, and Education majors have first consideration for enrollment.

PSY BEH 192V. Language and Literacy. 4 Units.
Addresses the linguistic principles and processes that underlie oral and written language proficiency. Emphasis is on how to use phonology, morphology, orthography, semantics, syntax, and pragmatics to support literacy and oral language development for K-12 students.

Same as EDUC 151.

Restriction: Psychology and Social Behavior, Social Ecology, Education, and Psychology majors have first consideration for enrollment.

PSY BEH 193B. Juvenile Delinquency. 4 Units.
Patterns of delinquent behavior, theories that explain behavior, current research aimed at enhancing exploratory power. Attempts to prevent and control delinquency are put in historical perspective. Development of the current juvenile justice system and evolution of modern juvenile law.

Prerequisite: CRM/LAW C7.

Same as CRM/LAW C109.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 193C. Social Control of Delinquency. 4 Units.
Assumes familiarity with theories of delinquency, the juvenile justice system, and elements of juvenile law. Explores socio-historical origins and evolution of juvenile justice, current research and policy on delinquency prevention and treatment, and future directions of law, policy, and practice.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7. Recommended: CRM/LAW C109.

Same as CRM/LAW C164.

Restriction: Psychology and Social Behavior, Social Ecology, Criminology, Law and Society, and Psychology majors have first consideration for enrollment.

PSY BEH 193D. Interrogation, Confession, and the Law. 4 Units.
In-depth examination of social psychology of police interrogation in America, the evolution of American interrogation practices from the nineteenth century to the present, impact of law on police behavior and ideology, causes and consequences of false confessions, possibilities of reform.

Same as CRM/LAW C152.

Restriction: Psychology and Social Behavior, Social Ecology, and Criminology, Law and Society majors have first consideration for enrollment.

PSY BEH 193E. Psychology and the Law. 4 Units.
Psychological assumptions of American legal system and mental health aspects of provision of criminal justice services. Civil commitment, insanity defense, competence to stand trial, jury selection, eye-witness identification. Use of police, courts, correctional institutions in prevention of behavior disorder.

Prerequisite: CRM/LAW C7 or CRM/LAW C101.

Same as CRM/LAW C105.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 193F. Family Law. 4 Units.
Examines legal issues surrounding marriage, cohabitation, divorce, child custody and support, adoption, and the rights of parents and children in the family context. The findings of social science research are used to illuminate the legal issues.

Prerequisite: CRM/LAW C7 or CRM/LAW C101.

Same as CRM/LAW C123.

Restriction: Psychology and Social Behavior, Social Ecology, and Criminology, Law and Society majors have first consideration for enrollment.

PSY BEH 193G. Eyewitness Testimony. 4 Units.
Faulty eyewitness testimony is a major cause of wrongful convictions. Covers the fast-growing topic of eyewitness testimony and memory for real-world events, both how psychologists study eyewitness capacity, and how the legal system has dealt with eyewitness issues.

Prerequisite: SOCECOL 10.

Same as CRM/LAW C177.

Restriction: Psychology and Social Behavior, Criminology, Law and Society and Social Ecology majors have first consideration for enrollment. Seniors only.

PSY BEH 196. Research Seminar in Psychology and Social Behavior. 4 Units.
Special topics research seminar. Content varies with interest of instructor. Capstone seminar for students who have conducted research with, or have a background in, the research topics of the PSB faculty member offering this seminar in a given quarter.

Prerequisite: PSY BEH 11C.

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

PSY BEH P201. Research Methods in Psychology. 4 Units.
In-depth examination of the conceptualization of research problems and linkages between theory and the design of appropriate strategies for empirical research in psychological science. Topics include experimental and quasi-experimental designs, reliability and validity of measurement and non-experimental procedures.

Restriction: Psychology and Social Behavior graduate students only.

PSY BEH P204. Adolescence. 4 Units.
Considers pubertal and cognitive changes and their social consequences; the family, peer group, school, and cultural contexts in which adolescence is embedded; and selected psychosocial issues including autonomy, identity, health, and well-being.

Restriction: Graduate students only.

PSY BEH P209A. Applied Psychological Research. 4 Units.
Focuses on scientific and professional issues in the field of psychology. Topics include communication skills; intervention approaches; collaboration, consultation, and referral; and ethical issues associated with at-risk populations research.

Restriction: Graduate students only.

PSY BEH P212. Social Cognition. 4 Units.
Explores historical and current developments in cognitive social psychology. Topics include judgment and decision making, automatic versus controlled processing, affective forecasting, motivated reasoning, and the effects of emotion on memory and judgment.

Restriction: Graduate students only.

PSY BEH P214. Seminar in Social Psychology. 4 Units.
Presents an overview of selected theoretical and empirical topics in social psychology including social influence and conformity, altruism and aggression, persuasion and attitude change, self and social perception, and social cognition.

Restriction: Graduate students only.

PSY BEH P218. Infancy. 4 Units.
Covers development from conception through the second year. Focus is on research and theory concerning infants' physical, social, cognitive, perceptual, emotional, and language development. Also covers transition to parenthood and family context of infant development.

Restriction: Graduate students only.

PSY BEH P220. Developmental Psychology: Theories and History. 4 Units.
Examines key concepts, theories, and the historical and philosophical roots of research in human life span development. Focuses on biological and environmental causation, universalism and cultural relativism, continuity and change.

Restriction: Graduate students only.

PSY BEH P226. Emotion in Psychology. 4 Units.
Covers original and recent theories of emotions and how they guide current research. Specific topics include neuroantomical structure of emotion, life-span emotional development, and health and emotion.

Restriction: Graduate students only.

PSY BEH P230. Adulthood. 4 Units.
Focuses on early and middle adulthood. Examines extended period of transitioning to adulthood; changes in relationships with family members; impact of major role-related experiences (e.g., spouse, parent, worker) on development and well-being; continuity and change in personality and social identities.

Restriction: Graduate students only.

PSY BEH P231. Professional Issues in Psychology. 4 Units.
Examines a variety of issues related to the professional socialization and development of graduate students in psychology. Topics include the publication process, sources of research funding, alternative employment options, competitiveness on the job market, and the academic career route.

Restriction: Graduate students only.

PSY BEH P232. Hardiness as the Pathway to Resilience. 4 Units.
Theory, research, and practice supports hardiness as a major pathway to surviving and thriving under stress in our turbulent times. Course (1) imparts relevant theory, research, and practice, and (2) teaches how to use hardiness assessment and training techniques.

Restriction: Graduate students only.

PSY BEH P233. Personality. 4 Units.
Provides a frame of reference for understanding personality and its role in life-span development, the relationship of the individual to society, and both mental and physical illness.

Restriction: Graduate students only.

PSY BEH P237. Violence, Society and Psychopathology. 4 Units.
The multifactorial, societal-contextual nature of violence is examined through historical, philosophical, and social science theoretical accounts. Priority topics are violent crime, socio-environmental factors, family violence, media violence, terrorism, personality and mental disorder, psychiatric institutions, and interventions for violent offenders.

Restriction: Graduate students only.

PSY BEH P238. Child Psychopathology. 4 Units.
Examination of etiology, classification, and developmental pathways of disorders, as well as risk and resilience factors, during the childhood/adolescent years. Discussion of genetic influences and contextual risk factors as well as internalizing and externalizing disorders.

Restriction: Graduate students only.

PSY BEH P239. Adult Psychopathology. 4 Units.
Explores the antecedents, characteristics, course, outcomes, and options for the prevention or management of various forms of psychopathology and behavior disorder. Focuses on psychological and biobehavioral mechanisms that influence the development, expression, and amelioration of maladaption.

Restriction: Graduate students only.

PSY BEH P245. Psychological Assessment. 4 Units.
Familiarizes students with psychological assessments in intelligence, clinical diagnosis, personality, and neuropsychological functioning. Exposure to administering, scoring, and interpreting assessments. Special focus on psychometrics (e.g., reliability and validity), test construction, and ethical responsibilities.

Restriction: Graduate students only.

PSY BEH P250. Emotion, Reasoning, and Memory. 4 Units.
Examines research and theory on emotion from the perspective of cognitive psychology. Topics include the effects of emotions on attention, memory, and problem solving; the relations between emotional and cognitive development; flash-bulb memories of intense emotional experiences; eyewitness testimony.

Restriction: Graduate students only.

PSY BEH P257. Genes, Emotions, and Behavior. 4 Units.
Course in behavioral genetics addresses the nature/nurture question: what is the strength of relative genetic and environmental influences on psychosocial processes ranging from attachment and social behavior to aggression and depression.

Restriction: Graduate students only.

PSY BEH P258. Health Psychology. 4 Units.
Interdisciplinary exploration of emerging fields of health psychology and behavioral medicine. Topics: role of stress in development/treatment of medical problems; sociocognitive determinants of health and illness; interpersonal health transactions; behavioral approaches to medical problems such as diabetes, obesity, hypertension.

Restriction: Graduate students only.

PSY BEH P262. Interpersonal Processes and Health. 4 Units.
Examines traditions of research linking interpersonal processes to emotional or physical health. Topics include: role of social support in ameliorating stress, effects of social control on health-compromising behaviors, adverse effects of social relationships on health, causes of deficient social relationships.

Restriction: Graduate students only.

PSY BEH P263. Eyewitness Testimony. 4 Units.
Examines the evidence that shows that faulty eyewitness memory is the major cause of wrongful convictions. Explores what the legal system thinks of eyewitness testimony and how the legal system has dealt with eyewitness issues.

Same as CRM/LAW C263.

Restriction: Graduate students only.

PSY BEH P264A. Quantitative Methods in Psychology. 4 Units.
Statistical techniques for inference in psychological research including point, interval, and effect size estimation to establish test association between variables. General Linear Model techniques include single- and multifactor analysis of variance with use of linear contrasts and post hoc comparisons.

Restriction: Graduate students only.

PSY BEH P264B. Advanced Quantitative Methods in Psychology. 4 Units.
Focuses on proper specification of multivariable regression models with emphasis on inferences using OLS and logistical regression. Emphasizes framework for assessing interaction and other complex relationships between response and predictor variables. Use of statistical software to analyze data.

Prerequisite: PSY BEH P264A.

Restriction: Graduate students only.

PSY BEH P265. Memory and the Law. 4 Units.
Examines the controversial topic of repressed memory, or perception and memory of real-world events.

Same as CRM/LAW C265.

Restriction: Graduate students only.

PSY BEH P266. Psychology and the Law. 4 Units.
Overview of how psychology is applied to the civil and criminal justice systems, how case law shapes this application, and how legal decisions affect the direction of psychological research. Interdisciplinary approach to research in psychology, law, and/or criminology.

Same as CRM/LAW C266.

Restriction: Graduate students only.

PSY BEH P268. Coping with Stressful Life Events. 4 Units.
Explores how individuals cope with serious life crises (e.g., illness, bereavement), life transitions, and daily stressors. Considers how such events impact on people's cognitions, emotions, and health, and the role of others in the coping process.

Restriction: Graduate students only.

PSY BEH P271. Human Evolution and Behavior. 4 Units.
Covers theories and empirical research concerning the evolutionary origins of human behaviors and their variations. An interdisciplinary course emphasizing both evolutionary psychology (e.g., mating strategies, kinship, and parenting) and molecular evolution (i.e., evolution of genes for various behaviors).

Same as BIOCHEM 217.

Restriction: Graduate students only.

PSY BEH P272. Human Stress and the HPA Axis. 4 Units.
Introduction to a new and multidisciplinary research field investigating the interactions between the brain, hormones, and behavior. After an introduction to relevant neuroendocrine concepts, covers current research topics in the field including stress, memory, development, and psychopathology.

Restriction: Graduate students only.

PSY BEH P273. Biobehavioral Aspects of Health and Illness. 4 Units.
Examines the behavior-physiology interactions of some major bodily systems: the nervous, cardiovascular, gastrointestinal, and endocrine systems. Analysis of normal and abnormal states of these systems as they relate to tissue injury, disease, and rehabilitation.

Restriction: Graduate students only.

PSY BEH P274. The Psychobiology of Stress. 4 Units.
Introduction to stress physiology and psychoneuroimmunology and critical review of research in this area. Examines bi-directional relationships between psychological factors (e.g., stressors, social processes, emotions), neuroendocrine and immune systems, and disease.

Restriction: Graduate students only.

PSY BEH P275. Special Topics in Psychology and Social Behavior. 4 Units.
Topics covered vary with interests of instructor.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSY BEH P276. Meta Analysis. 4 Units.
The process of synthesizing results from a number of studies that address a common research question is often referred to as meta-analysis. This applied course explores the meta-analysis process from the coding of retrieved studies to the final research synthesis.

Restriction: Graduate students only.

PSY BEH P289. The Teaching of Psychology. 4 Units.
Provides students with the theory and skills needed to teach undergraduate psychology courses. Covers research on theories and methods of teaching, curriculum design, and evaluation. Students also gain practical experience preparing and presenting material.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology and Social Behavior graduate students only.

PSY BEH P290. Research in Developmental Psychology. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of developmental psychology. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P291. Research in Health Psychology. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of health psychology. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P292. Research in Psychopathology and Behavior Disorder. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of psychopathology and behavior disorder. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P293. Research in Social and Personality Psychology. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of social and personality psychology. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P294A. Research Directions in Psychology and Social Behavior. 2 Units.
Introduces students to the current research of faculty, graduate students, and visitors to the Department of Psychology and Social Behavior. Includes examination of contemporary research issues and controversies, as well as issues related to students' development as professionals.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PSY BEH P294B. Research Directions in Psychology and Social Behavior . 2 Units.
Introduces students to the current research of faculty, graduate students, and visitors to the Department of Psychology and Social Behavior. Includes examination of contemporary research issues and controversies, as well as issues related to students' development as professionals.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PSY BEH P294C. Research Directions in Psychology and Social Behavior. 2 Units.
Introduces students to the current research of faculty, graduate students, and visitors to the Department of Psychology and Social Behavior. Includes examination of contemporary research issues and controversies, as well as issues related to students' development as professionals.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PSY BEH P295. Research in Psychology and Law. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of psychology and law. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P296. Doctoral Dissertation Research and Writing. 4-12 Units.
Dissertation research with Psychology and Social Behavior faculty.

Prerequisite: Advancement to candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P298. Directed Studies in Psychology and Social Behavior. 2-4 Units.
Directed study with Psychology and Social Behavior faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P299. Independent Studies in Psychology and Social Behavior. 2-8 Units.
Independent research with Psychology and Social Behavior faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Public Policy Courses

PUB POL 219. Information and Public Policy. 4 Units.
Evaluates strengths and weaknesses of qualitative and quantitative methods and the data used in making public policy claims. Looks at the bases of certain widely accepted measures of poverty, growth, environmental quality, and the like.

Repeatability: May be taken for credit 2 times.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

PUB POL 221. Public Policy . 4 Units.
Explores different approaches to public policy analysis, the diverse conceptions of the goals and objectives that should be served by policy, and the appropriate role of the policy analyst. Policy consequences are traced to indirect and subtle incentives and disincentives.

Repeatability: May be taken for credit 2 times.

Same as PP&D 221.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

PUB POL 225. Qualitative Methods . 4 Units.
Fieldwork, data collections techniques, and related issues for anti-positivistic research. Data collection techniques include observation, physical traces, participation, in-depth interview. Data checks include veracity, detail, completeness, rigor.

Repeatability: May be taken for credit 2 times.

Same as PP&D 220.

Restriction: Master of Public Policy graduate students only.

PUB POL 240. Microeconomics and Public Policy. 4 Units.
Introduces the fundamental principles of microeconomics that are required for applied policy analysis. Provides students with an intuitive understanding of the microeconomic approach, and familiarizes them with concepts used in applied public policy analysis.

Repeatability: May be taken for credit 2 times.

Same as ECON 255.

Restriction: Graduate students only.

PUB POL 283. Collaborative Governance and Public Management. 4 Units.
Introduction to inclusive management. To make effective use of public resources, public managers are inventing ways of managing that alter relationships within organizations, between organizations, between sectors, and with the public. Requires rethinking fundamentals such as leadership and motivation.

Repeatability: May be taken for credit 2 times.

Same as PP&D 283.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

Social Ecology Courses

SOCECOL E8. Introduction to Environmental Analysis and Design. 4 Units.
Overview of general concepts, theoretical principles, and analytical techniques for investigating environmental systems. Integrates tools from natural and social sciences to analyze contemporary environmental challenges such as pollution, resource acquisition, facility and ecosystem design, impact assessments, formulation of environmental policy.

Restriction: Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

(III)

SOCECOL 10. Research Design. 4 Units.
An introduction to the logic behind and methods of designing and conducting research studies in Social Ecology. Topics include how to measure variables of interest, identifying causal relationships, sampling, survey research methods, experiments, quasi-experimental designs, and ethics in research. Course may be offered online.

Restriction: School of Social Ecology majors only.

SOCECOL 13. Statistical Analysis in Social Ecology. 4 Units.
Introduction to the techniques of statistical analysis in Social Ecology. Topics include probability, statistical inference, significance testing, univariate descriptive statistics, and multivariate analysis from an interdisciplinary perspective.

Prerequisite: SOCECOL 10.

Overlaps with ANTHRO 10A, PSYCH 10A, SOCIOL 10A, SOC SCI 9A, SOC SCI 10A, POL SCI 10A.

Restriction: School of Social Ecology majors have first consideration for enrollment. No credit for SOCECOL 13 if taken concurrently with or after PSYCH 10A, ANTHRO 10A, SOCIOL 10A, POL SCI 10ABC, SOC SCI 9A, or SOC SCI 10A.

(Va)

SOCECOL H20A. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Same as SOC SCI H1E.

Restriction: Campuswide Honors Program students only.

(III)

SOCECOL H20B. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Prerequisite: SOC SCI H1E or SOCECOL H20A.

Same as SOC SCI H1F.

Restriction: Campuswide Honors Program students only.

(III)

SOCECOL H20C. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Prerequisite: SOC SCI H1F or SOCECOL H20B.

Same as SOC SCI H1G.

Restriction: Campuswide Honors Program students only.

(III)

SOCECOL 74A. Moral Development and Just Communities. 4 Units.
A three-quarter sequence exploring interpersonal, personal, and social issues based on principles of fairness and justice. Both the living environment of a University residence hall and selected institutions of society are analyzed in terms of moral development theory.

Grading Option: Pass/no pass only.

SOCECOL 74B. Moral Development and Just Communities. 4 Units.
A three-quarter sequence exploring interpersonal, personal, and social issues based on principles of fairness and justice. Both the living environment of a University residence hall and selected institutions of society are analyzed in terms of moral development theory.

Prerequisite: SOCECOL 74A.

Grading Option: Pass/no pass only.

SOCECOL 74C. Moral Development and Just Communities. 4 Units.
A three-quarter sequence exploring interpersonal, personal, and social issues based on principles of fairness and justice. Both the living environment of a University residence hall and selected institutions of society are analyzed in terms of moral development theory.

Prerequisite: SOCECOL 74B.

Grading Option: Pass/no pass only.

SOCECOL 100. Special Topics in Social Ecology. 4 Units.
Special topics courses are offered from time to time. In general they will focus on a topic from interdisciplinary perspectives. Course content varies with the interest of the instructor.

Repeatability: Unlimited as topics vary.

Restriction: School of Social Ecology majors only.

SOCECOL 111. Advanced Research Methods. 4 Units.
For students planning to conduct senior research projects or apply to graduate school in social research fields. Topics include reviewing literature, preparing a research proposal, protecting human subjects, citing scholarly work, building measures, estimating sample size, interview and presentation skills.

Prerequisite: SOCECOL 10 and SOCECOL 13.

SOCECOL E113. Social Ecology of Peace. 4 Units.
Examination of differing definitions of the problem of achieving peace and the special problems of seeking peace in the nuclear age.

Same as INTL ST 121.

SOCECOL E127. Nuclear Environments. 4 Units.
Understanding the impact of the nuclear age on the environment and human health through interrelated developments of nuclear power and nuclear weapons. The early years of weapon development, catastrophic environmental pollution, perils of nuclear power in the U.S. and Russia.

Same as INTL ST 122, PUBHLTH 168.

SOCECOL 131. Social Ecology of Health Promotion. 4 Units.
Core themes of Social Ecology are examined as they apply to major areas of health promotion research and practice. Students attend lectures and work collaboratively on team projects conducted in university and community settings.

Same as PUBHLTH 143.

Restriction: Public Health Sciences, Public Health Policy, and Social Ecology majors have first consideration for enrollment.

SOCECOL 150. Social Ecology of Technology. 4 Units.
Socio-ecological principles applied to technological change and innovation. Technological change as a result of interrelations between people and their socioeconomic environment. Organizational ecology of technology; life cycle concepts and history. Social ecology of technocapitalism and its networks.

Prerequisite: SOCECOL 10 and SOCECOL 13.

SOCECOL 181. Mentors in Higher Eduacation. 4 Units.
Discussion of roles and functions of mentors in higher eduction. Specific mentoring issues include: personal skills, training, the sociocultural role of mentoring in higher education, student affirmative action, history and politics in higher education.

SOCECOL 183A. International Studies Forum. 2 Units.
A faculty-student forum featuring lecturers from a variety of institutions with discussion issues related to international studies.

Repeatability: May be taken for credit 4 times.

Same as SOC SCI 183A, HUMAN 183A, INTL ST 183A.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

SOCECOL 183B. Seminar in Mediation. 4 Units.
Student develop mediation skills and refine knowledge in the practice and theory of conflict resolution. Students who complete this course may serve as mediators in the Campus Mediation Program. Course is a prerequisite to completing Indep Study as an intern.

Same as HUMAN 183B, INTL ST 183B, SOC SCI 183B.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

SOCECOL 183C. Seminar in Conflict Resolution . 4 Units.
Designed for students pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write research paper.

Same as SOC SCI 183C, HUMAN 183C.

SOCECOL 183CW. Seminar Conflict Resolution. 4 Units.
Designed for seniors who are pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOC SCI 183CW, HUMAN 183CW.

(Ib)

SOCECOL 186A. Senior Seminar on Global Sustainability I. 2 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze forum presentations. Prepare bibliography.

Prerequisite: BIO SCI 65 and ENVIRON E20 and EARTHSS 10.

Grading Option: In progress only.

Same as BIO SCI 191A, EARTHSS 190A.

Restriction: Seniors only.

SOCECOL 186B. Senior Seminar on Global Sustainability II. 2 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze forum presentations. Prepare research proposal.

Prerequisite: BIO SCI 191A or SOCECOL 186A or EARTHSS 190A.

Grading Option: In progress only.

Same as BIO SCI 191B, EARTHSS 190B.

Restriction: Seniors only.

SOCECOL 186CW. Writing/Senior Seminar on Global Sustainability III. 4 Units.
Students attend weekly seminar to discuss current issues in global sustainability. Weekly attendance at Global Sustainability Forum also is required. Seminar utilized to analyze Forum presentations and to prepare senior research paper. Prepare/write research paper under direction of faculty member.

Prerequisite: BIO SCI 191B or EARTHSS 190B or SOCECOL 186B. Satisfactory completion of the Lower-Division Writing requirement.

Same as BIO SCI 191CW, EARTHSS 190CW.

Restriction: Seniors only.

(Ib)

SOCECOL H190A. Honors Research. 4 Units.
Independent work on an individual research project in addition to participation in a mini proseminar in which faculty discuss their ongoing research. Students prepare a written proposal for a research project.

Restriction: Upper-division students only. Campuswide Honors Program students only.

SOCECOL H190B. Honors Research. 4 Units.
Independent work on an individual research project in a addition to participation in a mini proseminar in which faculty discuss their ongoing research. Students prepare a written proposal for a research project.

Prerequisite: SOCECOL H190A.

Grading Option: Pass/no pass only.

Restriction: Upper-division students only. Campuswide Honors Program students only.

SOCECOL H190W. Honors Research. 4 Units.
Students write up their honors research project (H190A-B) and prepare an oral report which is presented at the honors seminar.

Prerequisite: SOCECOL H190B.

Restriction: Upper-division students only. Campuswide Honors Program students only.

(Ib)

SOCECOL 194W. Naturalistic Field Research. 4 Units.
Introduction to alternative models of experiential learning and to various methods of observation, assessment, and evaluation. Introduction to the nature of organizations and ethical issues that emerge from research and intervention in natural settings.

Prerequisite: SOCECOL 10. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: School of Social Ecology majors.

(Ib)

SOCECOL 195. Field Study. 2-8 Units.
Naturalistic observation and analysis of social issues and problems in combination with experiential learning in field placement sites in the areas of psychology and social services, criminology, and environmental studies. Course may be offered online.

Prerequisite: SOCECOL 10 and SOCECOL 13.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 24 units.

Restriction: School of Social Ecology majors only. Upper-division students only.

SOCECOL 195A. Advanced Field Study. 4 Units.
While completing 10 hours of field work per week, students become acquainted with the goals and activities of their placement and will work closely with the placement supervisor and AFS instructor to identify the scope of a research project.

Prerequisite: SOCECOL 10 and SOCECOL 13. Acceptance to Advanced Field Study required.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: School of Social Ecology majors only. Upper-division students only.

SOCECOL 195B. Advanced Field Study. 4 Units.
While completing 10 hours of field work per week, students implement their research project through data collection and observations which allow them to reflect on, apply, and synthesize their academic training through observations and experiences at the placement.

Prerequisite: SOCECOL 195A. Acceptance to Advanced Field Study required.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: School of Social Ecology majors only. Upper-division students only.

SOCECOL 195C. Advanced Field Study. 4 Units.
While completing 10 hours per week of field work, students write and finalize their AFS Client Project in consultation with the placement and the FS instructor, and make a final written and oral presentation to the placement and invited guests.

Prerequisite: SOCECOL 195B. Acceptance to Advanced Field Study required.

Repeatability: May be taken for credit 2 times.

Restriction: School of Social Ecology majors only. Upper-division students only.

SOCECOL 198. Directed Study. 2-4 Units.
Directed study with Social Ecology faculty.

Repeatability: May be repeated for credit unlimited times.

SOCECOL 199. Special Studies. 1-4 Units.
Special Studies with Social Ecology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

SOCECOL 200. Seminar in Social Ecology. 4 Units.
Students are introduced to the classic and contemporary literature of human and social ecology and are expected to use the ecological paradigm to analyze social phenomena of interest to the differing subprograms.

Restriction: Graduate students only.

SOCECOL 250. Environmental Policy and Global Sustainability. 4 Units.
Seminar organized around four transcendent questions: does the world value sustainability, what challenges must be met to move toward it, what are the roots of inequality, and is capitalism compatible with sustainability.

Same as PUBHLTH 241.

Restriction: Graduate students only.

SOCECOL 261. Strategies of Theory Devlopment. 4 Units.
The goals of this course are (1) to examine key issues and controversies facing the development of social ecological theory, and (2) to encourage students to develop their own abilities as theorists. Strategies for enhancing creative hypothesis formation are emphasized.

SOCECOL 264A. Data Analysis. 4 Units.
Provides an appreciation and understanding of statistics necessary to conduct applied research. Topics include approaches to and presentation of data, robust statistics, standardization techniques, multivariate regression, and analysis of variance.

Restriction: Graduate students only.

SOCECOL 264B. Data Analysis. 4 Units.
Provides an appreciation and understanding of statistics necessary to conduct applied research. Topics include approaches to and presentation of data, robust statistics, standardization techniques, multivariate regression, and analysis of variance.

Prerequisite: SOCECOL 264A.

Restriction: Graduate students only.

SOCECOL 266B. Applied Logistic Regression. 4 Units.
Develops statistical models to be used where the dependent variable is dichotomous. Applications to be considered include cohort and ease-control analyses.

Prerequisite: SOCECOL 264A and SOCECOL 264B.

SOCECOL 266C. Analysis of Statistical Power. 4 Units.
Statistical power is a crucial aspect of hypothesis testing. Students learn how to interpret statistical power; how to calculate statistical power for most common designs; and how to design experiments and quasi-experiments to optimize power.

Prerequisite: SOCECOL 264A and SOCECOL 264B.

Restriction: Graduate students only.

SOCECOL 266D. Analysis of Survival Data. 4 Units.
Provides an introduction to survival analysis methods for the analysis of change in discrete dependent variables. Focuses on data collection strategies for obtaining longitudinal data and continuous-time hazards models. Communicates the variety and power of multivariate hazard models.

SOCECOL 266E. Applied Longitudinal Data Analysis. 4 Units.
Longitudinal data feature measurements over a continuum and are often conceptualized as a trajectory describing the evolution of the response "over time." Course emphasizes use of the linear mixed model for the analysis of normally distributed, longitudinal responses.

Prerequisite: SOCECOL 264B or PSY BEH P264B.

Restriction: Graduate students only.

SOCECOL 272A. Structural Equation Modeling I. 4 Units.
The general structural equation model is developed including path models, recursive and nonrecursive structural models, multiple indicator models, and confirmatory factor models. Use of LISREL and other software for estimating model parameters is covered.

Prerequisite: SOCECOL 264A and SOCECOL 264B.

SOCECOL 272B. Structural Equation Modeling II: Longitudinal and Advanced Topics. 4 Units.
Provides hands-on experience with longitudinal and advanced structural equation models and will be of interest to students from a range of disciplines. Topics covered include confirmatory factor, latent growth curve, general growth mixture, and multi-level modeling.

Prerequisite: SOCECOL 272A.

Restriction: Graduate students only.

SOCECOL 275. Special Topics in Social Ecology. 2-4 Units.
Topics covered vary with interests of the instructor.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCECOL 291. Program Evaluation. 4 Units.
Students are introduced to the use of research techniques and statistical methods in assessing the effectiveness of social programs. Different evaluative models are discussed using examples of actual program evaluations.

Prerequisite: Two courses of graduate level statistics.

Restriction: Graduate students only.

SOCECOL 295. Masters Thesis Research & Writing. 1-8 Units.
Independent research with Social Ecology faculty.

Prerequisite: Advancement to candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

SOCECOL 296. Doctoral Dissertation Research & Writing. 1-12 Units.
Dissertation research with Social Ecology faculty.

Prerequisite: Advancement to Candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

SOCECOL 297. Field Study. 2-4 Units.
Field studies in Social Ecology.

Restriction: Graduate students only.

SOCECOL 298. Directed Studies. 2-4 Units.
Directed study with Social Ecology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

SOCECOL 299. Independent Study. 1-8 Units.
Independent study with Social Ecology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

SOCECOL 399. University Supervised Teaching. 2-4 Units.
Limited to Teaching Assistants.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Criminology, Law and Society

2340 Social Ecology II: 949-824-5575
http://cls.soceco.uci.edu/
Cheryl Maxson, **Department Chair**

The Department of Criminology, Law and Society focuses on the problem of crime and on understanding the social, cultural, political, and economic forces that interact with the law. Basic courses present overviews of American legal systems with particular emphasis on criminal and juvenile justice, forms of criminal behavior, the role of law in understanding social and psychological phenomena, and the applications of sociological theory in understanding law and legal systems. Subsequent course work provides a deeper understanding of the causes and consequences of crime, criminal justice policy, and socio-legal theory, including how legal institutions can both address problems of inequality and exacerbate those problems.

Students are provided with opportunities to become acquainted with the varieties of behavior that society chooses to control or regulate, the methods and institutions used to achieve that control or regulation, and the approaches aimed specifically at altering behavior deemed unacceptable. In addition, there is provision for students to use their increasing knowledge of the law, its procedures, and institutions to enhance their understanding of the social sciences.

The course of study provides excellent preparation for law school and for graduate study in sociology, criminology, and criminal justice. Careers for students who terminate their University education at the baccalaureate level may be developed through placements in criminal justice and regulatory agencies, in organizations determining public policy, and in programs that deliver services to people who have difficulties with some aspect of the legal system.

Students are strongly encouraged to select electives in a variety of departments. Courses in areas such as Psychology, Sociology, Economics, and Political Science can provide a further context for the understanding of crime, law, and criminal justice, while courses in areas such as art history, theater, and music can enhance the quality of the student's entire life.

Field study placements are available in police departments, public defenders' offices, probation and parole agencies, the Orange County District Attorney's Office, the State juvenile detention system, the Orange County Victim/Witness Assistance Program, juvenile shelters, legislative offices, and in private legal firms.

Undergraduate Program

Requirements for the B.A. Degree in Criminology, Law and Society

All students must meet the University Requirements (p. 71)**.**
All students must meet the School Requirements (p. 1444)**.**

Departmental Requirements

Eleven courses (44 units) as specified below:

A. One lower-division gateway course	
CRM/LAW C10	Fundamentals of Criminology, Law and Society
B. Select one course from each of the following four groups:	
(1) The Legal System, Law and Society	
CRM/LAW C101	American Law
CRM/LAW C102	Introduction to the Comparative Study of Legal Cultures
CRM/LAW C103	American Legal Thought
CRM/LAW C104	Sociology of Law
CRM/LAW C105	Psychology and the Law
(2) Crime and Criminology	
CRM/LAW C106	Crime and Public Policy
CRM/LAW C107	Deviance
CRM/LAW C108	Criminological Theory
CRM/LAW C109	Juvenile Delinquency

CRM/LAW C110	Community Context of Crime
(3) Formal Institutions of Social Control	
CRM/LAW C111	Theories of Punishment
CRM/LAW C112	Legal Sanctions and Social Control
CRM/LAW C114	Miscarriages of Justice
CRM/LAW C115	Prisons, Punishment, and Corrections
CRM/LAW C122	Constitutional Law
(4) Justice and Inequalities	
CRM/LAW C113	Gender and Social Control
CRM/LAW C116	Race, Ethnicity, and Social Control
CRM/LAW C120	Law and Inequality
CRM/LAW C127	Hate Crimes
CRM/LAW C178	Critical Race Theory
C. Six upper-division elective courses (24 units). [1]	
Select from courses numbered CRM/LAW C100–C191.	

[1] Courses taken to satisfy requirement B may not also be used to satisfy requirement C.

Criminology, Law and Society Minor Requirements

Nine courses (36 units) as specified below:

CRM/LAW C7	Introduction to Criminology, Law and Society
SOCECOL E8	Introduction to Environmental Analysis and Design
PSY BEH 9	Introduction to Psychology
or	
PSY BEH 11A- 11B- 11C	Psychology Fundamentals and Psychology Fundamentals and Psychology Fundamentals
and six upper-division courses selected from CRM/LAW C100–C191	

NOTE: SOCECOL 198 and SOCECOL 199 may not be applied toward the minor.

Graduate Program

General information about the School of Social Ecology's graduate programs, including admission requirements, career opportunities, and Ph.D. program milestones can be found in the School of Social Ecology Graduate (p. 1448) section of the *Catalogue*. Specific information about the Department of Criminology, Law and Society's graduate program appears below.

M.A.S. in Criminology, Law and Society

The Master of Advanced Study (M.A.S.) in Criminology, Law and Society, the first online degree program at the University of California, prepares professionals for leadership positions in criminal justice and the legal professions. The curriculum emphasizes theoretical and practical applications central to crime and its control, social policy, and the law. In keeping with one of the main tenets of the School of Social Ecology, students approach topics from a multidisciplinary perspective.

This program is ideally suited for professionals interested in obtaining positions in or currently working in the criminal justice or legal fields and who are seeking a graduate degree for career advancement. The program consists of 52 units of course work completed over a two-year period (six quarters) that includes a required one-week in-residence introductory course scheduled right before the first fall quarter of instruction. In lieu of a thesis, students are required to take a capstone course in the winter quarter of the second year of study. The M.A.S. is awarded upon completion of 13 courses (52 units).

Ph.D. in Criminology, Law and Society

The study of crime, institutional responses to illegal behavior, and the interaction of law and society are the foci of the doctoral program in Criminology, Law and Society. Students examine issues related to the etiology of crime, the process of changing criminal behavior, social regulation, the civil justice system, and the social and cultural context of law.

Students gain familiarity with a number of subjects including sentencing; crime rates; modes of modifying criminal behavior; police behavior; white collar and organized crime; policies against hate crimes; behavior of courts, juries, and regulatory agencies; environmental law; immigration lawmaking; Native American justice issues; and the interaction among law, culture, and identity. In general, students are introduced to the leading classical and

contemporary issues in criminology, law and society and to ways of understanding them through interdisciplinary research. The program aims to develop theoretical sophistication and to prepare the graduate student for faculty positions at major universities; and for research and administrative work in institutions in the legal system, the criminal justice system, and related organizations.

The following five core courses are required: Seminar in Social Ecology (SOCECOL 200), Research Methods (CRM/LAW C201), two quarters of graduate-level statistics: Data Analysis (SOCECOL 264A) and Data Analysis (SOCECOL 264B); and two additional approved graduate research methods or statistics courses. Students in the Criminology, Law and Society program additionally take four required courses: Criminology: Micro Approaches (CRM/LAW C228); Criminology: Macro Approaches (CRM/LAW C229); Law and Society I (CRM/LAW C239A); and Law and Society II (CRM/LAW C239B); and two elective courses in Criminology, Law and Society. These elective courses should be chosen according to a plan that best meets the needs of the individual student, as determined in consultation with the student's faculty advisor. They should satisfy the elective requirement with regularly scheduled courses (with rare exceptions). (NOTE: An initial faculty advisor for each new Criminology, Law and Society student is assigned by the Criminology, Law and Society Graduate Advisor. Students, however, are expected to choose their own faculty advisor during their first year of study based on research interests. Students must notify the Criminology, Law and Society Graduate Advisor and the Departmental Graduate Coordinator of any changes in advisors.

Students become involved in research activities from the earliest stages of their training and complete an independent, supervised research project during the second year of graduate study. Methods of research may include questionnaires and surveys, systematic field observation, computer simulation, legal analyses, and archival research. Students complete a written comprehensive examination during year three, which requires them to demonstrate mastery of major issues in criminology, and law and society. The normative time for advancement to candidacy is four years (three years for students who entered with a master’s degree). Students are required to advance to candidacy by the end of fall quarter of their fifth year of study, adjusted for any approved leaves of absence. The fourth and, possibly, fifth years of study are devoted to developing and defending a dissertation proposal and completing dissertation research. The normative time for completion of the Ph.D. is six years, and the maximum time permitted is seven years. (For students who have waived two required courses and the second-year project based upon master’s-level work completed at another institution, the time to degree is five years, with a maximum of six years.) All Ph.D. students in the Criminology, Law and Society program are required to pass a final oral defense of the dissertation. Opportunities for field placements in legal and criminal justice settings also are available.

Program in Law and Graduate Studies (J.D./Ph.D.). Highly qualified students interested in combining the study of law and graduate qualifications in Criminology, Law and Society are invited to undertake concurrent degree study under the auspices of UC’s Irvine’s Program in Law and Graduate Studies (PLGS). Students in this program pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Ph.D. degree in Criminology, Law and Society. Additional information is available from the PLGS Director’s office, (949) 824-4158, or by e-mail to plgs@law.uci.edu. A full description of the program, with links to all relevant application information, can be found at the School of Law Concurrent Degree Programs (http://www.law.uci.edu/plgs) website.

Faculty

Mario Barnes, LL.M. University of Wisconsin-Madison, *Professor of School of Law; Criminology, Law and Society* (criminal law, constitutional law, critical race theory)

Susan C. Bibler Coutin, Ph.D. Stanford University, *Associate Dean of the Graduate Division and Professor of Criminology, Law and Society; Anthropology; Culture and Theory* (law, culture, immigration, human rights, citizenship, political activism, Central America)

Arnold Binder, Ph.D. Stanford University, *Professor Emeritus of Criminology, Law and Society* (research methodology, juvenile delinquency, police organization and methods)

Kitty C. Calavita, Ph.D. University of Delaware, *Professor Emerita of Criminology, Law and Society; Sociology* (sociology of law, criminology, social deviance, immigration, inequality)

Simon A. Cole, Ph.D. Cornell University, *Professor of Criminology, Law and Society; History* (science, technology, law, criminal justice)

Elliott P. Currie, Ph.D. University of California, Berkeley, *Professor of Criminology, Law and Society* (criminal justice policy in the U.S. and other countries, causes of violent crime, social context of delinquency and youth violence, etiology of drug abuse and assessment of drug policy, race and criminal justice)

Teresa A. Dalton, Ph.D. University of Denver, *Lecturer with Potential Security of Employment of Criminology, Law and Society* (quantitative methodology, criminology, law and social sciences)

Joseph Di Mento, Ph.D. University of Michigan, *Professor of School of Law; Criminology, Law and Society; Paul Merage School of Business; Planning, Policy, and Design* (planning, land use and environmental law, use of social science in policy making, legal control of corporate behavior)

John D. Dombrink, Ph.D. University of California, Berkeley, *Professor of Criminology, Law and Society; Sociology* (crime and criminal justice, deviance and social control)

Catherine Fisk, J.D. University of California, Berkeley, *UCI Chancellor's Professor of School of Law; Criminology, Law and Society; History* (labor and employment law, civil rights)

Howard A. Gillman, Ph.D. University of California, Los Angeles, *Provost and Interim Chancellor* and *Professor of Political Science; Criminology, Law and Society; History; School of Law*

Michael R. Gottfredson, Ph.D. University at Albany, State University of New York, *Professor of Criminology, Law and Society* (criminology, theory, crime, policy)

Sora Han, Ph.D. University of California, Santa Cruz, *Assistant Professor of Criminology, Law and Society; African American Studies; Culture and Theory* (law and popular culture, critical race theory, philosophies of punishment, feminism and psychoanalysis)

John Hipp, Ph.D. University of North Carolina at Chapel Hill, *UCI Chancellor's Fellow* and *Professor of Criminology, Law and Society; Sociology* (community context of crime, household decisions and neighborhood change, research methods)

Clarence Ronald Huff, Ph.D. Ohio State University, *Professor Emeritus of Criminology, Law and Society* (criminology and public policy, wrongful convictions, gangs)

Valerie Jenness, Ph.D. University of California, Santa Barbara, *Dean of the School of Social Ecology* and *Professor of Criminology, Law and Society; Sociology* (links between deviance and social control (especially law), the politics of crime control and criminalization, social movements and social change, corrections and public policy)

Paul D. Jesilow, Ph.D. University of California, Irvine, *Professor of Criminology, Law and Society* (healthcare regulation, in particular the role of fraud; the police, in particular police-community relations)

Charis E. Kubrin, Ph.D. George Washington University, *Professor of Criminology, Law and Society; Sociology* (crime, neighborhood effects and social processes, race/ethnicity and violence, immigration and crime)

Elizabeth F. Loftus, Ph.D. Stanford University, *UCI Distinguished Professor of Psychology and Social Behavior; Cognitive Sciences; Criminology, Law and Society; School of Law* (cognitive psychology, human memory, psychology and law)

Mona Lynch, Ph.D. University of California, Santa Cruz, *Professor of Criminology, Law and Society; School of Law* (law and society, psychology and law, punishment and society, race and criminal justice)

William M. Maurer, Ph.D. Stanford University, *Dean of the School of Social Sciences* and *Professor of Anthropology; Criminology, Law and Society; Culture and Theory; School of Law* (anthropology of law, globalization, Caribbean, anthropology of money and finance, gender and kinship)

Cheryl Lee Maxson, Ph.D. University of Southern California, *Associate Professor of Criminology, Law and Society* (crime and delinquency, youth violence, street gangs, juvenile justice system and policing)

Richard D. McCleary, Ph.D. Northwestern University, *Professor of Criminology, Law and Society; Planning, Policy, and Design* (criminal justice, research methodology, statistics)

James W. Meeker, Ph.D. State University of New York at Buffalo, *Professor of Criminology, Law and Society; Sociology* (sociology of law, criminal justice, research methodology, statistics, access to civil justice)

Joan R. Petersilia, Ph.D. University of California, Irvine, *Professor Emerita of Criminology, Law and Society* (program evaluation, public policy, juvenile justice)

Henry N. Pontell, Ph.D. State University of New York at Stony Brook, *Professor of Criminology, Law and Society; Sociology* (white-collar and corporate crime, criminology, criminal justice, deviance and social control, sociology of law)

Keramet A. Reiter, Ph.D. University of California, Berkeley, *Assistant Professor of Criminology, Law and Society; School of Law* (prisons, legal history, criminal justice policy, criminal and civil rights law, law and society)

Ruben G. Rumbaut, Ph.D. Brandeis University, *Professor of Sociology; Criminology, Law and Society; Education* (international migration, immigration laws, criminalization, incarceration, inequality)

Donna Schuele, Ph.D. University of California, Berkeley, *Lecturer with Potential Security of Employment of Criminology, Law and Society* (law and society, American legal/constitutional history, constitutional law, civil rights and civil liberties, women and law, crime and gender, judicial process and politics, California legal history)

Nicholas I. Scurich, Ph.D. University of Southern California, *Assistant Professor of Psychology and Social Behavior; Criminology, Law and Society* (judgment and decision making, juridical proof, violence risk assessment)

Carroll S. Seron, Ph.D. New York University, *Professor of Criminology, Law and Society; School of Law; Sociology* (sociology of law, sociology of professions, law and society, sociology of legal profession, methods and police misconduct)

Ann Southworth, J.D. Stanford University, *Professor of School of Law; Criminology, Law and Society*

Naomi Sugie, Ph.D. Princeton University, *Assistant Professor of Criminology, Law and Society; Sociology* (sociology of crime and punishment, inequality, families, criminal justice policy, methods, new technologies for data collection)

Bryan Sykes, Ph.D. University of California, Berkeley, *Assistant Professor of Criminology, Law and Society; Sociology* (demography, criminology, research methods, health, social inequality, statistics)

Shauhin A. Talesh, J.D. University of Connecticut, *Acting Professor of School of Law; Criminology, Law and Society; Sociology* (civil procedure, consumer law, insurance, business organizations, empirical legal studies, law and society)

William C. Thompson, Ph.D. Stanford University, *Professor of Criminology, Law and Society; Psychology and Social Behavior; School of Law* (psychology and law, criminal justice, forensic science, expert evidence, human judgment and decision making, use of social science in appellate litigation)

George E. Tita, Ph.D. Carnegie Institute of Technology, *Professor of Criminology, Law and Society; Planning, Policy, and Design* (criminology, community context of violence, urban youth gangs, homicide studies)

Christopher L. Tomlins, Ph.D. Johns Hopkins University, *UCI Chancellor's Professor of School of Law; Criminology, Law and Society* (law and humanities, law and society, legal history)

Susan F. Turner, Ph.D. University of North Carolina at Chapel Hill, *Professor of Criminology, Law and Society* (sentencing and corrections, applied research methods)

Kristin E. Turney, Ph.D. University of Pennsylvania, *Assistant Professor of Sociology; Criminology, Law and Society* (social inequality, family demography, population health, incarceration and punishment, intergenerational transmission of disadvantage, child well-being)

Benjamin van Rooij, Ph.D. , *John S. and Marilyn Long Chair in U.S.-China Business and Law* and *Professor of Criminology, Law and Society; School of Law*

James D. Vigil, Ph.D. University of California, Los Angeles, *Professor Emeritus of Criminology, Law and Society* (urban research, urban poverty, culture change, socialization and education, psychological anthropology, street gangs in cross-cultural perspective, Mexico and U.S. southwestern ethnohistory, comparative ethnicity)

Geoff Ward, Ph.D. University of Michigan, *Associate Professor of Criminology, Law and Society; Sociology* (race relations, courts and sentencing, juvenile justice, social movements, justice workers)

Courses

CRM/LAW C7. Introduction to Criminology, Law and Society . 4 Units.
Introduces characteristics of the U.S. criminal justice system, including responses to crime, components of the system, and current challenges to the system. Examines structure and function of police and courts, criminal procedure, and sentencing and incarceration policies. Course may be offered online.

Restriction: Criminology, Law and Society, Social Ecology, Urban Studies, and Psychology and Social Behavior majors have first consideration for enrollment.

(III)

CRM/LAW C10. Fundamentals of Criminology, Law and Society . 4 Units.
Introduces three interdisciplinary literatures—criminology, socio-legal studies, and justice studies. Focuses on theoretical and empirical work addressing law making, law breaking, and legal systems.

Prerequisite: CRM/LAW C7.

(III)

CRM/LAW C40. Forms of Criminal Behavior. 4 Units.
Undergraduates are introduced to the subjects of crime and criminal behavior. Topics include "street" and "white-collar" crimes. Histories of the offenses, the types of people who commit the crimes, and society's reactions to the offenses are presented.

(III)

CRM/LAW C100. Special Topics in Criminology, Law and Society. 4 Units.
Special topic courses are offered from time to time. Course content varies with interest of the instructor.

Prerequisite: CRM/LAW C7.

Repeatability: Unlimited as topics vary.

CRM/LAW C101. American Law. 4 Units.
Introduction to substantive and procedural law governing private dispute resolution, including common law (tort, property, contracts), lawsuits (civil procedure), and alternative dispute resolution; emphasis on the socio-legal ramifications of private disputes, particularly the modern tort system and tort reform movement.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C102. Introduction to the Comparative Study of Legal Cultures. 4 Units.
Traces the anthropological and comparative cultural study of law from the nineteenth century to the present; briefly surveys the diversity of recorded legal cultures and critically examines key concepts which have been used to describe and classify them.

Same as INTL ST 124A.

Restriction: Criminology, Law and Society, Social Ecology, and International Studies majors have first consideration for enrollment.

CRM/LAW C103. American Legal Thought. 4 Units.
Evolution of legal thought in socio-historical context from nineteenth century to present; emphasizes the rise and fall of legal classicism and modern socio-legal critiques, including the law and society movement, critical legal studies, feminist legal theory, and critical race studies.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C104. Sociology of Law. 4 Units.
Examines law creation and law enforcement in their social and political context. Discusses the major theories of law and the modern state, and presents case studies in order to evaluate the strengths and weaknesses of these theoretical perspectives.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C105. Psychology and the Law. 4 Units.
Psychological assumptions of American legal system and mental health aspects of provision of criminal justice services. Civil commitment, insanity defense, competence to stand trial, jury selection, eye-witness identification. Use of police, courts, correctional institutions in prevention of behavior disorder.

Prerequisite: CRM/LAW C7 or CRM/LAW C101.

Same as PSY BEH 193E.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

CRM/LAW C106. Crime and Public Policy. 4 Units.
Explores nature and dimensions of crime in America and uses and limits of various strategies to control it. Topics include growth of imprisonment, the problem of domestic violence, the death penalty, gun control, and the potential of crime prevention programs.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C107. Deviance. 4 Units.
Perspectives on deviance and criminality in behavior, institution, community, and myth. The suitability of contemporary theories of deviant behavior.

Same as SOCIOL 156, PSYCH 177D.

Restriction: Criminology, Law and Society, Social Ecology, Sociology, and Psychology majors have first consideration for enrollment.

CRM/LAW C108. Criminological Theory. 4 Units.
Explores the question of crime causation from a number of theoretical perspectives in the social sciences. Schools of thought examined include utilitarianism, positivism, human ecology, social structural approaches, social process (learning) theories, labeling, and radical-critical (political) perspectives.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C109. Juvenile Delinquency. 4 Units.
Patterns of delinquent behavior, theories that explain behavior, current research aimed at enhancing exploratory power. Attempts to prevent and control delinquency are put in historical perspective. Development of the current juvenile justice system and evolution of modern juvenile law.

Prerequisite: CRM/LAW C7.

Same as PSY BEH 193B.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

CRM/LAW C110. Community Context of Crime. 4 Units.
Examines the social context of high-crime communities, with special emphasis on the problems of poverty, joblessness, economic inequality, and racial discrimination. Assesses debates on the causes of these problems, and on the most effective policies to combat them.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C111. Theories of Punishment. 4 Units.
Survey of the various schools of thought regarding formal punishment theory. The purposes of legal sanctions are examined, including those of deterrence, rehabilitation, retribution, and incapacitation. Considers problems in realizing formal goals of punishment in practice.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C112. Legal Sanctions and Social Control. 4 Units.
Examination of criminal sanctions as mechanisms of social control. Includes the nature, function, and organization of courts as sanction generating institutions, and problems associated with punishing white-collar and corporate illegalities.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C113. Gender and Social Control. 4 Units.
Examines the legal system's use of sex as an organizing characteristic, focusing particularly on sameness and difference feminism, and tracing the evolution of equal treatment of men and women in the areas of constitutional rights, employment, education, and military service.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C114. Miscarriages of Justice. 4 Units.
Systematically describes, explains, and analyzes the causes and consequences of the wrongful accusation, prosecution, incarceration, and sometimes even execution, of the innocent in the American criminal justice system.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C115. Prisons, Punishment, and Corrections. 4 Units.
A review of how the U.S. punishes and rehabilitates convicted law violators. The conflicts among the major purposes of sentencing—rehabilitation, deterrence, incapacitation—are discussed, as well as the effects of different sanctions on public safety, offender rehabilitation, and justice system costs.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C116. Race, Ethnicity, and Social Control. 4 Units.
Provides a historical and sociological survey of racial and ethnic group relations in contexts of crime control, emphasizing the roles of racial ideology, structural racism, and social movements in shaping these dynamic relations, and their significance to American liberal democracy.

Prerequisite: CRM/LAW C7.

Same as CHC/LAT 152A.

CRM/LAW C117. Imprisonment and Reentry. 4 Units.
Offers an overview of imprisonment and reentry in the contemporary United States. Examines the development of the prison in the United States and explores changes in its composition, structure, and purpose over time.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C120. Law and Inequality. 4 Units.
Various aspects of the law as related to three specific areas of inequality: immigration and immigrants, race, and gender. The role of law as a tool of social reform and limitations of the legal system historically in resolving inequality issues.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C122. Constitutional Law. 4 Units.
Examines the First and Fourteenth Amendments, focusing on freedom of speech and religion, and the incorporation of the Bill of Rights. Topics include political, symbolic, offensive, and obscene speech, student speech rights, and the free exercise and disestablishment of religion.

Prerequisite: CRM/LAW C7.

Overlaps with POL SCI 174A.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C123. Family Law. 4 Units.
Examines legal issues surrounding marriage, cohabitation, divorce, child custody and support, adoption, and the rights of parents and children in the family context. The findings of social science research are used to illuminate the legal issues.

Prerequisite: CRM/LAW C7 or CRM/LAW C101.

Same as PSY BEH 193F.

Restriction: Psychology and Social Behavior, Social Ecology, and Criminology, Law and Society majors have first consideration for enrollment.

CRM/LAW C125. Child Development, the Law, and Social Policy. 4 Units.
Examines how psychology research and practice can inform areas of law and social policy affecting children and adolescents. Topics include education, mental health, reproductive rights, and delinquency. Goals are to evaluate research and identify the costs/benefits of current policies.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C. Recommended: PSY BEH 111D OR PSY BEH 112D.

Same as PSY BEH 120D.

Restriction: Psychology and Social Behavior, Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C126. Drugs, Crime, and Social Control. 4 Units.
Drug abuse in the U.S.; the psychopharmacology of various drugs; biological, psychological, and sociological explanations for drug abuse. Policy issues are discussed; students will develop and defend a set of strategies for limiting harm done by drugs and drug laws.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C127. Hate Crimes. 4 Units.
Examines the causes, manifestations, and consequences of hate crimes and the larger social context within which they occur. The politics and dynamics of intergroup violence born of bigotry and manifested as discrimination; social policy designed to control bias-motivated violence.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C130. Seminar on Gangs. 4 Units.
An overview of gangs, including the nature and definition of gangs; types of gangs; diversity of membership; theoretical explanations; criminal behavior; drug use and sales; law enforcement responses; gangs in correctional institutions; intervention and prevention strategies; and public policy issues.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C131. Organized Crime and American Society. 4 Units.
Examination of the phenomenon of American organized crime from a sociological perspective. Explanation of methods by which organized crime is tolerated at various levels of society. Emphasis on ways in which "underworld" interests interact with legitimate economic and political institutions.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C132. Forensic Science, Law, and Society. 4 Units.
Examines use of "forensic science" to resolve issues arising in criminal cases including crime scene analysis, DNA testing, fingerprints, trace evidence comparisons, profiling, lie detectors, other forensic techniques; evaluation, statistical characterization, and legal admissibility of evidence; regulation of forensic laboratories.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C133. Homicide and Suicide. 4 Units.
Examines similarities and differences among homicide and suicide, two major causes of death.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C134. Victimless Crimes. 4 Units.
Examines major theoretical, empirical, and policy-oriented research related to the design, implementation, and analysis of government intervention, through the criminal sanction, in the spheres of vice and morality.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C136. Forensic Psychology: Advanced Seminar. 4 Units.
The focus is on the psychology of criminal offending, particularly violent behavior. Examines violence, sexual offending, and mental disorder related to crime with regard to clinical assessment and treatment; mental health services within forensic institutions.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and (PSY BEH 178S or CRM/LAW C149).

Same as PSY BEH 156C, PSYCH 177F.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Criminology, Law and Society majors have first consideration for enrollment.

CRM/LAW C137. Criminal Procedure. 4 Units.
Examines the law governing arrests (with and without a warrant); police detention; search and seizure; interrogation; use of informers, eavesdropping, wiretapping; examination and identification of suspects. Pretrial motions such as speedy trial and discovery of evidence may be covered.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C139. Police and Change. 4 Units.
Organizational efforts to modify police conduct are addressed by focusing on the history of policing in the United States including training, education, and the contributions of women.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C142. White-Collar Crime. 4 Units.
Examines criminal activity in business and corporate enterprise, organizations, and the professions. Theories regarding the causes and control of white-collar and corporate crime are covered as well as the numerous definitions of these terms.

Same as SOCIOL 142.

Restriction: Sociology, Criminology, Law and Society, and Social Ecology majors have first consideration for enrollment.

CRM/LAW C144. Criminal Law. 4 Units.
Deals specifically with the substantive nature of criminal law and its historical development. Focuses on understanding the development of fundamental doctrinal principles upon which criminal law is based, including mens rea, actus reus, homicide, causation, group criminality, and exculpation.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C145. Government Crime. 4 Units.
Examines the legal, organizational, and political issues involved in the generation and control of government lawlessness. Readings present historical and theoretical perspectives in the abuse of government authority and the ability of the legal system to control such behavior.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C147. Law and Social Change. 4 Units.
Explores the relationship of law to its social setting by considering both law as a product of social change and law as a source or medium of change.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C148. Geographic Information Systems. 4 Units.
Basic geographic, cartographic, and GIS concepts including computer representation of physical, political, statistical, and social aspects of space using vector and grid-based maps. Experience with extensive geographic base map files and databases through use of GIS software (ArcView 3.x).

Same as PUBHLTH 166.

Restriction: Public Health Sciences, Public Health Policy, and Criminology, Law and Society majors have first consideration for enrollment.

CRM/LAW C149. Violence in Society. 4 Units.
Current theory and research on aggression; anger and violence as problems in individual and social functioning. Process and functions of anger examined with regard to normal behavior and psychopathology. The determinants, prevalence, and implications of violence in society are analyzed.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSY BEH 178S.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

CRM/LAW C150. The Legal Profession. 4 Units.
Role of the legal profession in modern society, the diverse professional roles lawyers play, the American legal profession compared with that of other societies. "Litigation explosion," ethical problems, interactions between lawyers and other professionals, training and socialization of new lawyers.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C151. Cybercrimes, Investigation, Forensics and Prosecution. 4 Units.
Examines crimes committed against persons, property, society, and the government in which a computer is used. How these computer crimes are committed, investigated, and ultimately prosecuted.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C152. Interrogation, Confession, and the Law. 4 Units.
In-depth examination of social psychology of police interrogation in America, the evolution of American interrogation practices from the nineteenth century to the present, impact of law on police behavior and ideology, causes and consequences of false confessions, possibilities of reform.

Same as PSY BEH 193D.

Restriction: Psychology and Social Behavior, Social Ecology, and Criminology, Law and Society majors have first consideration for enrollment.

CRM/LAW C156. Cross-Cultural Research on Urban Gangs. 4 Units.
Taking an urban policy approach, examines the background and contemporary traditions of gangs in several ethnic groups including African-, Asian-, and Mexican-Americans. Cross-cultural exploration of the varied facets of gang life. The major social-control institutions affecting them.

Same as CHC/LAT 153.

(VII)

CRM/LAW C157. Language in Law and Society. 4 Units.
Considers the role of language in legal practice and power. Particular attention is paid to linguistic and discourse analytic research that covers topics such as: trial talk, language crimes, law talk in cross-cultural perspectives, and linguistic evidence.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C160. Forensic Psychology. 4 Units.
Forensic psychology is the interface between clinical psychology and the law. Emphasizes clinically relevant legal topics (insanity defense; competency to stand trial)and includes critical thinking about issues arising when psychologists are involved in legal proceedings.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSY BEH 11C.

Same as PSY BEH 161C.

CRM/LAW C162. Crime Hotspots. 4 Units.
Criminological theories of local public safety hazards or hotspots are introduced. Spatial statistics are developed for different types of hotspots. Hotspot policing theories are introduced and research on the effectiveness of policing strategies is reviewed.

CRM/LAW C163. Ethics and Politics of Justice. 4 Units.
Theoretical perspective on how ethics and politics relate to criminal justice through an introduction to moral philosophy; consideration of specific theories of punishment and justice; and consideration of practical and empirical illustrations of the intersection of ethics, politics, and justice.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C164. Social Control of Delinquency. 4 Units.
Assumes familiarity with theories of delinquency, the juvenile justice system, and elements of juvenile law. Explores socio-historical origins and evolution of juvenile justice, current research and policy on delinquency prevention and treatment, and future directions of law, policy, and practice.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7. Recommended: CRM/LAW C109.

Same as PSY BEH 193C.

Restriction: Psychology and Social Behavior, Social Ecology, Criminology, Law and Society, and Psychology majors have first consideration for enrollment.

CRM/LAW C165. The Death Penalty. 4 Units.
Examines why the U.S. continues to have a death penalty when so many other countries have abandoned it. Arguments for and against the death penalty are covered.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

CRM/LAW C167. Crime Measurement. 4 Units.
The strengths and weaknesses of three crime measures (police reports, victim surveys, and offender self-reports) are illustrated through analyses of research articles. Common measurement problems are analyzed with a focus on reliability and validity.

CRM/LAW C168. Extreme Punishment . 4 Units.
Explores the history and law of America's Eighth Amendment prohibition against cruel and unusual punishment, examining the death penalty, long prison sentences, harsh confinement conditions, and other punishments. Students debate practical, legal, and moral arguments for and against these punishments.

CRM/LAW C170. Federal Law Enforcement. 4 Units.
The peculiar legal, organizational concerns of the federal system of law enforcement and some of the crimes it is uniquely designed to address—white-collar crime, drug trafficking, racketeering, public corruption. Roles, responsibilities of the FBI, DEA, Customs, other policing agencies.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

CRM/LAW C171. Latinos and the Law. 4 Units.
Examines a range of theoretical, empirical, and policy approaches to legal issues affecting the Latino population, with emphasis on California. Discusses topics concerning the purpose of law, the creation of law, and the enforcement of law.

Same as CHC/LAT 142.

(VII)

CRM/LAW C172. Culture Change and the Mexican People. 4 Units.
Reviews culture contact and colonization, innovation diffusion, acculturation, assimilation, culture conflict and marginality, modernization, urbanization, legal transformations. Mexico and the Southwestern U.S. are reviewed through several centuries to better appreciate the indigenous base of the Mexican people.

Same as CHC/LAT 155.

CRM/LAW C173. Maritime Piracy, Law and Society. 4 Units.
Explores the historical and contemporary images and reality of pirates and piracy since the 16th century across the globe through an analysis of primary sources, key historiographical and legal debates, and criminological theories. Course may be offered online.

CRM/LAW C176. Classics in Crime Cinema. 4 Units.
A multidimensional understanding of crime films and how they shape public thinking about crime and criminals.

Restriction: CRM/LAW C176 and CRM/LAW C20 may not be taken for credit.

CRM/LAW C177. Eyewitness Testimony. 4 Units.
Faulty eyewitness testimony is a major cause of wrongful convictions. Covers the fast-growing topic of eyewitness testimony and memory for real-world events, both how psychologists study eyewitness capacity, and how the legal system has dealt with eyewitness issues.

Prerequisite: SOCECOL 10.

Same as PSY BEH 193G.

Restriction: Psychology and Social Behavior, Criminology, Law and Society and Social Ecology majors have first consideration for enrollment. Seniors only.

CRM/LAW C178. Critical Race Theory. 4 Units.
Introduction to Critical Race Theory and key American cases on racial inequality. Using this literature, examines the possibilities and pitfalls of legal claims of race, gender, and sexuality discrimination in the age of colorblindness.

Same as AFAM 157.

Restriction: Upper-division students only.

CRM/LAW C185. Criminal Justice System Capacity. 4 Units.
Examines "system capacity" in criminological and criminal justice related research and how it is used to explain and describe current problems and practices in the American legal system. Limitations of sanctioning criminals due to political, physical space, and resource constraints.

Prerequisite: CRM/LAW C7.

Restriction: Criminology, Law and Society, Social Ecology, and Chicano/Latino Studies majors have first consideration for enrollment.

CRM/LAW C191. Law and Modernity. 4 Units.
The rise and spread of Enlightenment legal traditions, social contract theory, individual rights, ideologies of "liberty, equality, fraternity"; contradictions of liberal law, its understandings of "primitive" and "civilized"; pervasive myths of property, difference, race, and rights. Reading- and writing-intensive.

Same as ANTHRO 127A.

CRM/LAW C196. Research Seminar in Criminology, Law and Society. 4 Units.
Special topics research seminar. Content varies with interest of instructor. Capstone research opportunity with Criminology, Law and Society faculty members.

Repeatability: Unlimited as topics vary.

Restriction: Upper-division students only. Criminology, Law and Society, Social Ecology, and Anthropology majors have first consideration for enrollment.

CRM/LAW C201. Research Methods. 4 Units.
An introduction to techniques of inductive methodologies, including qualitative interviewing and participant observation, and deductive methodologies, including survey research and experimental and quasi-experimental design. Provides a sound overview of research methodology with tools to pursue specific methods in greater depth.

Restriction: Graduate students only.

CRM/LAW C207. Development Control Law and Policy. 4 Units.
Investigates legal and institutional frameworks for development control. Review of constitutional issues implicated in land-use regulation. Traces development control historically and analyzes contemporary approaches to land-use control which reflect environmental and economic development concerns.

Same as PP&D 207.

Restriction: Graduate students only.

CRM/LAW C210. Introduction to Criminology, Law and Society. 4 Units.
Familiarizes students with the interrelated fields of criminology, law and society studies, and criminal justice studies. Organized around three well-established interdisciplinary literatures: criminology, sociolegal studies, and criminal justice studies.

Restriction: Graduate students only.

CRM/LAW C211. Legal Institutions and Society. 4 Units.
Acquaints students with the institutions of U.S. legal system and its operations, as well as with the constitutional framework undergirding this system, and defines the relationship between U.S. citizens and government at a variety of levels.

Restriction: Graduate students only.

CRM/LAW C212. Police, Courts, and Corrections. 4 Units.
Focuses on basic policy issues in the administration of the criminal justice system. The key elements of the criminal justice system are police, courts, and corrections. Prepares students for continued study of these organizations.

Restriction: Graduate students only.

CRM/LAW C213. Crime and Social Deviance. 4 Units.
Examines the major social scientific perspectives on criminal and deviant behavior. Specific deviant and criminal activities are described and explained using established theoretical frameworks.

Restriction: Graduate students only.

CRM/LAW C214. Research Methods. 4 Units.
Structures research methodology, the approach to developing and evaluating knowledge of the sciences for use in criminal justice professional activities. Special emphasis on differentiating scientific approaches from pseudo-science.

Restriction: Graduate students only.

CRM/LAW C215. Applied Statistics. 4 Units.
Provides a basis for the use of fundamental statistical analysis techniques for solving public policy and management problems through a series of assignments, examinations, and online discussions and demonstrations.

Restriction: Graduate students only.

CRM/LAW C216. Public Policy, Crime, and Criminal Justice. 4 Units.
Increases understanding of crime, violence, and the criminal justice system. Assesses the state of knowledge on key policy issues of our time. Discusses the contribution of communities, schools, employment, drugs, guns, and alcohol to crime and violence.

Restriction: Graduate students only.

CRM/LAW C217. Leadership. 4 Units.
Introduces concepts, ideas, and theories about leadership and its operation. Explores leadership concepts through interviews with leaders from the community and fellow classmates.

Restriction: Graduate students only.

CRM/LAW C218. Social Problems, Law, and Policy. 4 Units.
Capstone course for M.A.S. program in Criminology, Law and Society. Students choose a social problem related to crime, criminal justice, and law; relate the problem to legal and social issues; and devise a plan of action to research the problem.

Restriction: Criminology, Law and Society M.A.S. students only.

CRM/LAW C219. Hate Crime. 4 Units.
Examines the causes, manifestations, and consequences of hate crimes, as well as the larger social context within which they occur, are reacted to, and seem to be proliferating.

Restriction: Graduate students only.

CRM/LAW C221. Sentencing and Corrections. 4 Units.
Reviews U.S. attempts to punish and rehabilitate convicted law violators. Conflicts among major purposes of sentencing (rehabilitation, deterrence, incapacitation, and retribution) are discussed, as well as effects of different sanctions on public safety, offender rehabilitation, and justice system costs.

Restriction: Graduate students only.

CRM/LAW C222. Street Ethnography. 4 Units.
Focuses on urban street populations, especially gangs, and outlines some of the major conceptual and theoretical issues related to this topic and the processes of street socialization. Methods of inquiry include mapping, ethnohistory, survey questionnaires, and other quantitative techniques.

Same as CHC/LAT 217.

Restriction: Graduate students only.

CRM/LAW C224. Organizational Perspectives on the Legal System. 4 Units.
Familiarizes students with organization theory and research as ways to make sense of, navigate, and act on the legal system. Acquaints students with major frameworks in organization theory and their application to the system of legal organizations.

Restriction: Graduate students only.

CRM/LAW C225. Consequences of Imprisonment. 4 Units.
Reviews imprisonment and its consequences in the United States. Views prison and inmates as part of (rather than separate from) society. Examines the effects of prison on American society, the family, the labor market, and the community.

Restriction: Graduate students only.

CRM/LAW C227. Alternative Conflict Resolution: Theory and Methods. 4 Units.
Provide an understanding of the major alternatives to the traditional system for the administration of justice, expanding on some of the newer theories and methods in the field. Key research on social conflict and its resolution examined. Course may be offered online.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.

CRM/LAW C228. Criminology: Micro Approaches. 4 Units.
Introduces students to the dominant theories in modern criminology, their theoretical antecedents and extensions, major empirical tests and implications for programs, policy and practice, and focuses on micro-level, individual theories of crime causation. Formerly Criminology, Law and Society C233A.

CRM/LAW C229. Criminology: Macro Approaches. 4 Units.
Introduces students to the dominant theories in modern criminology, their theoretical antecedents and extensions, major empirical tests and implications for programs, policy and practices, and addresses macro-level theories of crime causation. Formerly Criminology, Law and Society C233B.

CRM/LAW C230. Crime and Public Policy. 4 Units.
Discusses the measurement of violent crime; violent offenders and their victims; theoretical explanations of violence; the contribution of the media, drugs, guns, and alcohol to violence; and how the justice system treats and punishes violent offenders.

Restriction: Graduate students only.

CRM/LAW C231. Crime and Gender . 4 Units.
Examines the legal, political, social, economic, and policy implications of making gender (primarily) and race (secondarily) the focus in the study of crime, criminal law, and the criminal justice system. Course may be offered online.

Restriction: Graduate students only.

CRM/LAW C232. Juvenile Delinquency. 4 Units.
Examines the major theoretical perspectives regarding the onset, persistence, and desistance of juvenile delinquency and examines empirical evidence for each perspective.

Restriction: Graduate students only.

CRM/LAW C234. Anthropology of Law. 4 Units.
Law has been a key site of anthropological inquiry since the discipline's nineteenth-century origins. Course introduces and critically assesses the contributions anthropology has made to sociolegal lytic trends.

Restriction: Graduate students only.

CRM/LAW C235. Theories of Crime. 4 Units.
Examines classical and contemporary theories of crime and crime control with special emphasis on the implications of theory for public and social action.

Restriction: Graduate students only.

CRM/LAW C236. Gender and Power in Law and Society. 4 Units.
Focuses on questions of gender and sexuality in law and society studies. Drawing on a variety of theoretical frameworks, especially feminist legal theory, examines social processes and structures related to legal regulation, inequality, and social change.

Restriction: Graduate students only.

CRM/LAW C237. Legal Reasoning. 4 Units.
Introduction to law and legal process; use of legal source materials; history and assumptions underlying modern legal reasoning. Key jurisprudential perspectives, development and application of constitutional doctrines (focus on equal protection and right of privacy), and procedure and evidence issues.

Restriction: Graduate students only.

CRM/LAW C238. White-Collar Crime. 4 Units.
Examines the illegal behavior of individuals who commit crimes in the course of their employment. Special attention will be paid to ways in which power and organizational structure affect the behavior of the white-collar offenders.

Restriction: Graduate students only.

CRM/LAW C239A. Law and Society I. 4 Units.
Provides an introduction to the law and society field from its origins in social scientific, legal, and philosophical scholarship during the eighteenth, nineteenth, and early-twentieth centuries. Formerly Criminology, Law, and Society C239.

Restriction: Graduate students only.

CRM/LAW C239B. Law and Society II. 4 Units.
Building on Law and Society I, addresses contemporary issues in the field from mid-twentieth century to the present with emphasis on the degree to which the field's foundational assumptions are being challenged, refined, or confirmed through current research.

Prerequisite: CRM/LAW C239A.

Restriction: Graduate students only.

CRM/LAW C241. Race, Ethnicity, and Social Control. 4 Units.
Origins and organization of racialized social control, with emphasis on criminal justice. Racial politics of criminal/juvenile justice considered in comparative (historical and international) perspective. Exploration of theoretical and methodological issues for research on race, ethnicity, and social control.

Same as CHC/LAT 221.

Restriction: Graduate students only.

CRM/LAW C245. Social Science and the Legal Process. 4 Units.
Examines the use (and misuse) of social science in the legal process, focusing on role of social science evidence in trial and appellate decision making. Test-case litigation in which social science has been used to challenge laws or support reform.

Restriction: Graduate students only.

CRM/LAW C248. Geographic Information Systems. 4 Units.
Prepares students to become proficient in the basic GIS functionality including visualization, data management, and spatial analysis.

Restriction: Graduate students only.

CRM/LAW C252. Issues in Environmental Law and Policy. 4 Units.
Treatment of legal and policy strategies for promoting environmental protection and deterring environmental degradation within the context of other societal objectives. Topical approach with a focus on problems of special interest to criminologists and to environmental policy specialists.

Same as PP&D 252.

Restriction: Graduate students only.

CRM/LAW C255. Public Policy. 4 Units.
Explores different approaches to public policy analysis, the diverse conceptions of the goals and objectives that should be served by policy, and the appropriate role of the policy analyst. Policy consequences are traced to indirect and subtle incentives and disincentives.

Same as POL SCI 221A, PP&D 221.

Restriction: Graduate students only.

CRM/LAW C263. Eyewitness Testimony. 4 Units.
Examines the evidence that shows that faulty eyewitness memory is the major cause of wrongful convictions. Explores what the legal system thinks of eyewitness testimony and how the legal system has dealt with eyewitness issues.

Same as PSY BEH P263.

Restriction: Graduate students only.

CRM/LAW C265. Memory and the Law. 4 Units.
Examines the controversial topic of repressed memory, or perception and memory of real-world events.

Same as PSY BEH P265.

Restriction: Graduate students only.

CRM/LAW C266. Psychology and the Law. 4 Units.
Overview of how psychology is applied to the civil and criminal justice systems, how case law shapes this application, and how legal decisions affect the direction of psychological research. Interdisciplinary approach to research in psychology, law, and/or criminology.

Same as PSY BEH P266.

Restriction: Graduate students only.

CRM/LAW C275. Special Topics in Criminology, Law and Society. 4 Units.
Topics covered vary with interests of instructor.

Repeatability: Unlimited as topics vary.

CRM/LAW C296. Doctoral Dissertation Research and Writing. 2-12 Units.
Dissertation research with Criminology, Law and Society faculty.

Prerequisite: Advancement to candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

CRM/LAW C298. Directed Study. 2-4 Units.
Directed study with Criminology, Law and Society faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

CRM/LAW C299. Independent Study . 2-8 Units.
Independent research with Criminology, Law and Society faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Planning, Policy, and Design

300 Social Ecology I; 949-824-0563
http://ppd.soceco.uci.edu/
David L. Feldman, **Department Chair**

The Department of Planning, Policy, and Design utilizes an interdisciplinary approach to the study of urban and regional planning, public policy issues, and the built environment. The Department faculty devote their scholarly and teaching efforts to theory-driven and empirically oriented urban research and their interests include urban and community development, environmental policy, health promotion and policy, and urban design and behavior. The faculty focuses on education in urban, social, public policy, and environmental problems.

The Department offers the B.A. degree in Urban Studies; undergraduate minors in Urban Studies and Urban and Regional Planning; the Ph.D. degree in Planning, Policy, and Design; the Master of Public Policy; and the Master of Urban and Regional Planning professional degree (fully accredited by the national Planning Accreditation Board). The Department's graduate degree programs feature innovative teaching often involving students in community projects, and a significant degree of accessibility by students to faculty members.

The faculty members in the Department are productive and influential scholars. The Department's teaching, research, and graduate training utilize UCI's proximity to both urban centers and planned communities, as well as the University's location within the dynamic and multicultural Southern California and Pacific Rim regions. Collaborative academic and research ties are maintained with UCI's Institute of Transportation Studies, Center for Global Peace and Conflict Studies, Newkirk Center for Science and Society, Environment Institute, Focused Research Group on International Environmental Policy, Center for Community Health, Community Outreach Partnership Center, Center for Unconventional Security Affairs, Center for Organizational Research, and the Urban Water Research Center.

The common mission linking the Department's undergraduate, master's, and doctorate-level instruction and faculty research efforts is to bring applied research to the cause of bettering individuals, neighborhoods, communities, and regions. Southern California has grown dramatically over the past four decades and will soon become the nation's largest urban corridor. The challenges to maintain the quality of life, provide employment opportunities, and reduce the deep socioeconomic disparities of this bi-national and multicultural metropolitan region are enormous. Extremely diverse, multiethnic communities face the necessity of solving their problems in ways that are acceptable to their populations. Older central city areas that are vital to the region face issues of social and economic sustainability. The need to create employment opportunities, through the application of new technologies in industries and services, will be a constant feature of an urban region undergoing such population increases. At the same time, urban growth and transportation will have to meet increasingly stringent environmental regulations that can safeguard the population's health and quality of the diverse natural environments. The urban design and landscape of most communities stand to be reshaped as never before, as the building stock ages and the need to redevelop intensifies.

The Department is grouped into four major clusters, each addressing sets of important issues to contemporary society. Faculty members and students who study urban and community development examine contemporary planning approaches to managing local, community, and regional development and explore the spatial dynamics of urbanization in diverse settings and how public policy can guide urban and regional growth to balance environmental and economic concerns. Faculty members and students engaged in design-behavior research investigate the interrelationships of people and their socio-physical environments at all scales, from micro to macro, with emphasis on urban design and community-scale issues. Faculty members and students who examine environmental policy focus on the environment and natural resources as important policy and planning issues and provide a clear understanding about how politics, economics, ethics, and institutions affect planning and policy choices. Finally, faculty members and students who study health promotion and policy investigate issues at the interface between (1) urban planning and health policy and (2) community and individual health. They examine the public welfare, psychological, and health implications of social and physical planning, and the techniques and goals of public health policy making.

Undergraduate Program

Undergraduate students who major in Urban Studies will become acquainted with the global challenges of urbanization and the analytical skills needed for addressing them. Students will acquire the background for entering graduate study in related fields, including urban planning, community and economic development, and transportation, to name only a few, or for seeking entry-level positions in fields that address urban problems, including urban planning, community development, transportation, and housing.

Requirements for the B.A. Degree in Urban Studies

All students must meet the University Requirements (p. 71)**.**
All students must meet the School Requirements (p. 1444)**.**

Departmental Requirements

Twelve courses (48 units) as specified below:

A. Four lower-division courses:	
ECON 20A	Basic Economics I
POL SCI 21A	Introduction to American Government
or POL SCI 51A	Introduction to Politics Around the World
PP&D 4	Introduction to Urban Studies
PP&D 40	Urban Sociology
or SOCIOL 43	City and Community
B. Eight upper-division electives:	
Among the eight courses, include at least one three-course "integrative string." An integrative string consists of one designated integrative course plus any two other electives from the same course cluster, as listed below.	
Urban and Community Development	
ECON 144A	Urban Economics I
ECON 144B	Urban Economics II
PP&D 100	Special Topics in Urban Studies
PP&D 101	Urbanization and Social Change [1]
PP&D 102	Urban Inequality
PP&D 105	California's Population

PP&D 106	Technology and Economic Development
PP&D 107	Urban and Regional Planning [1]
PP&D 108	Cities and Transportation
PP&D 109	Housing and Urban Development Policy
PP&D 110	Urban Economic Development Policy
PP&D 112	Foundations of Community Health
Urban and Environmental Sustainability	
PP&D 100	Special Topics in Urban Studies
PP&D 131	Environmental Sustainability I [1]
PP&D 132	Environmental Sustainability II
PP&D 134	Human Ecology [1]
PP&D 139	Water Resource Policy
PP&D 140	Ethics and International Relations
Urban and Environmental Design	
PP&D 100	Special Topics in Urban Studies
PP&D 151	Environmental Psychology [1]
PP&D 152	Cultural Ecology and Environmental Design
PP&D 153	Elements of Environmental Design
PP&D 155	Urban Design Principles
PP&D 156	Urban Design and Graphics Studio
Urban Governance	
PP&D 100	Special Topics in Urban Studies
PP&D 166	Urban Public Policy [1]
PP&D 169	Public Policy Analysis
PP&D 170	Health Policy
PP&D 172	Latino Metropolis

[1] Integrative course.

Urban Studies Minor Requirements

Eight courses (32 units):

PP&D 4	Introduction to Urban Studies
Select any seven upper-division PP&D courses.	

Urban and Regional Planning Minor Requirements

Nine courses (36 units):

PP&D 4	Introduction to Urban Studies
PP&D 107	Urban and Regional Planning
Select seven of the following:	
PP&D 108	Cities and Transportation
PP&D 109	Housing and Urban Development Policy
PP&D 110	Urban Economic Development Policy
PP&D 112	Foundations of Community Health
PP&D 113	Poverty in Developing Countries
PP&D 132	Environmental Sustainability II
PP&D 139	Water Resource Policy
PP&D 155	Urban Design Principles
PP&D 156	Urban Design and Graphics Studio
PP&D 166	Urban Public Policy
PP&D 169	Public Policy Analysis

Graduate Program

General information about the School of Social Ecology's graduate programs, including admission requirements, career opportunities, and Ph.D. program milestones can be found in the School of Social Ecology Graduate (p. 1448) section of the *Catalogue*.. Specific information about the Department of Planning, Policy, and Design's graduate program appears below.

Master of Public Policy

The Master of Public Policy (M.P.P.) program is a two-year professional degree program administered by both the School of Social Ecology and the School of Social Sciences. Students are required to complete 72 units of graduate courses. In the first year, students will attend an introductory conference, participate in a workshop, and take seven core courses and two elective courses. In the summer after the first year, students will participate in a policy-relevant internship in an appropriate government, business, or nonprofit setting. In the second year, students take three core courses and five elective courses.

The core course requirements in year one of the program are Qualitative Methods and Public Policy, Statistical Methods for Public Policy, Information and the Policy Process, Microeconomics and Public Policy, Policy Processes and Institutions of Governance, Collaborative Governance and Public Management, and Social Mobilization, Power, and Justice. The core course requirements in year two are The Economics of Government, Policy and Ethics, and Capstone Research Project and Briefing.

Additional information is available at the Master of Public Policy (http://mpp.web.uci.edu) website.

Master of Urban and Regional Planning

The Master of Urban and Regional Planning (M.U.R.P) provides students with a rigorous intellectual foundation and critical analytical skills that prepare them to work in public, private, and non-governmental planning and related fields. The program is fully accredited by the national Planning Accreditation Board and has more than a dozen full-time core faculty. Students gain knowledge of planning problems and practices through a series of courses related to the environmental, economic, and social challenges in Southern California, and the United States, as well as other national contexts.

A total of 72 graduate units are necessary to satisfy the master's degree requirements—including 36–40 units of core courses and successful completion of a capstone project, thesis, or comprehensive examination. A normal course load is 12 units per quarter (three courses), which enables students to complete the degree in two years. Required core courses are History of Urban Planning (PP&D 202), Theorectical Foundations of Planning (PP&D 203), Design and Planning Graphics: Fundamentals (PP&D 204), Microeconomic Analysis for Urban Planning (PP&D 206) , and Quantitative Analysis for Planners (PP&D 214). Students are required to take three additional courses from the subject areas of methods, law, and urban settlements, selected from a menu of courses approved to satisfy this requirement. The c.urriculum culminates with a capstone requirement that may be fulfilled through one of the following options:

1. Completion of a Professional Report (PR). This entails a two-quarter course sequence, comprising Professional Report (PP&D 292), followed by four units of Independent Study in Urban Planning (PP&D 299) under continued supervision of the original PR faculty advisor;
2. Completion of a two-quarter Practicum sequenceUrban Planning Practicum I (PP&D 294A)-Urban Planning Practicum II (PP&D 294B);
3. A comprehensive examination; or
4. A master's thesis. Students admitted into the thesis option must previously complete PP&D 297 Research Design.

Students complete seven elective courses to develop an area of substantive concentration. Some examples of concentration include housing and community development, international development planning, environmental planning, transportation planning, health and social service planning, economic development, regional growth management, state and municipal governance, and urban design. Students work with faculty members to define their concentration and identify appropriate electives. Elective courses are selected from within as well as outside the Department of Planning, Policy, and Design.

The program supports a diverse set of educational opportunities for master's students. For example, students are eligible to apply to the Affordable Housing Competition Team and Community Scholars Program. Students are also encouraged to incorporate an international educational experience as part of their degree either through the University of California's Education Abroad Program (UCEAP) or the Network for European and U.S. Regional Urban Studies program (NEURUS). Practical experience in planning in the form of part-time planning internships is also strongly encouraged.

The range of employment opportunities for planners in the public, private, and non-governmental sectors is expanding due to rapid urbanization, rising concerns over environmental issues, and increases in social inequality. Career paths exist in public entities dealing with urban planning, economic development, transportation, community development, regional growth management, air quality, water treatment, community health, community revitalization, and public infrastructure. Employment possibilities also exist with private firms that specialize in transportation, general plans, economic development, environmental planning, emergency management, and residential, commercial, and industrial development. Finally, planners are increasingly pursuing meaningful careers in the growing non-governmental or third sector. These career opportunities include working with affordable housing developers, environmental and conservation organizations, community-based organizations, advocacy groups, and labor unions.

Concurrent Master's Degree Program with Civil and Environmental Engineering

The Department of Planning, Policy, and Design (PPD) in the School of Social Ecology and the Department of Civil and Environmental Engineering (CEE) in The Henry Samueli School of Engineering offer a concurrent degree program that allows students to earn both a master of Urban and Regional

Planning (M.U.R.P.) and a master of Civil Engineering (M.S.) in less than the three years required if the degrees were pursued sequentially. Students in the concurrent degree program must meet a minimum of twice with the PPD graduate coordinator and/or MURP faculty program director. The first meeting is at the start of the student's concurrent program to review current requirements and devise a plan of study for the MURP. The second meeting is the start of the third quarter of the first year of the concurrent program to assess progress toward the MURP, identify the student's Capstone choice, and review the plan for completion of MURP course work.

The concurrent degree program involves a course plan that fulfills requirements in both programs. The engineering focus of the concurrent degree program is organized around two tracks: (1) transportation systems, and (2) environmental hydrology and water resources. The course load for the MURP is the same for both tracks; however, the number of CEE courses varies for the transportation systems and the environmental hydrology and water resources tracks. Students should check with the CEE graduate advisor to review course requirements for the appropriate track. Concurrent MURP-MSCE students must complete a Capstone requirement. Students choose among multiple options for the Capstone including professional report, practicum, thesis, and comprehensive exam. Capstone requirements will be reviewed with concurrent students in their initial meeting with the PPD graduate coordinator and/or MURP faculty program director at the start of the concurrent program.

Undergraduates seeking admission to the concurrent master's degree program should have a strong record of course work in disciplines related to urban planning and civil engineering, and they must meet the requirements for admission in both departments. For more information about these requirements, visit the CEE Graduate Admissions (http://www.eng.uci.edu/grad/programs/cee/admissions) and PPD Graduate Admissions (http://ppd.soceco.uci.edu/pages/admissions) websites.

Ph.D. in Planning, Policy, and Design

Today's complex urban, social, and environmental issues can best be understood by researchers who can work across disciplinary boundaries, and who understand the relationship of research to action. For example, efforts to control transportation problems by building neighborhoods that encourage alternatives to the automobile require an understanding of travel behavior and human interactions with the built environment. Understanding how to reduce tobacco use requires an appreciation of how behavior is shaped by programmatic interventions, community settings and norms, and policy tools. Environmental cooperation across national borders often requires understanding of political processes, infrastructure systems, and metropolitan structure and governance in regions, such as the U.S.-Mexico border, where population is concentrated in urban settlements that span the border. And, issues of public safety are increasingly related to the design of public and private spaces, and how those spaces are used and regulated.

In all of these areas, public and private officials are increasingly working on topics that span the boundaries of several traditional academic disciplines. The Planning, Policy, and Design (PPD) doctoral program at the University of California, Irvine trains scholars for national and international prominence in the analysis of social problems related to the built, natural, and institutional environments. Faculty members and students combine perspectives from urban planning, public policy, and design behavior. The Planning, Policy, and Design Ph.D. is based on the Department's internationally prominent research and teaching strengths, including design-behavior research, environmental policy, health promotion and policy, and urban and community development. Students in the Ph.D. program take a common core of classes, and then specialize in study related to their research interests. Students may design their own specialization or may follow the guidelines provided to specialize in Policy and/or Urban and Regional Planning. In either case, the elective courses must be approved by the student's faculty advisory committee.

The Ph.D. program consists of four components: course work, comprehensive exams, advancing to candidacy, and dissertation research, writing, and defense. Each component is described below. A typical pattern for completion of requirements is the following:

Years 1 and 2: Take required departmental courses supplemented by electives.

September after year 2: Take comprehensive exams.

Year 3: Finish required course work, write and defend dissertation prospectus, advance to candidacy.

Years 4–6: Dissertation research and writing (students are expected to complete and defend their dissertations within nine quarters of advancing to candidacy).

Students must also TA for at least one quarter. The normative time for completion of the Ph.D. in Planning, Policy, and Design is six years, and the maximum time permitted in seven years.

The following courses are required of all students and must be completed before advancement to candidacy:

PP&D 297	Research Design
SOCECOL 200	Seminar in Social Ecology
Select two of the following three research methods courses:	
PP&D 209	Qualitative Research Methods: Overview (or equivalent)
SOCECOL 264A	Data Analysis (or equivalent)
SOCECOL 264B	Data Analysis (or equivelant)
One advanced research methods course	
Two courses providing disciplinary/theoretical orientation	

Two quarters of PP&D 298 or PP&D 299
Nine electives

Graduates with a doctorate degree in Planning, Policy, and Design are employed in a wide array of activities, ranging from university teaching and research, to administrative and research—oriented positions in governmental agencies, international organizations, nonprofit organizations, and private consulting practices.

Faculty

Mary V. Basolo, Ph.D. University of North Carolina at Chapel Hill, *Associate Professor of Planning, Policy, and Design*

Scott A. Bollens, Ph.D. University of North Carolina at Chapel Hill, *Drew, Chace and Erin Warmington Chair in the Social Ecology of Peace and International Cooperation* and *Professor of Planning, Policy, and Design*

Tim-Allen Bruckner, Ph.D. University of California, Berkeley, *Assistant Professor of Program in Public Health; Planning, Policy, and Design*

Jan K. Brueckner, Ph.D. Stanford University, *Department Chair and Professor of Economics; Planning, Policy, and Design*

Sarah L. Catz, J.D. Santa Clara University, *Lecturer of Planning, Policy, and Design*

Kenneth S. Chew, Ph.D. University of California, Berkeley, *Senior Lecturer of Planning, Policy, and Design*

Ross F. Conner, Ph.D. Northwestern University, *Professor Emeritus of Planning, Policy, and Design*

William J. Cooper, Ph.D. University of Miami, *Professor of Civil and Environmental Engineering; Chemical Engineering and Materials Science; Planning, Policy, and Design* (environmental chemistry, advanced oxidation processes for water treatment, aquatic photochemistry of carbon cycling)

Joseph Di Mento, Ph.D. University of Michigan, *Professor of School of Law; Criminology, Law and Society; Paul Merage School of Business; Planning, Policy, and Design* (planning, land use and environmental law, use of social science in policy making, legal control of corporate behavior)

David Feldman, Ph.D. University of Missouri-Columbia, *Professor of Planning, Policy, and Design; Political Science*

Martha S. Feldman, Ph.D. Stanford University, *Roger W. and Janice M. Johnson Chair in Civic Governance and Public Management* and *Professor of Planning, Policy, and Design; Paul Merage School of Business; Political Science; Sociology*

Ajay Garde, Ph.D. University of Southern California, *Associate Professor of Planning, Policy, and Design*

John D. Houston, Ph.D. University of California, Los Angeles, *Assistant Professor of Planning, Policy, and Design*

Helen Ingram, Ph.D. Columbia University, *UCI Endowed Chair* and *Professor Emerita of Planning, Policy, and Design*

Jae H. Kim, Ph.D. University of Illinois at Urbana-Champaign, *Assistant Professor of Planning, Policy, and Design*

Raul P. Lejano, Ph.D. University of California, Los Angeles, *Professor Emeritus of Planning, Policy, and Design*

Bryce C. Lowery, M.S. California State Polytechnic University, Pomona, *Lecturer of Planning, Policy, and Design*

Richard A. Matthew, Ph.D. Princeton University, *Professor of Planning, Policy, and Design*

Sanjoy Mazumdar, Ph.D. Massachusetts Institute of Technology, *Professor of Planning, Policy, and Design; Asian American Studies*

Richard D. McCleary, Ph.D. Northwestern University, *Professor of Criminology, Law and Society; Planning, Policy, and Design* (criminal justice, research methodology, statistics)

Michael G. McNally, Ph.D. University of California, Irvine, *Professor of Civil and Environmental Engineering; Planning, Policy, and Design* (travel behavior, transportation systems analysis)

David S. Meyer, Ph.D. Boston University, *Professor of Sociology; Planning, Policy, and Design; Political Science* (social movements, public policy, peace and war, social justice)

Judith Olson, Ph.D. University of Michigan, *Donald Bren Professor of Information & Computer Sciences* and *Professor of Informatics; Paul Merage School of Business; Planning, Policy, and Design* (interactive and collaborative technology, human-computer interaction, computer-supported cooperative work)

Mark P. Petracca, Ph.D. University of Chicago, *Associate Professor of Political Science; Planning, Policy, and Design*

Seth D. Pipkin, Ph.D. Massachusetts Institute of Technology, *Assistant Professor of Planning, Policy, and Design*

Maria G. Rendon, Ph.D. Harvard University, *Assistant Professor of Planning, Policy, and Design; Sociology*

Michael Ruane, M.A. University of California, Los Angeles, *Lecturer of Planning, Policy, and Design*

Jean-Daniel M. Saphores, Ph.D. Cornell University, *Professor of Civil and Environmental Engineering; Economics; Planning, Policy, and Design* (transportation economics, planning and policy, environmental and natural resource economics and policy, quantitative methods)

David A. Smith, Ph.D. University of North Carolina at Chapel Hill, *Professor of Sociology; Planning, Policy, and Design* (world systems analysis, urbanization, development, comparative-historical sociology, dependent development in east asia)

David M. Snow, J.D. Loyola Marymount University, *Lecturer of Planning, Policy, and Design*

Daniel S. Stokols, Ph.D. University of North Carolina at Wilmington, *Professor Emeritus of Psychology and Social Behavior; Epidemiology; Planning, Policy, and Design; Program in Public Health* (environmental psychology, science of team science, transdisciplinary public health)

Luis Suarez-Villa, Ph.D. Cornell University, *Professor of Planning, Policy, and Design*

George E. Tita, Ph.D. Carnegie Institute of Technology, *Professor of Criminology, Law and Society; Planning, Policy, and Design* (criminology, community context of violence, urban youth gangs, homicide studies)

Rudolfo D. Torres, Ph.D. Claremont Graduate University, *Professor of Planning, Policy, and Design; Culture and Theory*

Kerry Vandell, Ph.D. Massachusetts Institute of Technology, *Professor of Paul Merage School of Business; Planning, Policy, and Design; School of Law*

Linda T. Võ, Ph.D. University of California, San Diego, *Associate Professor of Asian American Studies; Culture and Theory; Planning, Policy, and Design; Sociology* (race and ethnic relations, immigrants and refugees, gender relations, community and urban studies)

Planning, Policy, and Design Courses

PP&D 4. Introduction to Urban Studies. 4 Units.
Introduces the substantive areas, concepts, and tools in the field of urban studies. Acquaints students with physical, environmental, social, economic, and political dimensions of cities. Examines the challenges facing cities, including poverty, sustainability, development, globalization, and others.

Restriction: School of Social Ecology and Urban Studies majors have first consideration for enrollment.

(III)

PP&D 40. Urban Sociology. 4 Units.
Overview of theoretical, substantive, and policy issues in urban sociology. History of urbanization, the school of human ecology, and recent trends regarding urbanism. Time is devoted to understanding the causes and possible solutions to urban problems.

Overlaps with SOCIOL 43.

PP&D 100. Special Topics in Urban Studies. 4 Units.
Special topics courses are offered from time to time. Course content varies with interest of the instructor.

Repeatability: Unlimited as topics vary.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 101. Urbanization and Social Change. 4 Units.
Surveys the global and historical co-evolution of cities and social institutions, including religion, the economy, governance, the arts, technology, and family life.

PP&D 102. Urban Inequality. 4 Units.
Examines structural inequality and the influence that urbanization has in affecting race, ethnic, and class relations. Explores how race/ethnicity, class, urban space, housing, economic development, public education and land policy intersect in cities, both historically and today.

Restriction: Urban Studies, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

PP&D 104. Urban America . 4 Units.
Students examine the historical, social, political and economic factors that contributed to the construction of the American urban context, one that is poverty concentrated and racially/ethnically segregated. Students also critically assess the consequence of growing up in America's urban neighborhoods.

PP&D 105. California's Population. 4 Units.
Surveys California's human population (past, present, and future) and its interactions with trends in society, government, the economy, and the environment.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 106. Technology and Economic Development. 4 Units.
Importance of technology for urban economic and social development. Concepts of technological innovation and diffusion, and their relevance for cities and metropolitan areas. Principles of networks and their importance for diffusion. Relationship of technology to urban infrastructure and metropolitan form.

Prerequisite: SOCECOL 10 and SOCECOL 13.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 107. Urban and Regional Planning. 4 Units.
Important substantive areas, concepts, tools in the field of urban and regional planning. Topics include: forces that have historically guided and are currently guiding U.S. urbanization; land use, economic development, housing and community development, environmental planning; legal, environmental, governmental contexts.

Prerequisite: PP&D 4.

Restriction: Urban Studies, Social Ecology, Earth System Science, and Environmental Science majors have first consideration for enrollment.

PP&D 108. Cities and Transportation. 4 Units.
The relationship between urban areas and transportation systems. Economic analysis of cities, transportation and urban form, highway congestion, environmental impacts of transportation, public transit, land use and transportation, and political influences on transportation planning.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 109. Housing and Urban Development Policy. 4 Units.
Surveys public policy issues and develops analytic techniques in the areas of housing and urban development. Examines a range of policy topics including housing assistance to low- and moderate-income families, housing finance system, incentives for economic development and neighborhood preservation.

Prerequisite: Recommended: previous course work in economics.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 110. Urban Economic Development Policy. 4 Units.
Theoretical and practical perspectives on local economic development policy. Integrates economic, planning, and political perspectives. Overview of economic role of cities and metropolitan areas. Specific development issues include: link between taxes, regulation, job growth; redevelopment planning; evaluation economic development policy.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 112. Foundations of Community Health. 4 Units.
A social ecological framework for understanding community health is presented. Measures of individual and community health are compared, and the influence of personal and environmental factors on individual, group, and population health is examined. Community health promotion strategies are discussed.

Same as PUBHLTH 125.

Restriction: Urban Studies, Social Ecology, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PP&D 113. Poverty in Developing Countries. 4 Units.
Focuses on poverty in developing countries. Analyzes the magnitude and changing nature of poverty in the global south. Critically examines poverty conceptualized in terms of economic deprivation, well-being, and social exclusion.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 131. Environmental Sustainability I. 4 Units.
Provides an introduction to sustainability from different points of view; historical, scientific, political, ethical, and economic.

Same as EARTHSS 180.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 132. Environmental Sustainability II. 4 Units.
Investigates how sustainability can be implemented in a variety of contexts including water, energy, non-renewable resources, biodiversity, and urban policy, and also how it could be measured.

Same as EARTHSS 182.

Restriction: Urban Studies, Social Ecology, Earth System Science, and Environmental Science majors have first consideration for enrollment.

PP&D 134. Human Ecology. 4 Units.
Explores the interaction of social choice and physical constraint in shaping the earth's human carrying capacity, including ramifications for local, regional, or global environmental issues.

Prerequisite: PP&D 4.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 139. Water Resource Policy. 4 Units.
Examination of contemporary water problems worldwide, with particular attention to the competing water demands in the western U.S., and water demand by the poor in developing countries. History and analysis of U.S. water policies at local, state, and federal levels.

Restriction: Urban Studies, Social Ecology, Earth System Science, and Environmental Science majors have first consideration for enrollment.

PP&D 140. Ethics and International Relations. 4 Units.
Introduces students to the dynamic field of ethics and international relations. A variety of traditional and emerging perspectives are examined, skeptical views are discussed in detail, and arguments are illustrated with current cases.

Same as POL SCI 146A, INTL ST 154D.

PP&D 150. Experience Design. 4 Units.
Explores functional, experiential, emotional, sensorial, and extra-sensorial aspects of built and modified natural environments. Examines methods for acquiring, evaluating, and presenting information and developing specifications for designers' information needs and for assuring great designed environments.

Prerequisite: PP&D 4 and PP&D 152.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 151. Environmental Psychology. 4 Units.
Impact of the physical environment on individual and group behavior. Three basic concerns examined: (a) environmental determinants of behavior at the individual and interpersonal level; (b) social planning and urban design; (c) methodological approaches to the study of environmental issues.

Prerequisite: SOCECOL E8 or SOCECOL 10 or PP&D 4.

Same as PSY BEH 171S, PUBHLTH 151.

Restriction: Urban Studies, Social Ecology, Psychology and Social Behavior, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PP&D 152. Cultural Ecology and Environmental Design. 4 Units.
Introduction to cultural ecology and environmental and architectural design. Addresses the understanding of people's relationships with their built environments, the basic elements of architecture, architectural analysis, and cultural analysis are covered. Examines values in design and design for multicultural societies.

Prerequisite: PP&D 4.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 153. Elements of Environmental Design. 4 Units.
Basic elements of environmental design such as scale, proportion, rhythm, color, sound, lighting, surfaces, texture, architectural definition of spaces, volumes, massing volumetric analysis, solids and voids, and cultural aspects of design. Excitement and creativity in design, imageability.

Prerequisite: PP&D 4 and PP&D 152.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 155. Urban Design Principles. 4 Units.
Introduction to principles of urban design and its applications. Study of contemporary and traditional theories of urban design formulated to improve physical characteristics of built environment to facilitate an enhanced quality of life. A variety of case studies are discussed.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 156. Urban Design and Graphics Studio. 4 Units.
Introductory course organized around a variety of assignments to encourage learning by design in a studio setting. Students work on design projects and graphic representation assignments to learn practical aspects of urban design.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 166. Urban Public Policy. 4 Units.
Examines why and how urban policies are enacted and carried out in contemporary U.S. cities and regions. Topics include: evolution and organization of city governments and policymaking over the past century; who directs public policy and controls how cities develop.

Prerequisite: SOCECOL 10 and PP&D 4.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 167. Public Policy and Management. 4 Units.
Exposes students to best management practices that assure effective planning and implementation of policies and programs in government, business, and nonprofit sectors. Includes guest lecturers who are proven leaders in four principal institutions of community: business, education, government, and nonprofit.

Restriction: Urban Studies and Social Ecology majors have first consideration for enrollment.

PP&D 169. Public Policy Analysis. 4 Units.
Examines different approaches to the analysis of public policy, what constitutes good policy, the role of government, and citizen participation in policy-making. Suggests a policy-design perspective which builds upon other frameworks but concentrates on goals, implementation structures, tools, and rationales.

Prerequisite: SOCECOL E8 and (PP&D 4 or PP&D 166).

Same as POL SCI 121E.

Restriction: Urban Studies, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

PP&D 170. Health Policy. 4 Units.
Considers social and economic aspects of health and disease in the United States. What are the proper roles of the individual, community, and government in improving health and health care? International comparisons will be made wherever possible.

Same as PUBHLTH 122.

Restriction: Urban Studies, Social Ecology, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PP&D 172. Latino Metropolis. 4 Units.
Explores the processes of Latino urbanization in the United States and the spatialization of Latino identities, particularly in the context of Southern California with selected comparisons drawing from other cities.

Same as CHC/LAT 154.

(VII)

PP&D 177. Chicano Movement. 4 Units.
Explores the history of Mexicans in the U.S. with particular attention paid to their integration into the U.S. capitalist economy. Examines this economic history and the Chicano movement, "El Movimiento," within the wide context of socio-economic change.

Same as CHC/LAT 166.

Restriction: Chicano/Latino Studies, Urban Studies, and Social Ecology majors have first consideration for enrollment.

PP&D 202. History of Urban Planning. 4 Units.
Introduction to the historical roots and fundamental perspectives of urban and regional planning. Exploration of the significant historical phases and personalities which have shaped the profession. The roles and responsibilities, the limitations and potential, of urban planning.

Restriction: Graduate students only.

PP&D 203. Theorectical Foundations of Planning. 4 Units.
Intellectual excursion into central themes in policy and planning, including philosophy of the market, institutionalization of space, hypostatizations of policy, constructions of communities, logics of spatial analysis. Objective is engagement of the professional in thoughtful reflections on practice and institutions.

Restriction: Graduate students only.

PP&D 204. Design and Planning Graphics: Fundamentals. 4 Units.
Graphic representation and communication of physical place characteristics, design and physical planning ideas and concepts using a variety of graphic techniques of free hand drawing, sketching, orthographic representations, scale drawings, 3D representations, maps, photo-documentation, and various media.

Restriction: Masters in Urban & Regional Planning graduate students only.

PP&D 205. Environmental Economics and Policy. 4 Units.
Provides a broad introduction to environmental economics and to environmental policy. Environmental problems facing the United States and Europe are analyzed, and whenever possible, the environmental problems facing developing countries.

Restriction: Graduate students only.

PP&D 206. Microeconomic Analysis for Urban Planning. 4 Units.
Provides students with a working knowledge of basic microeconomic concepts. Emphasizes applications related to urban planning and policy analysis. Topics covered include demand analysis, firm behavior, market structure, public goods, externalities, and the role of economics in land markets.

Restriction: Graduate students only.

PP&D 207. Development Control Law and Policy. 4 Units.
Investigates legal and institutional frameworks for development control. Review of constitutional issues implicated in land-use regulation. Traces development control historically and analyzes contemporary approaches to land-use control which reflect environmental and economic development concerns.

Same as CRM/LAW C207.

Restriction: Graduate students only.

PP&D 208. California's Population. 4 Units.
Provides a non-specialist introduction to social demography through a focus on California population. Surveys historical and current trends in the State's growth, its industries and occupations, and its ethnic and racial makeup.

Restriction: Graduate students only.

PP&D 209. Qualitative Research Methods: Overview. 4 Units.
Introduction to fundamentals of “qualitative” research and non-positivistic inquiry. Formulation of research questions, selection of method, data collection techniques, and analysis (briefly). Overview of selected methods from ethnography, naturalistic field research, phenomenology, ethnoarchaeology, critical approaches, and others.

Restriction: Graduate students only.

PP&D 210. Practice Experience . 4 Units.
Provides Master of Urban & Regional Planning Students an opportunity to link classroom knowledge with real Planning situations through a ten-week unpaid practice experience.

Restriction: Masters in Urban & Regional Planning graduate students only.

PP&D 211. Urban Design and Behavior. 4 Units.
Acquaints students with vocabulary, history, theories, process, and trends in urban design, and the relationship of design to human well-being. The local environment is used as a resource and a laboratory.

Restriction: Graduate students only.

PP&D 212. Transportation Planning. 4 Units.
Introduces current topics in transportation planning. Includes an analysis of the economic role of transportation in urban areas, land-use impacts of transportation projects, traffic congestion, air quality, alternatives to the automobile, and other transportation topics.

Restriction: Graduate students only.

PP&D 213. Advanced Qualitative Methods: Analyzing Qualitative Data. 4 Units.
Introduces students to the theory and practice of analyzing qualitative data. Students must have already learned about data collection and research design for qualitative research and they must have qualitative data they can analyze in the course.

Same as POL SCI 273A, SOCIOL 223, MGMTPHD 297K.

Restriction: Graduate students only.

PP&D 214. Quantitative Analysis for Planners. 4 Units.
Introduces students to the basic statistical concepts used to address issues of public concern. Prepares students to perform, interpret, and evaluate quantitative data analyses commonly used in professional studies.

Restriction: Graduate students only.

PP&D 215. Analytical Methods for Planning. 4 Units.
Emphasizes the development of analytical techniques proven useful in the fields of management and administration. Topics include multiple regression, cost-benefit analysis and discounting, decision trees, and other techniques useful for the purposes of community analysis and planning.

Restriction: Graduate students only.

PP&D 219. Advanced Planning Theory. 4 Units.
Readings and discussions aimed at developing a foundation for critical research into theories and epistemologies of planning and policy. Topics include the liberal, communitarian, communicative, and other conceptions of nationality; praxis, hermaneutics, and policy; topologies of justice and social fracture.

Restriction: Graduate students only.

PP&D 220. Qualitative Methods . 4 Units.
Fieldwork, data collections techniques, and related issues for anti-positivistic research. Data collection techniques include observation, physical traces, participation, in-depth interview. Data checks include veracity, detail, completeness, rigor.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 225.

Restriction: Master of Public Policy graduate students only.

PP&D 221. Public Policy . 4 Units.
Explores different approaches to public policy analysis, the diverse conceptions of the goals and objectives that should be served by policy, and the appropriate role of the policy analyst. Policy consequences are traced to indirect and subtle incentives and disincentives.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 221.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

PP&D 223. Regional Analysis. 4 Units.
Major concepts and techniques of regional analysis, with applications for urban and regional planning and public policy-making. Definition of regions, processes of economic change, regional structure, location of activities, and analysis of selected policy issues. Emphasis on practical applications.

Restriction: Graduate students only.

PP&D 224. Environmental Politics and Policy. 4 Units.
Reviews and critiques literature on discussion topics including: the nature and effectiveness of environmental movements and policies; the role of science and technology; the use of economic incentives in policy; decentralization of decision making; and creating arenas for public involvement.

Restriction: Graduate students only.

PP&D 225. Local Economic Development. 4 Units.
Analyzes the economic development process. Attention is given to economic theories of local development and practical implications of those theories. Topics include local economic development and poverty, tax incentives, infrastructure credits, effects of government competition for economic activity.

Restriction: Graduate students only.

PP&D 226. Public Health Cost-Effectiveness Analysis. 4 Units.
Examines using cost-effectiveness information to allocate limited resources to maximize health benefits to a population; defining and measuring cost, survival and health-related quality of life; and how to calculate cost-effectiveness using decision trees and Markov simulation models.

Same as PUBHLTH 220.

Restriction: Graduate students only.

PP&D 227. Qualitative Methods: Case Study. 4 Units.
Deals with case study as a qualitative, anti-positivistic research method. Discussion focuses on the essential nature of case study research, quality of case study, rigor, design, implementation, analysis, data collection techniques, analysis, and writing.

Restriction: Graduate students only.

PP&D 228. Demographics for Planning and Policy. 4 Units.
Provides planning and policy practitioners with a condensed, nonspecialist orientation to the sources, applications, and interpretation of population statistics, and conveys the steps used in constructing local-area population forecasts and projections.

Restriction: Graduate students only.

PP&D 231. Transportation and Environmental Health. 4 Units.
Critically evaluates how transportation can promote sustainable, healthy, and equitable cities. Examines the interaction of transportation systems with urban form, land use, community health, and environmental quality.

Restriction: Graduate students only.

PP&D 233. Transportation, Transit, and Land-Use Policy and Planning. 4 Units.
Places students into a specific transportation public policy situation to devise real solutions, with the goal of helping students understand factors in land use, travel behavior, politics, and finance that shape transportation planning policy choices.

Restriction: Graduate students only.

PP&D 235. Geographic Information Systems (GIS) Problem Solving in Planning. 4 Units.
Explores the application of geographic information systems (GIS) in urban planning. Steps through a GIS-based planning procedure that balances housing, jobs, tax base, utilities, transportation, and the natural environment.

Restriction: Graduate students only.

PP&D 236. Community Design. 4 Units.
Provides an overview of the current condition of urban design in the United States. Topics include the academic environment, the retail environment, multi- and single-family residential environments, the office environment, and new urban design tools.

Restriction: Graduate students only.

PP&D 237. Introduction to Geographic Information Systems. 4 Units.
Application of Geographic Information Systems (GIS) to the field of urban and regional planning. Emphasizes current issues that occur in actual implementation settings. Lecture/discussion followed by laboratory demonstrating the area of GIS discussed. Offers "hands-on" student usage of GIS software.

PP&D 238. Advanced Geographic Information Systems. 4 Units.
Extends study of geographic information systems to more advanced issues, including data sources, data conversion, relational database integration, software customization, and spatial and three-dimensional analysis.

Prerequisite: PP&D 237.

PP&D 239. Urban Design Theories and Applications. 4 Units.
Introduction to contemporary and traditional theories of urban design and their applications. Organized around one question: How might planning and design of built environment contribute to making a good city? National and international case studies are introduced.

Restriction: Graduate students only.

PP&D 240. International Environmental Policy. 4 Units.
Explores causes and effects of environmental problems and the effectiveness of different adaptation or restoration strategies and how they are closely linked to ways in which political, economic, demographic, and cultural systems interact among themselves and ecological systems.

PP&D 241. Health Promotion and Planning. 4 Units.
Focuses on health and health care in the United States, but discussion of global health issues and/or international comparisons will be made whenever possible. Considers both the social and economic aspects of health and disease.

Same as PUBHLTH 221.

Restriction: Graduate students only.

PP&D 242. Regional Development Theory. 4 Units.
Regional economic development concepts and studies, with applications for urban and regional planning, and public policy-making. Roles and performance of economic sectors, technological innovation, and communications in the process of development. Analysis of regional development policies and programs.

Restriction: Graduate students only.

PP&D 243. Health Policy and Management. 4 Units.
Multidisciplinary inquiry into theory and practice concerned with delivery, quantity, costs of health care for individuals and populations. Explores managerial and policy concerns regarding structure, process, outcomes of health services including the costs, financing, organization, outcomes, and accessibility of care.

Same as PUBHLTH 222.

Restriction: Graduate students only.

PP&D 244. Land-Use Policy. 4 Units.
Examination of the role of public policy in guiding growth and development in urban and suburban environments. Description of a wide-ranging set of growth policies, the rationales underlying their use, controversies and legal constraints, and evaluation of their effectiveness.

Restriction: Graduate students only.

PP&D 245. Urban Security. 4 Units.
Examines changing urban security landscape facing planners, businesses, policymakers, first responders, and academics. Identifies threats and vulnerabilities andhow they can be reduced . Focus on transnational networks where contemporary cities are enmeshed, and function as sources of threat and opportunity.

Restriction: Graduate students only.

PP&D 246. Housing Policy. 4 Units.
Examines theories and practices of housing policy and the relationship of housing to larger neighborhood, community, and regional development issues. Considers the roles of private for-profit and not-for-profit developers, lenders, and all levels of government in the provision of housing.

Prerequisite: Basic statistics.

PP&D 247. Neighborhood Planning. 4 Units.
Focuses on asset-based development and community-building tools. Public policies and neighborhood-based case studies are explored which provide practical skills for the planner of the future.

Restriction: Graduate students only.

PP&D 251. Poverty and Development . 4 Units.
Critical examines competing conceptualizations, methods of measurement, and poverty alleviation strategies widely used in developing countries. Focuses on poverty conceptualized as economic deprivation, well-being, vulnerability, and social exclusion.

Same as SOCIOL 235.

Restriction: Graduate students only.

PP&D 252. Issues in Environmental Law and Policy. 4 Units.
Treatment of legal and policy strategies for promoting environmental protection and deterring environmental degradation within the context of other societal objectives. Topical approach with a focus on problems of special interest to criminologists and to environmental policy specialists.

Same as CRM/LAW C252.

Restriction: Graduate students only.

PP&D 253. Site Planning. 4 Units.
Examines site specific, neighborhood, and community site planning from the site designer and local government perspectives. By reviewing actual discretionary case applications and case studies, students learn how regulatory, environmental, and government constraints influence site planning.

Restriction: Graduate students only.

PP&D 260. Grant Writing for Community Planning and Development. 4 Units.
Introduces students to grant writing and processes involved in generating funding for nonprofit programs and community research projects.

Restriction: Graduate students only.

PP&D 264. Planning, Policy and Design Seminar. 1 Unit.
For first- and second-year doctoral students. Topics include professional development; journal publication process; academic conference presentations; and the job market for doctoral students in and out of academia.

Restriction: Graduate students only.

PP&D 265. Urban and Community Development Seminar. 1 Unit.
For first- and second-year doctoral students. Topics include scholarship related to the urban and community development area. Discussion of assigned articles and book chapters and how they relate to urban and community development.

Restriction: Graduate students only.

PP&D 270. Environmental Ethics. 4 Units.
Introduction to major themes and debates in environmental ethics, with application to contemporary environmental issues.

Restriction: Graduate students only.

PP&D 273. Global Urbanization. 4 Units.
Examines the spread of cities worldwide in the twentieth century. What are the political and economic causes of this process? What are the social-cultural, political, and economic effects? How is contemporary urbanization linked to global restructuring of other kinds.

Same as SOC SCI 254J, SOCIOL 252A.

Restriction: Graduate students only.

PP&D 275. Special Topics in Urban Planning. 4 Units.
Special topics in urban and regional planning are offered from time to time, but not on a regular basis. Course content varies with interest of the instructor.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PP&D 278. Culture, Community, and Space. 4 Units.
Covers how cultures relate to natural and built physical environments. Ways in which culture influences space; ways space influences culture. Concepts for understanding the interrelationship, including values, norms, traditions, religion, and place attachment. Culture and cities, urban form, ethnic communities.

Restriction: Graduate students only.

PP&D 279. Theories of Power and Empowerment. 4 Units.
Studies different ways of thinking about power and its uses. Explores theories of power that inform various notions of empowerment, including resistance, participatory democracy, and workplace empowerment.

Same as POL SCI 223A, SOCIOL 271, MGMTPHD 297R.

Restriction: Graduate students only.

PP&D 282. Urban Design Studio for Planners: An Introduction. 4 Units.
Introductory urban design for planners. Organized around a variety of assignments to encourage learning by design in a studio setting. Students work on design projects and drawing assignments to learn practical aspects of urban design.

Restriction: Graduate students only.

PP&D 283. Collaborative Governance and Public Management. 4 Units.
Introduction to inclusive management. To make effective use of public resources, public managers are inventing ways of managing that alter relationships within organizations, between organizations, between sectors, and with the public. Requires rethinking fundamentals such as leadership and motivation.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 283.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

PP&D 284. Theories of Public Policy. 4 Units.
Focuses on two important theorists with the aim being to study not so much their theory, but their mode of theorizing. Taking them two at a time (e.g., Foucault, Bourdieu) allows us to understand each more deeply through the comparison.

Restriction: Graduate students only.

PP&D 288. Environment-Behavior Studies. 4 Units.
Provides an overview of major theoretical and research perspectives within the field of environment-design research/environment-behavior studies (EBS). Reviews contributions to EBS from architecture, planning, geography, psychology, sociology, and other fields.

Restriction: Graduate students only.

PP&D 292. Professional Report. 4 Units.
Workshop designed to assist M.U.R.P. students in conducting their professional reports. Students select topics, design projects, conduct professional investigations, and write up reports.

PP&D 292A. Professional Report Seminar I. 4 Units.
Provides an introduction to prepare students for writing a professional planning report. Students learn how to diagnose a planning problem; select appropriate analytical methods to assess the problem; pose, evaluate, and recommend alternative approaches to addressing the problem.

Restriction: Graduate students only.

PP&D 292B. Professional Report Seminar II. 4 Units.
Students write and deliver oral presentations in a manner appropriate for professional planning, which includes peer feedback from these presentations. Includes lectures, student assignments, and guest speakers. "Deliverables" and due dates are treated as fixed and contractual professional commitments.

Prerequisite: PP&D 292A.

Restriction: Graduate students only.

PP&D 293. Research Practicum. 4 Units.
Through reading, discussion, and review of existing research proposals, and implementation of preliminary work for dissertation research, students enhance their knowledge of research design and methods, as well as develop skills to write a proposal for dissertation funding.

Prerequisite: PP&D 297.

Restriction: Graduate students only.

PP&D 294A. Urban Planning Practicum I. 4 Units.
Engages students in practical planning projects in the community under a central theme within Planning. Students take a problem-solving approach and employ and further develop data gathering, analysis, graphic and oral communication, public engagement, and report writing skills.

Restriction: Graduate students only.

PP&D 294B. Urban Planning Practicum II. 4 Units.
Engages students in practical planning projects in the community under a central theme within Planning. Students take a problem-solving approach and employ and further develop data gathering, analysis, graphic and oral communication, public engagement, and report writing skills.

Prerequisite: PP&D 294A.

Restriction: Graduate students only.

PP&D 295. Master's Thesis Research and Writing. 1-8 Units.
Independent research with Planning, Policy, and Design faculty.

Prerequisite: Advancement to candidacy.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PP&D 296. Doctoral Dissertation Research and Writing. 2-12 Units.
Dissertation research with Planning, Policy, and Design faculty.

Prerequisite: Advancement to candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PP&D 297. Research Design. 4 Units.
Provides training in research design and methods. Students learn how to evaluate the strength of research findings based on the methods used by a researcher and learn to use lessons from the course to develop a research proposal.

Same as PUBHLTH 297.

Restriction: Graduate students only.

PP&D 298. Directed Studies in Urban Planning. 2-4 Units.
Directed Studies in Urban Planning.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PP&D 299. Independent Study in Urban Planning. 2-8 Units.
Independent Study in Urban Planning.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

Public Policy Courses

PUB POL 219. Information and Public Policy. 4 Units.
Evaluates strengths and weaknesses of qualitative and quantitative methods and the data used in making public policy claims. Looks at the bases of certain widely accepted measures of poverty, growth, environmental quality, and the like.

Repeatability: May be taken for credit 2 times.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

PUB POL 221. Public Policy . 4 Units.
Explores different approaches to public policy analysis, the diverse conceptions of the goals and objectives that should be served by policy, and the appropriate role of the policy analyst. Policy consequences are traced to indirect and subtle incentives and disincentives.

Repeatability: May be taken for credit 2 times.

Same as PP&D 221.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

PUB POL 225. Qualitative Methods . 4 Units.
Fieldwork, data collections techniques, and related issues for anti-positivistic research. Data collection techniques include observation, physical traces, participation, in-depth interview. Data checks include veracity, detail, completeness, rigor.

Repeatability: May be taken for credit 2 times.

Same as PP&D 220.

Restriction: Master of Public Policy graduate students only.

PUB POL 240. Microeconomics and Public Policy. 4 Units.
Introduces the fundamental principles of microeconomics that are required for applied policy analysis. Provides students with an intuitive understanding of the microeconomic approach, and familiarizes them with concepts used in applied public policy analysis.

Repeatability: May be taken for credit 2 times.

Same as ECON 255.

Restriction: Graduate students only.

PUB POL 283. Collaborative Governance and Public Management. 4 Units.
Introduction to inclusive management. To make effective use of public resources, public managers are inventing ways of managing that alter relationships within organizations, between organizations, between sectors, and with the public. Requires rethinking fundamentals such as leadership and motivation.

Repeatability: May be taken for credit 2 times.

Same as PP&D 283.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

Department of Psychology and Social Behavior

4201 Social & Behavioral Sciences Gateway; 949-824-5574
http://psb.soceco.uci.edu/
Linda J. Levine, **Department Chair**

The Department of Psychology and Social Behavior is concerned with human behavior in social contexts. A major objective is to investigate how different social environments (e.g., the family, school, workplace, culture) affect health and human behavior across the life span. The Department's faculty share a strong commitment to interdisciplinary scholarship and research that has the potential for application to important societal problems. Students begin with basic course work in developmental psychology, health and preclinical (abnormal) psychology, and social and environmental psychology. Subsequent courses cover such topics as social, emotional, and cognitive development in children, adolescents, adults, and the elderly; behavior disorders and developmental psychopathology; cultural, social, and personality influences on behavior; attitude formation and change; health psychology; cognition and emotion; stress and coping; psychology and the law; and counseling and therapy. Opportunities are available to work with faculty members on research in these and other areas. Obtaining research experience as an undergraduate also provides a valuable background for entry into many graduate programs.

Students are given a foundation that will enable them to pursue graduate work in psychology, public health, health services, social work, counseling, or education, or to work after graduation from UCI in both the private and public sectors. Field study opportunities include hospital settings, social service agencies, educational institutions, and community health clinics and counseling centers, among others.

Students should be aware that psychology courses are offered in several different departments and programs at UCI. Students interested in developmental, clinical, social, emotional, health, cross-cultural, or environmental psychology, or in psychology and the law, are advised to consult the course listings here in the Department of Psychology and Social Behavior section. These courses offer students a solid foundation in general psychology. Students interested in language, perception, sensorimotor integration, memory, learning, mathematical psychology, and neuroscience are advised to consult the course listings in the Department of Cognitive Sciences and the Francisco J. Ayala School of Biological Sciences sections of the *Catalogue.*

Undergraduate Program

Requirements for the B.A. Degree in Psychology and Social Behavior

All students must meet the University Requirements (p. 71)**.**
All students must meet the School Requirements (p. 1444)**.**

Departmental Requirements

Thirteen courses (52 units) as specified below:

A. Psychology Fundamentals (12 units):	
PSY BEH 11A	Psychology Fundamentals
PSY BEH 11B	Psychology Fundamentals
PSY BEH 11C	Psychology Fundamentals
B. Four upper-division core courses (16 units):	
PSY BEH 101D	Life Span Developmental Psychology

PSY BEH 102C	Abnormal Psychology
PSY BEH 103H	Health Psychology
PSY BEH 104S	Social Animal: An Introduction to Social Psychology
C. Six upper-division courses (24 units) chosen from the following:	
C-1. Choose one course from three different groups:	
Group 1: Developmental Psychology (PSY BEH 110D–134D)	
Group 2: Health Psychology (PSY BEH 118D, 135H–149H)	
Group 3: Pre-Clinical/Psychopathology (PSY BEH 150C–169C)	
Group 4: Social, Personality, and Environmental Psychology (PSY BEH 170S–189S)	
C-2. Three additional upper-division courses chosen from the specialty areas in C-1 above or from: [1]	
PSY BEH 100	Special Topics in Social Behavior
PSY BEH 190A–193Z	
PSY BEH 196	Research Seminar in Psychology and Social Behavior
SOCECOL H190A	Honors Research
SOCECOL H190W	Honors Research

[1] Three additional upper-division courses chosen from the specialty areas in C-1 above or from courses numbered Psychology and Social Behavior 100, 190-193Z, 196, Social Ecology H190A, and H190W. NOTE: Courses used to satisfy requirement C-1 cannot be used to satisfy C-2; a maximum of two courses from 192A-Z and one 196 course may be counted toward the major.

Psychology and Social Behavior Minor Requirements

The minor in Psychology and Social Behavior is met by completing eight courses (32 units). Students have the option of choosing between two versions of the minor as specified below:

Version 1:

PSY BEH 11A	Psychology Fundamentals
PSY BEH 11B	Psychology Fundamentals
PSY BEH 11C	Psychology Fundamentals
SOCECOL 10	Research Design
Select four courses from PSY BEH 100–193Z.	

or

Version 2:

PSY BEH 9	Introduction to Psychology
SOCECOL 10	Research Design
Select six courses from PSY BEH 100–193Z.	

Residence Requirement for the Minor: Six courses required for the minor must be completed successfully at UCI.

Excellence in Research in Psychology and Social Behavior

High-achieving students majoring in Psychology and Social Behavior can earn Excellence in Research in Psychology and Social Behavior by participating in a two-component program consisting of faculty-supervised research and courses in methodology and statistics. To be eligible for the program, students must have earned an overall 3.2 UC GPA in their junior year, with grades of B or above in the required methodology and statistics courses (SOCECOL 10, SOCECOL 13, SOCECOL 111, and PSY BEH 190). Students will work with a faculty mentor during at least two quarters of the junior year in PSY BEH 196 or SOCECOL 198 or SOCECOL 199. Successful completion of the program also requires faculty-mentored research (SOCECOL H190A-SOCECOL H190B) and completion of a senior research thesis or a report at a research conference (SOCECOL H190W). Applications for the program are submitted in the spring quarter of the senior year, after completion of all requirements.

Graduate Program

For general information about the School of Social Ecology's graduate programs, including admission requirements, career opportunities, and Ph.D. program milestones can be found in the School of Social Ecology Graduate (p. 1448) section of the *Catalogue*. Specific information about the Department of Psychology and Social Behavior's graduate program appears below.

Ph.D. in Psychology and Social Behavior

The Department of Psychology and Social Behavior offers a Ph.D. program in Psychology and Social Behavior. The main goal of this program is to train behavioral scientists to apply theory and methods in psychology, together with perspectives and knowledge from allied disciplines, to the analysis of human behavior and health across the life span and in diverse sociocultural contexts. This program values both basic and applied research that is relevant to the improvement of individual, community, and societal functioning. Emphasis is placed on the integration of knowledge from several subspecialties in psychology in order to understand the antecedents and developmental course of adaptive or maladaptive behavior and on the conduct of research that has implications for social policies, programs, and interventions.

Training in this program emphasizes four core areas of psychology. The specialization in **Developmental Psychology** focuses on the development of individuals at various periods in the life course and the effects of varying social and cultural contexts on cognitive, social, and health outcomes. **Health Psychology** focuses on identifying, evaluating, and enhancing the psychosocial and behavioral factors that promote mental and physical health, prevent disease, and optimize medical treatments. The specialization in **Affective Science** focuses on the effects of emotion, motivation, and values on human reasoning, behavior, and health in typical and atypical populations, across the life span, and across cultures. **Social and Personality Psychology** focuses on the interrelations among attitudes, perceptions, motives, emotions, and personality characteristics as they affect individual functioning, interpersonal processes, and intergroup relations. In addition, several faculty offer courses and conduct research in the area of **Psychology and Law**, dealing with such issues as the malleability of memory processes, the ability of jurors to understand scientific evidence, the impact on children and adolescents of contact with the legal system, and the response of the legal system to individuals with severe personality disorders.

Students will learn to understand human behavior from a social ecological, contextual perspective. They will be exposed to the major theories in each specialization and learn various social science research methods. All students are encouraged to become actively involved in research from the earliest stage of their training. Through close association with faculty members and participation in the faculty's research projects, students learn to conduct methodologically sophisticated research that addresses contemporary psychological and social issues. Current research teams are investigating stress, coping, and social support; biobehavioral mechanisms of cardiovascular reactivity; psychobiology of stress; personality factors that increase resilience to health threats; parent-child relations; work and family; transitions across the life course; adaptive aging; end-of-life medical decision making; culture and adolescent psychosocial development; cultural influences on social judgment; relations between cognitive and emotional development; emotion regulation; memory and eyewitness testimony; violence and anger management; the development of health-risking and health-protecting behaviors during childhood and adolescence; economic stress and psychopathology/behavioral disorders; health impacts of environmental stressors; mental health and psychopathy; juvenile and criminal justice; positive psychology; and person-environment fit.

All students take eight required core courses:

PSY BEH P201	Research Methods in Psychology
PSY BEH P264A	Quantitative Methods in Psychology
PSY BEH P264B	Advanced Quantitative Methods in Psychology
SOCECOL 200	Seminar in Social Ecology
An additional research methods/data analysis course from an approved list	
PSY BEH P209A	Applied Psychological Research
PSY BEH P231	Professional Issues in Psychology
PSY BEH P294A- P294B- P294C	Research Directions in Psychology and Social Behavior and Research Directions in Psychology and Social Behavior and Research Directions in Psychology and Social Behavior

The course on Applied Research PSY BEH P209A introduces students to the scientific, professional, and ethical issues involved in conducting and translating psychological research in a variety of applied settings. Some students may wish to take a complementary (optional) course, PSY BEH P209B, that provides the opportunity for a supervised research internship in an appropriate community setting. The three-quarter course Research Directions in Psychology and Social Behavior (PSY BEH P294A-PSY BEH P294B-PSY BEH P294C) allows students to increase their breadth of knowledge regarding contemporary issues and controversies in psychology and social behavior by participating in the Department's weekly colloquium series and interacting with visiting scholars and other speakers.

Students must select one of four core specialization areas in which to further focus their graduate training. Additional course requirements vary across each specialization.

Health Psychology Specialization

PSY BEH P258	Health Psychology
and three additional courses from approved health electives	

Social and Personality Specialization

PSY BEH P214	Seminar in Social Psychology
or PSY BEH P233	Personality
and three additional courses from an approved list	

Affective Science Specialization

PSY BEH P226	Emotion in Psychology
or PSY BEH P250	Emotion, Reasoning, and Memory
and three additional courses from an approved list of Affective Science electives	

Developmental Psychology Specialization

PSY BEH P220	Developmental Psychology: Theories and History
and three additional courses from approved developmental electives	

In addition to selecting a core specialization area, students are also required to select a minor specialization and complete one required specialization course and one elective course in this area. The minor specialization and elective courses should be chosen according to the plan that best meets the needs of the individual student, as determined in consultation with the student's faculty advisor and the departmental graduate advisor. In addition to courses offered by the Department of Psychology and Social Behavior and the School of Social Ecology, students may take courses offered by other departments in other schools such as the Departments of Cognitive Science, Anthropology, and Sociology in the School of Social Sciences and the Department of Neurobiology and Behavior in the School of Biological Sciences. Approval from instructors is required to enroll in these courses.

Finally, students who are interested can pursue an optional training track in psychology and law. This track is supplemental to the requirements associated with the required specializations and supplemental to the required minor. That is, all students must complete the above-listed requirements for their specialization and minor. Then, if the student decides to complete the training track in psychology and law, this training is in addition to the requirements listed above. For the training track, a total of four courses must be taken, one required (PSY BEH P266 Psychology and the Law) and three electives. The electives must be approved by the student's faculty mentor and departmental advisor and can be a course in PSB, or in the School of Social Ecology or School of Law, with instructor and school approval.

Students complete a supervised research project during their second year culminating in a paper that may form the basis for a publication. They take a written comprehensive examination during their third year, which requires them to demonstrate mastery of the principles of social ecology and of major theoretical, substantive, and methodological issues in the study of their major and minor specializations and in the psychology of human behavior. The normative time for advancement to candidacy is four years. The fourth year is devoted to developing and defending a dissertation proposal, and the fifth year is spent completing the dissertation research. The normative time for completion of the Ph.D. is six years. Students must complete all requirements for the Ph.D. in Psychology and Social Behavior no later than their seventh year of study, adjusted for any approved leaves of absence that may have been taken. It is expected that most students will complete the degree requirements well in advance of this deadline. All Ph.D. students in the Psychology and Social Behavior program are required to pass a final oral defense of the dissertation.

Potential employment sites for graduates of the program include academic institutions, research organizations, government policy institutes, health care and human services settings (e.g., hospitals, schools, community agencies), and a variety of private sector employers. The Ph.D. Program in Psychology and Social Behavior specializes in the training of researchers, not in the training of clinical practitioners.

Program in Law and Graduate Studies (J.D./Ph.D.). Highly qualified students interested in combining the study of law with graduate research and/or research qualifications in cognate disciplines are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students approved for this concurrent degree program may pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Ph.D. degree in Psychology and Social Behavior. The objective of the program is to promote interdisciplinary study of law while also enabling students to obtain both a J.D. and a graduate degree in less time than would be required to acquire both degrees separately. The normative time for completion is seven years for the J.D./Ph.D. combination.

Applicants must submit separate applications for admission to the School of Law and to Psychology and Social Behavior. Once admitted for study into both components of their program, concurrent degree students will work with the PLGS director and the PSB graduate advisor to develop a program of study that will permit efficient pursuit of both degrees. Ordinarily, students will commence their studies in PSB and begin their first year of law school instruction after one or more years of graduate program training. Upon completion of the first year of law instruction, students will pursue a coordinated curriculum of upper-level law study and PSB graduate program courses and research. Concurrent degree students' law enrollments will include a required 1-unit "Graduate Legal Studies" colloquium and 3-unit "Interdisciplinary Perspectives on Law" course. Concurrent degree students will be eligible for financial support through PSB while pursuing the Ph.D. and through the law school while pursuing law studies.

Faculty

Belinda Campos, Ph.D. University of California, Berkeley, *Associate Professor of Chicano/Latino Studies; Psychology and Social Behavior* (culture, relationships, positive emotion, health)

Elizabeth E. Cauffman, Ph.D. Temple University, *UCI Chancellor's Fellow* and *Professor of Psychology and Social Behavior; Education; Psychology and Social Behavior; School of Law* (adolescent development, mental health, juvenile justice, legal and social policy)

Susan T. Charles, Ph.D. University of Southern California, *UCI Chancellor's Fellow* and *Professor of Psychology and Social Behavior* (emotional processes across the adult life span, subjective experience and cognitive processes, health and emotion)

Chuansheng Chen, Ph.D. University of Michigan, *Professor of Psychology and Social Behavior; Education* (cross-cultural psychology, adolescent development, cognitive neuroscience, genes and behavior)

Jacqueline Chen, Ph.D. University of California, Santa Barbara, *Assistant Professor of Psychology and Social Behavior* (experimental social psychology, diversity and intergroup relations, social cognition, cultural psychology)

Joey Cheng, Ph.D. University of British Columbia, *Assistant Professor of Psychology and Social Behavior* (social hierarchies, psychology of social status, nonverbal cues of power and status, social contagion)

Thomas J. Crawford, Ph.D. Harvard University, *Senior Lecturer with Security of Employment Emeritus of Psychology and Social Behavior* (attitude theory and social problems research)

Sally S. Dickerson, Ph.D. University of California, Los Angeles, *Associate Professor of Psychology and Social Behavior* (health psychology, stress physiology, effects of social and emotional processes on physiology and health)

Peter H. Ditto, Ph.D. Princeton University, *Professor of Psychology and Social Behavior* (social psychology, judgment and decision making, political and moral reasoning)

C. David Dooley, Ph.D. University of California, Los Angeles, *Professor Emeritus of Psychology and Social Behavior* (community psychology, epidemiology, economic change)

Greg Duncan, Ph.D. University of Michigan, *UCI Distinguished Professor of Education; Economics; Psychology and Social Behavior* (economics of education, program evaluation, child development)

Jacquelynne S. Eccles, Ph.D. University of California, Los Angeles, *UCI Distinguished Professor of Education; Psychology and Social Behavior* (academic motivation and achievement, school and family influences on adolescent development, gender and ethnicity in STEM fields)

Michelle Fortier, Ph.D. University of Nebraska, *Assistant Professor in Residence of Anesthesiology and Perioperative Care; Psychology and Social Behavior* (pediatric pain management, pediatric oncology, family-centered medicine, complementary and alternative medicine (CAM), health information technology, coping with illness-related Stress)

Wendy A. Goldberg, Ph.D. University of Michigan, *Professor of Psychology and Social Behavior; Education* (developmental psychology, work and family, infant sleep, transition to parenthood, autism)

Ellen Greenberger, Ph.D. Harvard University, *Professor Emerita of Psychology and Social Behavior* (developmental psychology, social and cultural influences on adolescent and young adult development, family relationships and consequences throughout the lifespan)

Jutta Heckhausen, Ph.D. University of Strathclyde, *Professor of Psychology and Social Behavior* (life-span developmental psychology, motivation, individual agency and social context)

Barb J. Heine, Ph.D. Saint Louis University, *Lecturer of Psychology and Social Behavior*

Larry D. Jamner, Ph.D. State University of New York at Stony Brook, *Professor of Psychology and Social Behavior* (health psychology, psychophysiology, pain, mHealth)

Linda J. Levine, Ph.D. University of Chicago, *Professor of Psychology and Social Behavior* (bias in predicted and remembered emotion, how emotions influence the features of events people attend to and remember, the development of children's ability to regulate emotion)

Elizabeth F. Loftus, Ph.D. Stanford University, *UCI Distinguished Professor of Psychology and Social Behavior; Cognitive Sciences; Criminology, Law and Society; School of Law* (cognitive psychology, human memory, psychology and law)

Angela F. Lukowski, Ph.D. University of Minnesota, *Assistant Professor of Psychology and Social Behavior* (memory development in infancy and early childhood, individual differences in long-term memory in infancy, the impact of sleep on cognitive functioning from infancy to adulthood)

Salvatore R. Maddi, Ph.D. Harvard University, *Professor of Psychology and Social Behavior* (personality, psychopathology, health psychology, creativity)

Elizabeth Martin, Ph.D., University of Missouri, *Assistant Professor of Psychiatry and Human Behavior* (transdiagnostic emotional and social functioning, affective control and regulation, relations between affect and cognition)

Stephanie McEwan, Psy.D. United States International University, J.D. American College School of Law, *Lecturer of Psychology and Social Behavior* (neurosciences, clinical psychology, sport psychology, psychopathology, psychoanalytic psychotherapy, psychoanalysis and emergency trauma)

Raymond W. Novaco, Ph.D. Indiana University, *Professor of Psychology and Social Behavior* (anger, violence, stress, trauma, and interventions)

Paul Piff, Ph.D. University of California, Berkeley, *Assistant Professor of Psychology and Social Behavior* (social hierarchy, emotion, uncertainty, nature, groups, prosocial behavior, ethics, morality)

Joann Prause, Ph.D. University of California, Irvine, *Senior Lecturer of Psychology and Social Behavior* (statistics, quantitative epidemiology, employment typology)

Sarah D. Pressman, Ph.D. University of Pittsburgh, *Assistant Professor of Psychology and Social Behavior* (health psychology, positive emotions, stress physiology, psychosocial effects on physiology and health)

Jodi A. Quas, Ph.D. University of California, Davis, *Professor of Psychology and Social Behavior* (memory development, children's involvement in the legal system)

Stephanie Reich, Ph.D. Vanderbilt University, *Associate Professor of Education; Psychology and Social Behavior* (child development, parenting, peer interactions, media, program evaluation)

Karen S. Rook, Ph.D. University of California, Los Angeles, *Professor of Psychology and Social Behavior* (gerontology, social relationships and health)

Shawn W. Rosenberg, M.S. Oxford University, *Professor of Political Science; Psychology and Social Behavior* (political psychology, deliberative democracy, ideology, social theory, social and development psychology)

Sabrina E. Schuck, Ph.D. University of California, Riverside, *Health Sciences Assistant Clinical Professor of Pediatrics; Psychology and Social Behavior* (ADHD, autistic spectrum disorders, disorders of reading and written language, human-animal intervention, non-pharmacological treatment of disruptive behavior, cognitive-behavioral school-based and family-based interventions)

Nicholas I. Scurich, Ph.D. University of Southern California, *Assistant Professor of Psychology and Social Behavior; Criminology, Law and Society* (judgment and decision making, juridical proof, violence risk assessment)

Roxane C. Silver, Ph.D. Northwestern University, *Professor of Psychology and Social Behavior; Program in Public Health* (coping with traumatic life events (personal losses and collective traumas), stress, social psychology, health psychology)

Eric Spangenberg, Ph.D. University of Washington, M.B.A. Portland State University, *Dean of The Paul Merage School of Business* and *Professor of Paul Merage School of Business; Psychology and Social Behavior* (sensory cues in the retail environment and the effects of self-prediction on behavior)

Mark Steyvers, Ph.D. Indiana University, *Professor of Cognitive Sciences; Psychology and Social Behavior* (wisdom of crowds, aggregating human judgments, computational models of the mind, machine learning and statistics, memory and decision making)

Daniel S. Stokols, Ph.D. University of North Carolina at Wilmington, *Professor Emeritus of Psychology and Social Behavior; Epidemiology; Planning, Policy, and Design; Program in Public Health* (environmental psychology, science of team science, transdisciplinary public health)

William C. Thompson, Ph.D. Stanford University, *Professor of Criminology, Law and Society; Psychology and Social Behavior; School of Law* (psychology and law, criminal justice, forensic science, expert evidence, human judgment and decision making, use of social science in appellate litigation)

Deborah Lowe Vandell, Ph.D. Boston University, *Dean of the School of Education* and *Professor of Education; Psychology and Social Behavior* (P-20 education, longitudinal studies of development)

Carol K. Whalen, Ph.D. University of California, Los Angeles, *Professor Emerita of Psychology and Social Behavior* (developmental psychopathology, childhood behavior disorders, child therapies, health psychology)

Ilona S. Yim, Ph.D. University of Trier, *Associate Professor of Psychology and Social Behavior* (stress, pregnancy and postpartum depression, biopsychology of stress, developmental psychobiology)

Joanne F. Zinger, Ph.D. University of California, Riverside, *Lecturer with Security of Employment of Psychology and Social Behavior* (expressive writing, meta-analysis, positive psychology, health psychology, preventive medicine, educational psychology)

Courses

PSY BEH 9. Introduction to Psychology. 4 Units.
Introduction to field of psychology, addressing the application of scientific methods to the study of human development, learning, memory, problem solving, perception, biological mechanisms, emotions and motivation, personality, psychopathology, and effects of diverse social and cultural contexts on human behavior. Course may be offered online.

Same as PSYCH 7A.
Overlaps with PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B.

Restriction: Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSY BEH 11A. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSYCH 9A.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSY BEH 11B. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSYCH 9B.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSY BEH 11C. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSYCH 9C.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSY BEH 100. Special Topics in Social Behavior. 4 Units.
Special topics courses are offered from time to time. Course content varies with interest of instructor.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Repeatability: Unlimited as topics vary.

PSY BEH 101D. Life Span Developmental Psychology. 4 Units.
Addresses the major issues, concepts, and methods of life span developmental psychology. The fundamental theories, distinctive methods, and the physical, perceptual, cognitive, social, motivational, and emotional development for each developmental phase of the life course are considered. Course may be offered online.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Restriction: Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 102C. Abnormal Psychology. 4 Units.
Survey of disorders organized by the diagnostic categories of the American Psychiatric Association. Interdisciplinary orientation combines environmental, psychological, and organic perspectives on etiology and treatment.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and SOCECOL 10.

Overlaps with PSYCH 120A.

Restriction: Psychology and Social Behavior and Psychology majors have first consideration for enrollment.

PSY BEH 103H. Health Psychology. 4 Units.
Theory and research are considered as they contribute to an understanding of the role of psychological processes in health and illness. The distinction between prevention and treatment of illness is established, and a variety of psychosocial interventions are elaborated.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 104S. Social Animal: An Introduction to Social Psychology. 4 Units.
Theories and research exploring social behavior and social influences on behavior. Topics include methods of social research, attitude formation and change, social perception, the social self, stereotypes and prejudice, conformity, obedience, altruism, aggression, interpersonal relationships and love, and group behavior.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 110D. Infant Development. 4 Units.
Study of human development from conception through the first two years of life, covering processes and events in the domains of physical, social, and cognitive development.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 127I.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 111D. Child Development. 4 Units.
Examines social, emotional, and intellectual growth and development between the ages of 2 and 12 years.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Overlaps with PSYCH 120D.

Restriction: Psychology and Social Behavior and Social Ecology and Psychology majors have first consideration for enrollment.

PSY BEH 112D. Adolescent Development. 4 Units.
Examines current research on the biological, social, and cultural contexts of adolescent development. Topics include the impacts of puberty, adolescents' decision-making competencies, changes in family and peer relationships, identity development, and psychosocial problems such as depression and problem behavior.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Overlaps with PSYCH 21A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 113D. Adult Development. 4 Units.
Examines why and how we change (with attention to gains as well as losses) from ages 18-65 and the nature and sources of continuity over time. Topics include physical and intellectual functioning, personality, coping strategies, and social roles and relationships.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 127A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 114D. Gerontology. 4 Units.
Examines stereotypes and myths associated with aging; physiological and psychological changes that accompany old age; distinguishes behavior changes due to aging per se from those due to historical and socioeconomic factors; political, social aspects of old age in contemporary society.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 127G.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 116D. Human Development and Cross-Cultural Perspectives. 4 Units.
Human development in diverse cultures (e.g., Asian, American, and African). Special emphasis on East-West contrasts and when East meets West (i.e., Asian-American experiences). Topics include parenting, family relations, language and cognition, schooling and academic achievement, and morality.

Prerequisite: (PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B) and SOCECOL 10.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 117D. Development of Gender Differences. 4 Units.
Examination of research on how sexes differ in physiology, cognitive functioning, personality, and social behavior. Sex-differentiated development from the prenatal period through adulthood. Explanations for male-female differences are sought, focusing on biological (genetic, hormonal), and social (familial, cultural) mechanisms.

Prerequisite: PSY BEH 9 or PSYCH 9B or PSY BEH 11B or PSYCH 7A.

Same as PSYCH 127D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 118D. Human Sexuality. 4 Units.
A broad survey of human sexuality encompassing genetic factors, physiological and anatomical development, customary and atypical forms of behavior, reproductive processes, and cultural determinants.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 120D. Child Development, the Law, and Social Policy. 4 Units.
Examines how psychology research and practice can inform areas of law and social policy affecting children and adolescents. Topics include education, mental health, reproductive rights, and delinquency. Goals are to evaluate research and identify the costs/benefits of current policies.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C. Recommended: PSY BEH 111D OR PSY BEH 112D.

Same as CRM/LAW C125.

Restriction: Psychology and Social Behavior, Criminology, Law and Society and Social Ecology majors have first consideration for enrollment.

PSY BEH 121D. Work and Family. 4 Units.
Effects of employment and unemployment on mental health and marital quality; effects of work on parenting and child development; corporate and social policies for "families that work"; young adults' decision-making about work and family.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Upper-division students only. Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 123D. Child in the Family, School, and Community. 4 Units.
The ecological study of contexts in which the child develops and is socialized: the family, school, peer group, media, and community. Examines the impact of societal influences, such as culture, religion, economics, politics, and technology.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 135H. Introduction to Biopsychology. 4 Units.
Introductory overview of the biology of behavior with a focus on the structure and function of the brain. Selected behaviors (e.g., eating, sleeping) and psychological states (e.g., stress, psychiatric disorders) are addressed from a biopsychological perspective.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 136H. Behavioral Medicine. 4 Units.
Examines biobehavioral aspects of health and illness, focusing on how stress contributes to or exacerbates disease processes. Background information on psychosomatic medicine and stress models and detailed examination of specific organ systems emphasizing the reactivity of these systems to stress.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 137H. Human Stress. 4 Units.
Stress as a multidisciplinary topic. Biological, psychological, and sociological approaches to adaptation-related disorders. Effects of acute and chronic stress on emotions, physiology, and behavior. Methods of stress assessment, stress reduction, and intervention.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 138H. Child Health Psychology. 4 Units.
Exploration of psychological antecedents, concomitants, and consequences of medical illnesses in children. Children's beliefs about health, illness, and medication; the role of stress; coronary-prone behavior; therapeutic adherence and physician-patient interaction; coping with chronic illness; effects of child's illness on family.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 9C or PSYCH 7A. Recommended: SOCECOL 10.

Same as PSYCH 127H.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 139H. Sports Psychology. 4 Units.
Psychological components of athletic performance with regard to scientific and practical issues. Roles of cognitive processes, physiological arousal, and emotion. Various personality factors related to performance, competition, and coaching. Strategies for improving athletic performance for individual and team competition.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 140H. The Hardiness Approach to Stress Management. 4 Units.
New development within psychology involving a combination of motivations and skills that extensive research has shown enhances performance, conduct, morale, stamina, and health. Combines study of hardiness research with strategies for improvement of personal hardiness through a series of exercises.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 141H. Clinical Health Psychology. 4 Units.
Behavioral role in etiology, treatment, and prevention of certain diseases. Behavioral intervention including biofeedback, stress-, pain-management, health habit counseling, and other skills to assist patients make cognitive, emotional, and behavioral changes needed to cope with disease or achieve better health.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PUBHLTH 141.

Restriction: Public Health Sciences, Public Health Policy, and Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 150C. Clinical Psychology. 4 Units.
Overview of theories, assessment techniques, research methodologies and intervention approaches in clinical psychology. Psychodynamic, behavioral, humanistic, and cognitive perspectives are examined along with ethical and professional issues.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and SOCECOL 10.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 151C. Psychological Testing and Assessment. 4 Units.
Laboratory-seminar exploration of diverse methods of assessing, analyzing, and recording behavior. Includes methods of direct behavioral observation, structured (analog) assessments, rating scales, interviewing, and self-monitoring. Development of assessment skills and their application in intervention and research programs.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and PSY BEH 150C. Recommended: SOCECOL 10.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 152C. Clincal Child Psychology. 4 Units.
Examines research and theory concerning childhood psychopathology behavior disorders. Diagnosis and assessment, early identification of high-risk children, fears and phobias, antisocial behavior, childhood psychoses, autism, depression, attention deficit/hyperactivity disorders, and ethical and policy implications of identifying children who are different.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSYCH 127C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 153C. Developmental Psychopathology. 4 Units.
Research and theory of origins, course, and outcomes of disordered behavior. Continuity and change in patterns of behavior; environmental challenges and buffers; stress/competence in children; vulnerable/invincible children; children of mentally ill parents; families at risk; childhood antecedents of adult disorders.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 120A. Recommended: SOCECOL 10.

Same as PSYCH 177P.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 154C. Cognitive Behavior Therapy. 4 Units.
Presentation of principles and procedures of therapeutic interventions based on cognitive-behavior methods. Cognitive factors in learning, emotional arousal, psychological disorder, and psychotherapy reviewed. Introduces the application of cognitive behavioral methods to problems of depression, anxiety, anger, pain, and impulsivity.

Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSY BEH 11C) or PSYCH 7A or (PSYCH 9A and PSYCH 9C).

Same as PSYCH 147C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 155C. Child Therapies. 4 Units.
Examines research methodologies, empirical data, and implications of diverse intervention strategies. Primary topics include psychotherapy process and outcome, family therapies, behavioral intervention, cognitive behavior modification, pediatric psychopharmacology, and ethical and social policy implications of intervening in other people's lives.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 122C.

Same as PSYCH 127T.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 156C. Forensic Psychology: Advanced Seminar. 4 Units.
The focus is on the psychology of criminal offending, particularly violent behavior. Examines violence, sexual offending, and mental disorder related to crime with regard to clinical assessment and treatment; mental health services within forensic institutions.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and (PSY BEH 178S or CRM/LAW C149).

Same as CRM/LAW C136, PSYCH 177F.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Criminology, Law and Society majors have first consideration for enrollment.

PSY BEH 160C. Clinical Neuroscience. 4 Units.
Offers an introduction to the neuroclinical bases of human behavior, including neuropsychological approaches to mental disorders. Also includes case formulations, research articles, therapeutic approaches, and other discussions related to select psychopathology and other neurobehavioral topics.

PSY BEH 161C. Forensic Psychology. 4 Units.
Forensic psychology is the interface between clinical psychology and the law. Emphasizes clinically relevant legal topics (insanity defense; competency to stand trial)and includes critical thinking about issues arising when psychologists are involved in legal proceedings.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSY BEH 11C.

Same as CRM/LAW C160.

PSY BEH 162C. Psychodynamic Studies. 4 Units.
Introduction to psychoanalysis and contemporary psychodynamic studies. Emphasis on theories associated with psychoanalysis and psychodynamic psychotherapy, including unconscious determinants of behavior and influence of the past on the present. Exploration of links between psychodynamic studies and other disciplines(music, medicine, neuroscience).

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 170S. Personality. 4 Units.
Comparison of the major theories of personality. Provides a frame of reference for understanding lifestyles, development, maturity, and psychopathology. Emerging research themes are used to identify promising lines of personality theorizing.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Overlaps with PSYCH 120P.

Restriction: Sophomores only or upper-division students only. Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 171S. Environmental Psychology. 4 Units.
Impact of the physical environment on individual and group behavior. Three basic concerns examined: (a) environmental determinants of behavior at the individual and interpersonal level; (b) social planning and urban design; (c) methodological approaches to the study of environmental issues.

Prerequisite: SOCECOL E8 or SOCECOL 10 or PP&D 4.

Same as PP&D 151, PUBHLTH 151.

Restriction: Urban Studies, Social Ecology, Psychology and Social Behavior, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 173S. Social Relationships. 4 Units.
Examines major issues, concepts, and methods in the scientific study of social relationships. Topics include relationship formation and dissolution, friendships and love relationships, loneliness, bereavement, societal influences on close relationships, significance of close relationships for health and well-being.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and SOCECOL 10.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 174S. Error and Bias in Social Judgement. 4 Units.
Examines how people encode, reason about, and remember social information and explores how biases and shortcomings in social perception, judgment, and memory are central to understanding both effective social functioning and many forms of maladaptive behavior and social conflict.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 175S. Cognition and Emotion. 4 Units.
Examines relations between cognition and emotion. How have the relations between cognition and emotion been construed historically? How closely related are cognitive and emotional development? How do emotions influence reasoning and memory? How similar is emotional experience across cultures?.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 176S. Motivation. 4 Units.
History, major theories, methods, and applications of motivational psychology, with emphasis on European approaches. Origins of the field in personality, learning, cognition, and activation research. Recent innovations in motivational and volitional self-recognition. Current approaches, major debates, empirical research programs.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 101D and (PSY BEH 104S or PP&D 151).

Overlaps with PSYCH 121M.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 177S. Psychology and Emotion. 4 Units.
General theories of emotion and research regarding cognitive, behavioral, physiological, and subjective experience of emotion. Specific topics include emotion regulation, emotion and health, emotional intelligence, and emotional development.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSYCH 127E.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 178S. Violence in Society. 4 Units.
Current theory and research on aggression; anger and violence as problems in individual and social functioning. Process and functions of anger examined with regard to normal behavior and psychopathology. The determinants, prevalence, and implications of violence in society are analyzed.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as CRM/LAW C149.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 179S. Cultural Psychology. 4 Units.
An examination of culture's influence on human minds. Topics include culture's impact on perception, cognition, motivation, emotion, moral reasoning, communication, and health. Addresses cultural psychology's methods, history, and place within psychology and related fields.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSY BEH 11C or PSYCH 7A or PSYCH 9B or PSYCH 9C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 180S. Organizational/Industrial Psychology. 4 Units.
Introduction to applied psychology in organizations, including personnel testing, selection, training and evaluation, job and classification analysis, job satisfaction and motivation, organizational development, leadership, market research and consumer psychology. Potential ethical problems are discussed.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSY BEH 11B or PSY BEH 11C or PSYCH 7A or PSYCH 9A or PSYCH 9B or PSYCH 9C.

Same as PSYCH 122I.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 183S. Social Epidemiology. 4 Units.
Overviews evidence linking environmental factors to mental and physical disorders including such variables as socioeconomic status, income inequality, work stress, job loss, social capital, location, and other demographic characteristics. Measurement and research design issues of both individual and aggregate levels.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and SOCECOL 10 and SOCECOL 13.

Same as PUBHLTH 102.

Restriction: Psychology and Social Behavior, Social Ecology, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment.

PSY BEH 184S. Positive Psychology . 4 Units.
The field of positive psychology focuses on what is right and positive about people and institutions. Course introduces findings associated with human strengths and positive emotions and provides clinical and personal applications and implications.

Prerequisite: PSY BEH 9 or PSY BEH 11C.

Restriction: Psychology and Social Behavior and Social Ecology majors have first consideration for enrollment.

PSY BEH 190. Applied Statistics in Psychological Research. 4 Units.
Covers statistical techniques used to describe and make generalizations about phenomena represented by data. Hands-on experience in data analysis and interpretation using statistical software (SPSS, STATA) is emphasized. Topics include data visualization, ANOVA, multiple regression, and categorical data analyses.

Prerequisite: SOCECOL 13.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192A. History of Psychology. 4 Units.
A history of the development of various schools and systems of psychological thought.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSYCH 120H.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192E. Perception and Sensory Processes. 4 Units.
A general introduction to the scientific study of sensory processes and perceptual phenomena, with special emphasis on the visual system.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.

Same as PSYCH 130A.
Overlaps with PSYCH 131A, PSYCH 131B.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192G. Cognitive Science. 4 Units.
Introduction to investigations of the structure and function of the mind, from viewpoints of computation, neuroscience, philosophy, and cognitive psychology. Topics include: perception, attention, knowledge representations, learning and memory, action, reasoning, and language.

Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSYCH 11B) or PSYCH 7A or (PSYCH 9A and PSYCH 9B).

Same as PSYCH 140C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192I. Principles of Learning Theory. 4 Units.
Investigation of the learning and memory processes of humans and animals. Basic experimental approaches to learning and memory, empirical results, and theoretical interpretations of the evidence are discussed.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.

Same as PSYCH 140L.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192J. Human Memory. 4 Units.
Developments in the area of memory; history of memory research; theories of the nature of memory. Visual memory, recognition memory, high-speed scanning, free recall, short-term memory, mnemonics, retrieval, relationship of memory to thinking. Selected theoretical formulations for memory.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 140M.
Overlaps with PSYCH 46A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192K. Human Problem Solving. 4 Units.
Modern developments in the psychology of human problem solving. Topics include: concept identification, arithmetic, sets, logic puzzles, story problems, group problem solving, and theorem proving.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSYCH 143P.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192L. Introduction to Cognitive Neuroscience. 4 Units.
Introduction to the neural basis of human perceptual, motor, and cognitive abilities. Topics include sensory perception, motor control, memory, language, attention, emotion, frontal lobe function, functional brain imaging, and neuropsychological disorders.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or BIO SCI 35 or BIO SCI N110.

Same as PSYCH 160A, BIO SCI N166.

Restriction: Psychology majors have first consideration for enrollment.

PSY BEH 192P. Perceptual Neuroscience. 4 Units.
Examines the physiology of cortical networks underlying human perceptual experience.

Prerequisite: PSYCH 160A or PSY BEH 192L.

Same as PSYCH 161P.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSY BEH 192Q. Chicano/Latino Social Psychology. 4 Units.
Examines theories, research, and major issues of relevance to understanding social psychological processes in Chicano/Latino populations. Topics include social development, cultural orientations, gender and sexuality, close relationships, happiness and well-being, stereotyping, prejudice and discrimination, and mental and physical health.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as CHC/LAT 168.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

PSY BEH 192R. Culture and Close Relationships. 4 Units.
Examines cultural influences on close relationship processes including attraction, love, friendship, family, social support, and significance of close relationships for health and well-being. National and ethnic sources of cultural variation examined include Latin America, Asia, Africa, and the Middle East.

Same as CHC/LAT 177.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

PSY BEH 192RW. Culture and Close Relationships. 4 Units.
Examines cultural influences on close relationship processes including attraction, love, friendship, family, social support, and significance of close relationships for health and well-being. National and ethnic sources of cultural variation examined include Latin America, Asia, Africa, and the Middle East.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as CHC/LAT 177W.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(Ib, VII)

PSY BEH 192S. Health and the Latino Paradox. 4 Units.
Examines research and theories concerning the physical and mental health of U.S. Latino populations. Contemporary accounts, health care implications, and new directions for understanding sources of risks and resilience for health in Latino populations are evaluated and discussed.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as CHC/LAT 178.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

PSY BEH 192T. Cognition and Learning in Educational Settings. 4 Units.
Foundational concepts in cognition and development as applied to student learning. Primary topics include historical behaviorism, basic cognitive structure and processes, complex cognition, cognitive development, and motivation.

Same as EDUC 173.

Restriction: Psychology and Social Behavior, Social Ecology, Education, and Psychology majors have first consideration for enrollment.

PSY BEH 192U. Psychology of Learning, Abilities, and Intelligence. 4 Units.
Overview of classic positions on the mind, human abilities, and intelligence, especially as related to academic achievement. Contrasting views: psychometric versus information processing; experimental versus correlational research.

Prerequisite: PSYCH 7A or PSY BEH 9.

Same as EDUC 176.

Restriction: Psychology and Social Behavior, Social Ecology, and Education majors have first consideration for enrollment.

PSY BEH 192V. Language and Literacy. 4 Units.
Addresses the linguistic principles and processes that underlie oral and written language proficiency. Emphasis is on how to use phonology, morphology, orthography, semantics, syntax, and pragmatics to support literacy and oral language development for K-12 students.

Same as EDUC 151.

Restriction: Psychology and Social Behavior, Social Ecology, Education, and Psychology majors have first consideration for enrollment.

PSY BEH 193B. Juvenile Delinquency. 4 Units.
Patterns of delinquent behavior, theories that explain behavior, current research aimed at enhancing exploratory power. Attempts to prevent and control delinquency are put in historical perspective. Development of the current juvenile justice system and evolution of modern juvenile law.

Prerequisite: CRM/LAW C7.

Same as CRM/LAW C109.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 193C. Social Control of Delinquency. 4 Units.
Assumes familiarity with theories of delinquency, the juvenile justice system, and elements of juvenile law. Explores socio-historical origins and evolution of juvenile justice, current research and policy on delinquency prevention and treatment, and future directions of law, policy, and practice.

Prerequisite: Prerequisite or corequisite: CRM/LAW C7. Recommended: CRM/LAW C109.

Same as CRM/LAW C164.

Restriction: Psychology and Social Behavior, Social Ecology, Criminology, Law and Society, and Psychology majors have first consideration for enrollment.

PSY BEH 193D. Interrogation, Confession, and the Law. 4 Units.
In-depth examination of social psychology of police interrogation in America, the evolution of American interrogation practices from the nineteenth century to the present, impact of law on police behavior and ideology, causes and consequences of false confessions, possibilities of reform.

Same as CRM/LAW C152.

Restriction: Psychology and Social Behavior, Social Ecology, and Criminology, Law and Society majors have first consideration for enrollment.

PSY BEH 193E. Psychology and the Law. 4 Units.
Psychological assumptions of American legal system and mental health aspects of provision of criminal justice services. Civil commitment, insanity defense, competence to stand trial, jury selection, eye-witness identification. Use of police, courts, correctional institutions in prevention of behavior disorder.

Prerequisite: CRM/LAW C7 or CRM/LAW C101.

Same as CRM/LAW C105.

Restriction: Criminology, Law and Society, Social Ecology, and Psychology and Social Behavior majors have first consideration for enrollment.

PSY BEH 193F. Family Law. 4 Units.
Examines legal issues surrounding marriage, cohabitation, divorce, child custody and support, adoption, and the rights of parents and children in the family context. The findings of social science research are used to illuminate the legal issues.

Prerequisite: CRM/LAW C7 or CRM/LAW C101.

Same as CRM/LAW C123.

Restriction: Psychology and Social Behavior, Social Ecology, and Criminology, Law and Society majors have first consideration for enrollment.

PSY BEH 193G. Eyewitness Testimony. 4 Units.
Faulty eyewitness testimony is a major cause of wrongful convictions. Covers the fast-growing topic of eyewitness testimony and memory for real-world events, both how psychologists study eyewitness capacity, and how the legal system has dealt with eyewitness issues.

Prerequisite: SOCECOL 10.

Same as CRM/LAW C177.

Restriction: Psychology and Social Behavior, Criminology, Law and Society and Social Ecology majors have first consideration for enrollment. Seniors only.

PSY BEH 196. Research Seminar in Psychology and Social Behavior. 4 Units.
Special topics research seminar. Content varies with interest of instructor. Capstone seminar for students who have conducted research with, or have a background in, the research topics of the PSB faculty member offering this seminar in a given quarter.

Prerequisite: PSY BEH 11C.

Repeatability: May be repeated for credit unlimited times.

Restriction: Upper-division students only.

PSY BEH P201. Research Methods in Psychology. 4 Units.
In-depth examination of the conceptualization of research problems and linkages between theory and the design of appropriate strategies for empirical research in psychological science. Topics include experimental and quasi-experimental designs, reliability and validity of measurement and non-experimental procedures.

Restriction: Psychology and Social Behavior graduate students only.

PSY BEH P204. Adolescence. 4 Units.
Considers pubertal and cognitive changes and their social consequences; the family, peer group, school, and cultural contexts in which adolescence is embedded; and selected psychosocial issues including autonomy, identity, health, and well-being.

Restriction: Graduate students only.

PSY BEH P209A. Applied Psychological Research. 4 Units.
Focuses on scientific and professional issues in the field of psychology. Topics include communication skills; intervention approaches; collaboration, consultation, and referral; and ethical issues associated with at-risk populations research.

Restriction: Graduate students only.

PSY BEH P212. Social Cognition. 4 Units.
Explores historical and current developments in cognitive social psychology. Topics include judgment and decision making, automatic versus controlled processing, affective forecasting, motivated reasoning, and the effects of emotion on memory and judgment.

Restriction: Graduate students only.

PSY BEH P214. Seminar in Social Psychology. 4 Units.
Presents an overview of selected theoretical and empirical topics in social psychology including social influence and conformity, altruism and aggression, persuasion and attitude change, self and social perception, and social cognition.

Restriction: Graduate students only.

PSY BEH P218. Infancy. 4 Units.
Covers development from conception through the second year. Focus is on research and theory concerning infants' physical, social, cognitive, perceptual, emotional, and language development. Also covers transition to parenthood and family context of infant development.

Restriction: Graduate students only.

PSY BEH P220. Developmental Psychology: Theories and History. 4 Units.
Examines key concepts, theories, and the historical and philosophical roots of research in human life span development. Focuses on biological and environmental causation, universalism and cultural relativism, continuity and change.

Restriction: Graduate students only.

PSY BEH P226. Emotion in Psychology. 4 Units.
Covers original and recent theories of emotions and how they guide current research. Specific topics include neuroantomical structure of emotion, life-span emotional development, and health and emotion.

Restriction: Graduate students only.

PSY BEH P230. Adulthood. 4 Units.
Focuses on early and middle adulthood. Examines extended period of transitioning to adulthood; changes in relationships with family members; impact of major role-related experiences (e.g., spouse, parent, worker) on development and well-being; continuity and change in personality and social identities.

Restriction: Graduate students only.

PSY BEH P231. Professional Issues in Psychology. 4 Units.
Examines a variety of issues related to the professional socialization and development of graduate students in psychology. Topics include the publication process, sources of research funding, alternative employment options, competitiveness on the job market, and the academic career route.

Restriction: Graduate students only.

PSY BEH P232. Hardiness as the Pathway to Resilience. 4 Units.
Theory, research, and practice supports hardiness as a major pathway to surviving and thriving under stress in our turbulent times. Course (1) imparts relevant theory, research, and practice, and (2) teaches how to use hardiness assessment and training techniques.

Restriction: Graduate students only.

PSY BEH P233. Personality. 4 Units.
Provides a frame of reference for understanding personality and its role in life-span development, the relationship of the individual to society, and both mental and physical illness.

Restriction: Graduate students only.

PSY BEH P237. Violence, Society and Psychopathology. 4 Units.
The multifactorial, societal-contextual nature of violence is examined through historical, philosophical, and social science theoretical accounts. Priority topics are violent crime, socio-environmental factors, family violence, media violence, terrorism, personality and mental disorder, psychiatric institutions, and interventions for violent offenders.

Restriction: Graduate students only.

PSY BEH P238. Child Psychopathology. 4 Units.
Examination of etiology, classification, and developmental pathways of disorders, as well as risk and resilience factors, during the childhood/adolescent years. Discussion of genetic influences and contextual risk factors as well as internalizing and externalizing disorders.

Restriction: Graduate students only.

PSY BEH P239. Adult Psychopathology. 4 Units.
Explores the antecedents, characteristics, course, outcomes, and options for the prevention or management of various forms of psychopathology and behavior disorder. Focuses on psychological and biobehavioral mechanisms that influence the development, expression, and amelioration of maladaption.

Restriction: Graduate students only.

PSY BEH P245. Psychological Assessment. 4 Units.
Familiarizes students with psychological assessments in intelligence, clinical diagnosis, personality, and neuropsychological functioning. Exposure to administering, scoring, and interpreting assessments. Special focus on psychometrics (e.g., reliability and validity), test construction, and ethical responsibilities.

Restriction: Graduate students only.

PSY BEH P250. Emotion, Reasoning, and Memory. 4 Units.
Examines research and theory on emotion from the perspective of cognitive psychology. Topics include the effects of emotions on attention, memory, and problem solving; the relations between emotional and cognitive development; flash-bulb memories of intense emotional experiences; eyewitness testimony.

Restriction: Graduate students only.

PSY BEH P257. Genes, Emotions, and Behavior. 4 Units.
Course in behavioral genetics addresses the nature/nurture question: what is the strength of relative genetic and environmental influences on psychosocial processes ranging from attachment and social behavior to aggression and depression.

Restriction: Graduate students only.

PSY BEH P258. Health Psychology. 4 Units.
Interdisciplinary exploration of emerging fields of health psychology and behavioral medicine. Topics: role of stress in development/treatment of medical problems; sociocognitive determinants of health and illness; interpersonal health transactions; behavioral approaches to medical problems such as diabetes, obesity, hypertension.

Restriction: Graduate students only.

PSY BEH P262. Interpersonal Processes and Health. 4 Units.
Examines traditions of research linking interpersonal processes to emotional or physical health. Topics include: role of social support in ameliorating stress, effects of social control on health-compromising behaviors, adverse effects of social relationships on health, causes of deficient social relationships.

Restriction: Graduate students only.

PSY BEH P263. Eyewitness Testimony. 4 Units.
Examines the evidence that shows that faulty eyewitness memory is the major cause of wrongful convictions. Explores what the legal system thinks of eyewitness testimony and how the legal system has dealt with eyewitness issues.

Same as CRM/LAW C263.

Restriction: Graduate students only.

PSY BEH P264A. Quantitative Methods in Psychology. 4 Units.
Statistical techniques for inference in psychological research including point, interval, and effect size estimation to establish test association between variables. General Linear Model techniques include single- and multifactor analysis of variance with use of linear contrasts and post hoc comparisons.

Restriction: Graduate students only.

PSY BEH P264B. Advanced Quantitative Methods in Psychology. 4 Units.
Focuses on proper specification of multivariable regression models with emphasis on inferences using OLS and logistical regression. Emphasizes framework for assessing interaction and other complex relationships between response and predictor variables. Use of statistical software to analyze data.

Prerequisite: PSY BEH P264A.

Restriction: Graduate students only.

PSY BEH P265. Memory and the Law. 4 Units.
Examines the controversial topic of repressed memory, or perception and memory of real-world events.

Same as CRM/LAW C265.

Restriction: Graduate students only.

PSY BEH P266. Psychology and the Law. 4 Units.
Overview of how psychology is applied to the civil and criminal justice systems, how case law shapes this application, and how legal decisions affect the direction of psychological research. Interdisciplinary approach to research in psychology, law, and/or criminology.

Same as CRM/LAW C266.

Restriction: Graduate students only.

PSY BEH P268. Coping with Stressful Life Events. 4 Units.
Explores how individuals cope with serious life crises (e.g., illness, bereavement), life transitions, and daily stressors. Considers how such events impact on people's cognitions, emotions, and health, and the role of others in the coping process.

Restriction: Graduate students only.

PSY BEH P271. Human Evolution and Behavior. 4 Units.
Covers theories and empirical research concerning the evolutionary origins of human behaviors and their variations. An interdisciplinary course emphasizing both evolutionary psychology (e.g., mating strategies, kinship, and parenting) and molecular evolution (i.e., evolution of genes for various behaviors).

Same as BIOCHEM 217.

Restriction: Graduate students only.

PSY BEH P272. Human Stress and the HPA Axis. 4 Units.
Introduction to a new and multidisciplinary research field investigating the interactions between the brain, hormones, and behavior. After an introduction to relevant neuroendocrine concepts, covers current research topics in the field including stress, memory, development, and psychopathology.

Restriction: Graduate students only.

PSY BEH P273. Biobehavioral Aspects of Health and Illness. 4 Units.
Examines the behavior-physiology interactions of some major bodily systems: the nervous, cardiovascular, gastrointestinal, and endocrine systems. Analysis of normal and abnormal states of these systems as they relate to tissue injury, disease, and rehabilitation.

Restriction: Graduate students only.

PSY BEH P274. The Psychobiology of Stress. 4 Units.
Introduction to stress physiology and psychoneuroimmunology and critical review of research in this area. Examines bi-directional relationships between psychological factors (e.g., stressors, social processes, emotions), neuroendocrine and immune systems, and disease.

Restriction: Graduate students only.

PSY BEH P275. Special Topics in Psychology and Social Behavior. 4 Units.
Topics covered vary with interests of instructor.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSY BEH P276. Meta Analysis. 4 Units.
The process of synthesizing results from a number of studies that address a common research question is often referred to as meta-analysis. This applied course explores the meta-analysis process from the coding of retrieved studies to the final research synthesis.

Restriction: Graduate students only.

PSY BEH P289. The Teaching of Psychology. 4 Units.
Provides students with the theory and skills needed to teach undergraduate psychology courses. Covers research on theories and methods of teaching, curriculum design, and evaluation. Students also gain practical experience preparing and presenting material.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology and Social Behavior graduate students only.

PSY BEH P290. Research in Developmental Psychology. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of developmental psychology. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P291. Research in Health Psychology. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of health psychology. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P292. Research in Psychopathology and Behavior Disorder. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of psychopathology and behavior disorder. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P293. Research in Social and Personality Psychology. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of social and personality psychology. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P294A. Research Directions in Psychology and Social Behavior. 2 Units.
Introduces students to the current research of faculty, graduate students, and visitors to the Department of Psychology and Social Behavior. Includes examination of contemporary research issues and controversies, as well as issues related to students' development as professionals.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PSY BEH P294B. Research Directions in Psychology and Social Behavior . 2 Units.
Introduces students to the current research of faculty, graduate students, and visitors to the Department of Psychology and Social Behavior. Includes examination of contemporary research issues and controversies, as well as issues related to students' development as professionals.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PSY BEH P294C. Research Directions in Psychology and Social Behavior. 2 Units.
Introduces students to the current research of faculty, graduate students, and visitors to the Department of Psychology and Social Behavior. Includes examination of contemporary research issues and controversies, as well as issues related to students' development as professionals.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

PSY BEH P295. Research in Psychology and Law. 4 Units.
Introduces graduate students to research conducted by individual faculty members in the area of psychology and law. This is accomplished by having students involve themselves in the conceptualization, strategy, and implementation of the faculty member's research.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P296. Doctoral Dissertation Research and Writing. 4-12 Units.
Dissertation research with Psychology and Social Behavior faculty.

Prerequisite: Advancement to candidacy.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P298. Directed Studies in Psychology and Social Behavior. 2-4 Units.
Directed study with Psychology and Social Behavior faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSY BEH P299. Independent Studies in Psychology and Social Behavior. 2-8 Units.
Independent research with Psychology and Social Behavior faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

School of Social Sciences

William M. Maurer, **Dean**

Social & Behavioral Sciences Gateway
Undergraduate Student Affairs: 949-824-6803
Graduate Student Affairs: 949-824-4074
http://www.socsci.uci.edu/

Overview

Undergraduate and graduate education in the School of Social Sciences at UCI represents a commitment to modern social science. The classic subject areas of anthropology, economics, geography, linguistics, political science, psychology, and sociology are included in the school's educational programs, and these programs go well beyond the traditional disciplines.

First, the faculty recognizes the value of systematic empirical observation and quantitative analysis in the study of human behavior. Developments in computer science and in mathematics oriented toward the problems of the social sciences, and the refinement of techniques for the observational, experimental, and statistical study of human behavior, have contributed major new elements to social science. Students in the School of Social Sciences will become familiar with the mathematical, computational, and statistical tools underlying modern social science.

Second, many of the most interesting questions in the study of human behavior cannot be fixed within the traditional disciplinary boundaries. Some of the new and evolving areas which cross orthodox boundaries are political sociology, public policy, cognitive anthropology, psycholinguistics and neuroeconomics. Therefore many courses and course modules are built around these interdisciplinary social science phenomena rather than representing social science disciplines.

Third, the school emphasizes the design of hypotheses and of systems of interrelated ideas as an essential part of scientific pursuit. Consequently, the educational programs place substantial emphasis on understanding social science phenomena through the development of theories that can be used to guide empirical studies.

Educational opportunities for students in the School of Social Sciences extend well beyond attendance at courses. Students may develop independent study proposals in cooperation with interested faculty members or may investigate social science applications via off-campus internships. They are invited to participate in the quarterly evaluation of courses and instructors, to propose new courses and other modifications in existing programs, to nominate candidates for visiting faculty appointments, and to serve on school committees. The school provides a variety of opportunities for faculty-student interaction, and students will find the faculty, administration, and academic counseling staff of the school highly accessible and responsive.

Special Facilities

The School of Social Sciences maintains several special facilities for research and education.

The **Social Sciences Research Laboratory,** used for both faculty and student research, occupies the entire fourth floor of the Social Sciences Laboratory Building. The facility contains 40 experiment and control rooms and several specialized facilities including a virtual reality facility and cognition laboratory.

Three **Computer Laboratories** provide access to networked systems, where students can work on assignments using full-featured word-processing, database, graphics, and statistical packages. In addition, these computers provide students with access to e-mail and Internet services. The Social Science Plaza facility contains state-of-the-art, high-tech lecture halls and is fully Internet accessible.

The **Social Sciences Academic Resource Center (SSARC)** was created over a decade ago to help School of Social Sciences students obtain the appropriate information to select a career and/or graduate school program, generate professional contacts, and learn how to gain a competitive edge during their undergraduate years. Centered around the five educational pillars (academics, research, practical experience, leadership, and community service), the SSARC offers valuable services, programming, and resources ranging from resume consultation, internship opportunities, and graduate school guidance, to research and leadership training. Through one-on-one consultations and various co-curricular programs, staff assist students with developing an educational blueprint that will ensure a quality educational experience while developing a strong educational portfolio and transforming each student into successful leaders within their chosen careers. Visit the Social Sciences Academic Resource Center (http://www.socsci.uci.edu/ssarc) website for more information.

Social Sciences Undergraduate Student Affairs (SSUSA) provides general and detailed information about UCI, the School of Social Sciences, and specific requirements exclusive to the majors and minors in the school to students, faculty, administrators, and the general public. SSUSA is fully staffed with academic counselors who speak one-on-one with students regarding their UCI academic career as well as opportunities beyond the classroom. There are also eight peer academic advisors available to undergraduates for walk-in advising regarding requirements and classes. Visit the Social Sciences Undergraduate Student Affiars (http://undergraduatestudies.ss.uci.edu/ugs_usa) website for more information.

The **Experimental Social Science Laboratory**, launched in fall 2011, is dedicated to experimental studies on individual and interactive decision making in the social sciences. The facility is available to researchers in all social science disciplines and can accommodate up to 40 research subjects at a

time for computer-based studies of human behavior. Researchers interested in using the facility, and students interested in participating in paid studies, should visit Experimental Social Science Laboratory (http://www.essl.ss.uci.edu) website or e-mail essl@ss.uci.edu.

The **School of Social Sciences Anechoic Research Facility** opened in fall 2011 as a shared school resource for use by all faculty who have an interest in auditory research. The facility includes a large (12.5' x 12.5' x 7' interior) acoustically isolated RF-shielded chamber for free-field research and a second smaller RF-shielded steel booth for research using headphones. The facility has access to state-of-the-art equipment including a harmonizer, function generators, oscilloscopes, mixers/equalizers, amplifiers, ABR setup (auditory brainstem recording), and research-quality vocal microphones and headphones. To learn more about the facility, or to request time for use, visit the School of Social Sciences Anechoic Research Facility (http://faculty.sites.uci.edu/anechoic) website.

Centers for Research

The UC Irvine branch of the **Census Research Data Center** is a partnership between the School of Social Sciences and the U.S. Census Bureau. The on-campus site allows UCI researchers access to confidential Census data that is central to high quality research in economics, sociology, health services, public health, transportation, law, and business. With these data, researchers can link information about the policy environment at a detailed geographic level with micro level data on public health, transportation, labor, crime, education and other highly relevant public policy-oriented outcomes. The result? Studies that address pressing policy needs – like how crime impacts local businesses, or how educational attainment effects labor earnings at local and national levels. Data accessible through the center includes U.S. Census records as well as datasets from the National Center for Health Statistics and Agency for Healthcare Research and Quality and others. Learn more at Census Research Data Center (http://www.ccrdc.uci.edu) website.

The **Center for the Advancement of Logic, its Philosophy, History and Applications (C-ALPHA)** provides a formal structure that strengthens extant cross#disciplinary connections while fostering new ones. Modern logic is the science of valid inference. Not being restricted to any particular subject matter, it applies to all human endeavors that aspire to an understanding of rationality, the discovery of proofs, the assessment of evidence, or the establishing of truths - including the physical sciences, the formal sciences like mathematics and legal theory, as well as the social sciences, whether they follow quantitative or qualitative research paradigms. Learn more at the Center for the Advancement of Logic, its Philosophy, History and Applications (http://www.calpha.ss.uci.edu) website.

The **Center for Asian Studies** at the University of California, Irvine is comprised of more than 40 interdisciplinary faculty members who study China, Japan, Korea, India, and Southeast Asia and enhance the study of the many countries and cultures of Asia. Housed in the School of Social Sciences, the Center provides a forum for discussions across geographic and disciplinary boundaries both on campus and within the community. Learn more at the Center of Asian Studies (http://www.asian-studies.uci.edu) website.

The **Center for Citizen Peacebuilding** at UCI is a distinctive international clearinghouse for research, education, and action on public peace processes. The program focuses on how citizens participate in these activities to prevent violent conflict and, if violence occurs, to promote reconciliation, and sustainable peace. The purpose is to significantly contribute to the theory and practice of conflict resolution. Learn more at the Center for Citizen Peacebuilding (http://www.peacebuilding.uci.edu) website.

The **Center for Cognitive Neuroscience and Engineering (CENCE)** is a multidisciplinary research center aimed at understanding the relation between cognitive abilities and neural systems through brain imaging, brain mapping, computational modeling, informatics, and engineering techniques. The center's research focus in cognitive neuroscience and engineering spans a wide range of methods involving human and animal work, and engineering techniques, such as BCI, BMI, biorobotics, computational neuroscience, neuroinformatics, neuromorphic engineering, neurorobotics, signal processing, image analysis, and mathematical models of brain data. Learn more at Center for Cognitive Neuroscience and Engineering (http://cence.ss.uci.edu) website.

The **Center for Decision Analysis,** located in the **Institute for Mathematical Behavioral Sciences (IMBS)** in the School of Social Sciences, is a specialized research center where the objective is to facilitate interaction and common research goals among scientists whose purpose is to formulate precisely and test theories of human behavior. This is to be interpreted in a wide sense as manifested by the membership which spans the following areas: anthropology, cognitive science, economics, engineering, logic and philosophy of science, mathematics, political science, and sociology. Additional faculty come from management science and psychobiology. To describe the focus, consider the fruitful symbiotic relationship that has existed for millennia between mathematics and the physical sciences. A goal of IMBS is to generate a similar relationship between mathematics and the behavioral and social sciences. With high-power social scientists (several are members of the National Academy) providing insights about the field and working with the mathematicians who are involved, new mathematical approaches to analyze these issues are being developed and new kinds of mathematical questions are being raised. For more information, visit the Institute for Mathematical Behavioral Sciences (http://www.imbs.uci.edu) website.

The **Center for Demographic and Social Analysis (C-DASA)** advances population science by bridging academic units to identify common research interests and exchange new conceptual approaches and analytic methods. Serving 50 UCI faculty members in a dozen departments, as well as their graduate and postgraduate trainees, the Center is committed to research on the critical issues shaping the well-being of local, national, and global populations. Faculty affiliates are recognized for award-winning research, ranging from China's one-child policy to global influenza epidemics, from programs to raise school achievement to social networks that link local neighborhoods. C-DASA promotes innovative research by fostering multidisciplinary exchange, supporting collaboration, and building the advanced infrastructure essential for demographic research and training in the twenty-first century. For additional information, including upcoming seminars, visit the Center for Demographic and Social Analysis (http://www.socsci.uci.edu/cdasa) website.

Established in 2011, the **Center for Economics & Public Policy (CEPP)** seeks to improve analysis, formulation, and debate on economics-related public policy issues at the international, national, state, and local levels. CEPP brings economics-related public policy research—especially by UCI faculty and students—to policymakers, the public generally, and the UCI community; and strengthens the public policy focus of economics-related research at UCI. Based in the Department of Economics, CEPP provides a focal point for scholars in sociology, social ecology, business, education, law, and engineering who engage in economics-related public policy research. To create lasting impact, CEPP holds policy-related seminars for faculty and graduate students and increases UCI's interaction with the policy community; increases student and faculty involvement in the new Master of Public Policy program; disseminates policy-related research of Center faculty to the media and the policy community through targeted studies, its Web site, and its network of policymakers; and organizes Universitywide events discussing current policy issues, involving Center faculty and high-profile public figures. CEPP also provides support for policy-oriented faculty and graduate student research. Learn more at the Center for Economic & Public Policy (http://www.economicsandpublicpolicy.uci.edu) website.

Established in 2006, the **Center for Ethnography** works to develop a series of sustained theoretical and methodological conversations about ethnographic research practices across the disciplines. It supports innovative collaborative ethnographic research as well as research on the theoretical and methodological refunctioning of ethnography for contemporary cultural, social, and technological transformations. Learn more at the Center for Ethnography (http://www.ethnography.uci.edu) website.

The **Center for Global Peace and Conflict Studies (CGPACS)** is a multidisciplinary research unit housed in the School of Social Sciences. The mission of CGPACS is to promote research on international problems and processes. Current research emphases include weapons of mass destruction, especially biological weapons; international governance, focusing on the evolution of international norms and institutions; citizen peace building; international environmental cooperation; and religion in international affairs. CGPACS also sponsors research conferences and public colloquia on topics of current significance. The Center's Margolis Lecture brings to UCI high-profile speakers who have played active roles in international affairs. Recent Margolis Lectures have featured Justice Louise Arbour, former chief prosecutor for the International Criminal Tribunals; Chinese democracy activist Wei Jinsheng; Congressman Christopher Cox; former Secretary of State Warren Christopher; and former Secretary of Defense William Perry. Visit the Center for Global Peace and Conflict Studies (http://www.cgpacs.uci.edu) website for more information.

The **Center for Language Science** is a multidisciplinary, interactive research community aimed at understanding how language is organized in the human mind, how this system of knowledge is learned, how is it understood and expressed, and how it is represented and processed by the brain. This effort spans a wide range of scientific research areas, from basic and clinical hearing research to computational and psychological models of the structure and processing of linguistic knowledge to detailed neuroanatomical models hearing, comprehending, and speaking derived from advanced neuroimaging and clinical-based methods. Accordingly, Center faculty are drawn from several departments and schools at UCI including Cognitive Sciences, Psychology and Social Behavior, Anthropology, Computer Science, Logic and Philosophy of Science, Mathematics, Education, Humanities, Biological Sciences, and Medicine. The Center for Language Science has three specific aims: (1) to promote an integrated, multidisciplinary research program on language from the unique and diverse perspective afforded by UCI's faculty; (2) to promote and guide training in the field of language science; and (3) to inform and guide the development of new clinical applications for hearing, speech, and language disorders that impact millions of people worldwide. Learn more at the Center for Language Science (http://www.languagescience.ss.uci.edu) website.

The purpose of the **UCI Center for Research on Immigration, Population, and Public Policy** is to foster and conduct basic and policy-relevant research on international migration and other population processes, with a main focus on U.S. immigration. In order to encourage multi-investigator, multidisciplinary, and interdisciplinary research projects, the Center organizes informal discussions of ideas for future research projects, "brainstorming" sessions about research funding opportunities, "brown-bag" presentations of research findings, and workshops and conferences. Much of the Center's research focuses on the multigenerational incorporation experiences of immigrant groups in the United States, especially those occurring in diverse contexts such as Southern California. Investigations of this type often devote as much attention to what happens to the children and grandchildren of immigrants as to what happens to immigrants themselves. For more information, visit the UCI Center for Research on Immigration, Population, and Public Policy (http://immigrationresearch.uci.edu) website.

The **Center for the Study of Democracy (CSD)** continues the work of the UCI Focused Research Program on Democratization that was founded in 1991 and sponsors research and training on the process of democratic transition and the expansion of the democratic process in already established democracies. CSD includes a multidisciplinary faculty from four UC campuses. CSD's activities are focused on three areas. First, faculty administer a graduate training program on empirical democratic theory. The National Science Foundation selected UCI in 1995 as a national center for the training of doctoral students in democratization issues; the five-year NSF grant provides funding for graduate fellowships and other training activities. Second, the democracy research program aims at improving the democratic process in the United States and other established democracies as we enter the next century. The program focuses on reforms to increase the ability of citizens to express their preferences and have these preferences represented within the democratic process. Third, CSD supports research on the development of sustainable democracies in Eastern Europe, East Asia, and other new democracies. The New Democracies Initiative contributes to the promotion of democracy in these formerly authoritarian systems. For more information visit the Center for the Study of Democracy (http://www.democracy.uci.edu) website.

The **Institute for International, Global and Regional Studies (IGARS)** was created to be a hub for research and teaching at UCI on the interactions of politics, economics, societies, cultures, and history in global and international affairs. It provides a calendar of events, hosts the bi-weekly International Studies Public Forum and monthly research seminars, collaborates with over 17 other campus centers, and promotes seed funding for collaborative research activities on international and global issues. Faculty associated with IGARS participate in the international studies undergraduate major and honors program and the minor in conflict resolution. Learn more at the Institute for International, Global and Regional Studies (http://internationalstudies.ss.uci.edu) website.

The **Institute for Money, Technology and Financial Inclusion (IMTFI)** was formed in 2008. Its mission is to support research on money and technology among the world's poorest people: those who live on less than $1 per day. IMTFI seeks to create a community of practice and inquiry into the everyday uses and meanings of money, as well as the technological infrastructures being developed as carriers of mainstream and alternative currencies worldwide. Learn more at the Institute for Money, Technology and Financial Inclusion (http://www.imtfi.uci.edu) website.

The **Intel Science and Technology Center (ISTC) for Social Computing** was founded to conduct foundational research into the relationship between information technology and society. Centered at UCI, it brings together an interdisciplinary group of researchers from leading universities across the United States, including experts in social media, digital culture, user interfaces, cultural computing, and participatory design. Learn more at the Intel Science and Technology Center for Social Computing (http://socialcomputing.uci.edu) website.

The **UCI Interdisciplinary Center for the Scientific Study of Ethics and Morality** was established in 2003 by a group of scholars interested in recent scientific research that yields insight on the origins and causes of morality. In creating the center, UCI faculty both address a topic that is becoming one of the new frontiers in science and reflect critically on the moral implications of this new frontier. The center focuses on the etiology of ethical behavior and differs in several important ways from existing centers dedicated to the discussion of ethics. Traditional academic approaches tend to originate in philosophical, foundational, or religious discussions of ethics. They tend to be humanistic in orientation and emphasize abstract, theoretical considerations of what constitutes ethics and morality. The center complements this traditional approach and explores the scientific and/or the empirically verifiable factors that influence morality, using a variety of methodologies that examine factors contributing to and driving moral action in a variety of social, psychological, and biological contexts. The center encourages ties between scholars interested in ethics in humanities and the sciences—including social science, social ecology, biological sciences, and medicine—building on the interdisciplinary tradition at UCI, complementing, rather than duplicating, existing efforts. Visit UCI Interdisciplinary Center for the Scientific Study of Ethics and Morality (http://www.ethicscenter.uci.edu) website for more information.

Degrees

Anthropology	B.A., M.A., Ph.D.
Business Economics	B.A.
Chicano/Latino Studies	B.A.
Cognitive Sciences	B.S.
Economics	B.A., M.A., Ph.D.
International Studies	B.A.
Philosophy[1]	M.A., Ph.D.
Political Science	B.A., M.A., Ph.D.
Psychology	B.A., M.A., Ph.D.
Public Policy[2]	M.P.P.
Quantitative Economics	B.A.
Social Policy and Public Service	B.A.
Social Science	B.A.[3], M.A., Ph.D.
Sociology	B.A., M.A., Ph.D.

Within the Ph.D. in Social Science is an optional concentration in *Mathematical Behavioral Sciences,* supervised by an interdisciplinary group of faculty.

Within the M.A. in Social Science, students may apply directly to the concentration in Demographic and Social Analysis. For those enrolled in a Ph.D. program at another institution, the M.A. concentration in Mathematical Behavioral Sciences is available. A concentration in Medicine, Science, and Technology Studies is available within the M.A. in Social Science.

1 Jointly administered by the Department of Philosophy in the School of Humanities.

2 Jointly administered by the School of Social Ecology.

3 Admission to this program is no longer available.

Honors

Graduation with Honors. No more than 12 percent of the graduating seniors, who have completed at least 72 units in the University of California will receive honors: approximately 1 percent *summa cum laude,* 3 percent *magna cum laude,* and 8 percent *cum laude.* The student's cumulative record at the end of the final quarter is the basis for consideration for awarding Latin Honors. To be eligible for consideration for honors at graduation, the student must, before the end of winter quarter of the senior year, have submitted an Application for Graduation; be officially declared as a major within the School of Social Sciences; have all corrections to the academic record processed by the Registrar's Office; if completing the Language Other Than English general education requirement with a language exemption test, pass the test by the end of winter quarter; and be able to verify completion of all course work by the end of the spring quarter of the senior year. Other factors are listed in the Honors Recognition (http://catalogue.uci.edu/informationforadmittedstudents/academicadvisingandhonors/#honorsopportunitiestext) section.

Dean's Honor List. The quarterly Dean's Honor List is composed of students who have received a 3.5 grade point average while carrying a minimum of 12 graded units.

Departmental Honors Programs. Most departments in the School of Social Sciences offer an honors program (refer to the departmental information). Upon successful completion of the honors program, students graduate with honors in their respective majors and their transcripts note that they were in the honors program.

Honor Societies. Several departments in the School of Social Sciences belong to a national honor society. Eligibility is based on satisfying the requirements of the specific honor society. In the School of Social Sciences, these national honor societies include Lambda Alpha Kappa (Anthropology), Omicron Delta Epsilon (Economics), Pi Omicron of Pi Sigma Alpha (Political Science), Psi Chi (Psychology), Pi Gamma Mu (Social Sciences), Sigma Iota Rho (International Studies), and Alpha Kappa Delta (Sociology).

Order of Merit. The Dean of the School of Social Sciences' Order of Merit award recognizes the most outstanding graduating undergraduates and graduate students for their academic achievements, contributions to the School, and service to the campus and community.

Kathy Alberti Award for Graduate Student Excellence. This award recognizes a graduate student who holds truly outstanding promise as a future professor or teacher.

Alumni Academic Excellence Scholarship. This scholarship recognizes an undergraduate for outstanding academic performance and service to the School, campus, and community.

The Ruth Fulton Benedict Prize. This prize recognizes outstanding writing in anthropology by an undergraduate.

Steve Borowski Scholarship. This scholarship is awarded to an exemplary School of Social Sciences student athlete. The award winner is selected from among a pool of Social Sciences student athletes based on academic merit and extracurricular involvement. Coaches may also nominate outstanding Social Sciences student athletes. Athletes interested in being considered should contact their coaches. Administered by Athletics. Award varies.

The Boukai Family Foundation Middle East Studies Student Initiative Research Award. This award recognizes MESSI students for academic excellence. Applicants must be full-time MESSI students with a 3.0 GPA or higher.

James N. Danziger Award for Teaching Excellence. This award recognizes a Political Science graduate student who has advanced to candidacy for teaching excellence.

David Easton Award. This award is given for the outstanding qualifying paper written by a Political Science graduate student during the preceding academic year.

Harry Eckstein Award for the Outstanding Undergraduate Honors Thesis. This award is given annually for the best honors thesis written by a Political Science major.

Harry Eckstein Memorial Fund. The Harry Eckstein Memorial Fund is presented annually to Political Science graduate students conducting research toward the completion of the Ph.D. in Political Science at UCI. Recipients of the award are designated as Eckstein Scholars.

Jean-Claude Falmagne Research Award. This award is given to a Cognitive Sciences graduate student who has advanced to candidacy for the Ph.D. The award is to support the student's summer research activity.

Jeff Garcilazo Scholarship. This award, established in honor and memory of the late Chicano/Latino Studies and History professor Jeff Garcilazo, is awarded annually to the undergraduate student author(s) of the best research paper(s) in Chicano/Latino Studies, to provide opportunities for students to examine the historical and contemporary experiences of Latino communities.

Sheen T. Kassouf Endowed Fellowship. The fellowship is awarded to a student enrolled in the UCI Economics doctoral program. Graduate students in all areas of economics are eligible, with the major criteria for the award being excellence in course work and research.

The Justine Lambert Prize in Foundations of Science. This award is given every other year to the best submitted graduate paper on the foundations of logic, mathematics, and the empirical sciences. The competition is open to all graduate students at UCI, regardless of department or school affiliation.

Charles A. Lave Paper Prize for Creative Modeling in Social Sciences. The prize is awarded to any UCI undergraduate or graduate student and may be in any social or behavioral science discipline, or interdisciplinary. It may be qualitative (with words only) or quantitative (with mathematical expressions). The prize will be awarded to a paper that displays creative modeling; points to or includes data that permits model evaluation; and exhibits the clear writing and brevity that Charles Lave valued.

Alice B. Macy Outstanding Undergraduate Paper Award. This award is given to a Social Sciences undergraduate student in any discipline for a paper that demonstrates original research.

The Malinowski Prize for Undergraduate Research. This award recognizes outstanding original research in the area of anthropology.

Thomas W. McGillin Scholarship. This scholarship is given to an undergraduate who is a first-generation citizen of this country with at least one foreign-born parent.

Outstanding Legal Scholar Scholarship. This scholarship is given to an undergraduate who has achieved outstanding academic achievement as well as contributing to the UCI Law Forum program.

Outstanding Transfer Student Scholarship. This scholarship is given to an outstanding community college transfer student in the School of Social Sciences.

Sanli Pastore & Hill, Inc. Excellence in Economics Writing Award. The Institute for Mathematical Behavioral Sciences (IMBS) awards this paper prize for the top graduate student paper in economics or decision analysis. Students who have written papers in game theory, economic theory, mathematical economics, decision analysis, and related areas are encouraged to submit them for consideration.

Jack and Suzie Peltason Scholarship. This award is given at the discretion of the department chair to support and facilitate the education of undergraduate Political Science majors. All undergraduate political science majors are eligible to apply.

Pi Omicron Award for Outstanding Political Science Major. This award is given annually by UCI's Pi Omicron Chapter of Pi Sigma Alpha to a graduating senior Political Science major who best exemplifies a commitment to academic excellence and public service.

A. Kimball Romney Outstanding Graduate Paper Award. This award is given to a Social Sciences graduate student in any discipline for a paper that demonstrates original research.

David and Kristen Rosten International and Community Service Scholarship. This scholarship is awarded to an undergraduate who is planning a career in public service in either the domestic or international community.

Vicki Ruiz Award. This award is given to graduating seniors in Chicano/Latino Studies who have achieved scholarly excellence and service. Nomination by faculty in the Department of Chicano/Latino Studies is required for this award.

Elena B. and William R. Schonfeld Scholarship. This scholarship is awarded annually in the School of Social Sciences to the outstanding undergraduate who combines excellence in scholarship with dedication to the University community and the highest level of achievement in other fields. The award is available to students with one year remaining prior to graduation.

School of Social Sciences Outstanding Graduate Scholarship Award. This award is for high intellectual achievement by a Social Sciences graduate student.

School of Social Sciences Outstanding Graduate Student Service Award. This award is for contributions to the Social Science community, including the intellectual growth of others.

School of Social Sciences Outstanding Undergraduate Honors Thesis Award. This award is for the outstanding undergraduate honors thesis.

School of Social Sciences Student Athlete Award. This award is given to a Social Sciences student who has demonstrated outstanding academic achievement as well as significant contributions to the UCI Athletics Department.

Gary Singer Scholar Athlete Award. This award is for a student athlete who has outstanding academic achievement as well as contributions to their sport.

Robin M. Williams Award. This award is given to an undergraduate student and a graduate student for the best research paper in the field of sociology.

John I. Yellot Scholar Award. This award is given to a Cognitive Sciences graduate student who has not yet advanced to candidacy for the Ph.D. The award is to support the student's summer research activity.

Community Outreach

The **Ambassador's Council** has been created to promote and enrich the school by supporting new and existing school-wide/department projects. It collectively acts as an official student in discussing program development with administrators and department chairs and other faculty.

Global Connect is a university led curriculum program through which UCI social sciences faculty, undergraduate and graduate students bring their knowledge of international issues into high school classrooms in order to better prepare students to become informed global citizens. UCI faculty and students develop global issue-focused lesson plans on topics such as UN millennium development goals, mass media and technology, and the purpose of NGOs – areas of study in which UCI experts are known internationally, but subjects which are not part of the current California state education standards. Lessons are team-taught by UCI students and faculty alongside high school educators in Newport Mesa and Saddleback School Districts. The real-time course content, updated annually, reflects the continually changing global landscape while bringing new and updated university research directly to high school teachers - a challenge that traditional textbook publishing schedules are unable to keep up with.

HABLA is a broad-spectrum Latino-focused educational outreach program based in the School of Social Sciences and created by Professor Virginia Mann in 2000 with the support of the Orange County Children and Families Commission. Its purpose is to increase the school readiness of

disadvantaged children ages two–four years, by uniting faculty and students at UCI with the Santa Ana Unified School System, local Families Resource Center, Americorp/VISTA, FACT, and the national Parent Child Home Program (PCHP).

Jumpstart was established on the UCI campus by Professor Virginia Mann in 2003. Students involved as Jumpstart members are paired with children participating in pre-school programs in the local Orange County area. The purpose is to help young students develop language, literacy, and social skills. Social Sciences undergraduates usually serve with Jumpstart for a full school year. The UCI Jumpstart program recruits, trains, and supervises UCI students to work with Head Start and other early-childhood programs in low-income communities of Orange County.

The School of Social Sciences' **Summer Academic Enrichment Program (SAEP)** is an intensive, five-week on-campus residential program. It is designed to enhance the academic experience of first-generation, low-income university students. SAEP is a landmark program on the University of California, Irvine campus and represents a successful model to offer a rigorous research experience. Three courses in research methods, statistical analysis, and writing and communications are taught by UC Irvine faculty. SAEP's goal is to strengthen specific analytical and research skills and to prepare participants for graduate school.

- School Requirements (p. 1561)

Undergraduate Program

Planning a Program of Study

Since there are many alternative ways to plan a program, some of which may require careful attention to specific major requirements, students should consult with the School of Social Sciences Undergraduate Student Affairs to design an appropriate program of study.

Students who select one of the School majors in their freshman year might begin by taking the one-digit courses required by their major and one of the mathematics sequences listed under Part A of the School requirements. It is a good idea to take these courses early since they include fundamental concepts that will be widely applicable in more advanced courses. In addition, the lower-division writing requirement of the general education requirement (category I) should be completed during the first year. In the sophomore year, the student might complete the course on computing, three courses toward the general education requirement, four courses in the social sciences, and four electives. Students who are planning to go on to graduate school can use their freshman and sophomore years to advantage by taking courses in theory, research methods, mathematics, and other areas important to graduate study. In the junior and senior years, the student should take courses in the major area and should create an individualized program of study through a combination of courses and course modules which fall in an area of interest. Particular attention should be paid to planning a program of study that will ensure that major requirements are met prior to graduation.

Change of Major. Students who wish to change their major to one offered by the school should contact the Social Sciences Undergraduate Student Affairs Office for information about change-of-major requirements, procedures, and policies. Information is also available at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Double Majors within Social Sciences

In fulfilling degree requirements for multiple majors, a maximum of two lower-division courses may overlap between any two majors.

Other Double Majors

In fulfilling degree requirements for multiple majors, a maximum of two courses may overlap between any two majors. For students pursuing a major in Psychology and Social Behavior, a total of three courses (PSYCH 9A- PSYCH 9B-PSYCH 9C, same as PSY BEH 11A-PSY BEH 11B-PSY BEH 11C) may be overlapped.

Mathematics and Social Sciences

The mathematics requirement stems from the nature of modern social science. The concepts and terms of mathematics, statistics, and computers are an important part of the social scientist's vocabulary. Basic knowledge of these tools is necessary to an understanding of current literature in the social sciences, to the analysis of data, and to an intelligent use of social science models. Each candidate for a degree in the School of Social Sciences is expected to have a basic knowledge of probability, statistics, and computing. In addition, for students who are preparing for graduate school in an area of social science, it will be important to supplement the minimal mathematics requirements with additional courses related to mathematics and social science methodology. The particular courses which would be recommended are not specified here, however, since they are highly dependent on the major emphasis of the student. Students who are preparing for graduate study should consult their advisors to determine a program of study which will give them the research skills necessary for successful graduate work.

Requirements for the Bachelor's Degree

All students must meet the University Requirements (p. 71)**.**

School Requirements

1. Familiarity with basic mathematical, computational, and statistical tools underlying modern social sciences. This requirement is met by passing a three-course sequence in mathematics selected from the following: ANTHRO 10A-ANTHRO 10B-ANTHRO 10C; MATH 2A-MATH 2B and either STATS 7 or MGMT 7 or PUBHLTH 7; PSYCH 10A-PSYCH 10B-PSYCH 10C; SOC SCI 10A-SOC SCI 10B-SOC SCI 10C; or SOCIOL 10A-SOCIOL 10B-SOCIOL 10C. (NOTE: School of Social Sciences majors may not take SOC SCI 9A-B-C to fulfill the mathematics requirement.) Computer education is essential for a complete social science education. This requirement can be satisfied by passing I&C SCI 31, PSYCH 114M,

or SOC SCI 3A. Departments may have preferences for specific courses. Students should see their major department for acceptable courses. This course requirement should be taken during the student's first year.

2. An understanding of the fundamental concepts, analytical tools, and methods of social science. This requirement is met by taking two four-unit introductory courses in the School of Social Sciences bearing a one-digit course number. (Such courses include ANTHRO 2A, ANTHRO 2B, ANTHRO 2C, ANTHRO 2D, ECON 1, LINGUIS 3, POL SCI 6A, POL SCI 6B, POL SCI 6C, PSYCH 7A, SOC SCI 1A, SOC SCI 5A, SOC SCI 5B, SOC SCI 5D, SOCIOL 1, SOCIOL 2, SOCIOL 3). These courses normally should be taken during the student's first year. (NOTE: This requirement may be fulfilled by option B of the departmental requirements for students majoring in Political Science as well as the major requirements in Sociology). For students majoring in Cognitive Sciences, the requirements are waived due to the academic rigor of the B.S. curriculum.
3. An understanding of important advanced areas in social science. This requirement is met by passing satisfactorily nine four-unit upper-division courses in the School of Social Sciences, where at least three of these courses comprise core courses or a module. (NOTE: The major in Social Science requires 11 four-unit upper-division courses.) For modules which are listed with more than three courses, the student may normally elect to take any subset of three courses in the module. Appropriate substitutions may be made upon petition.
4. Four additional four-unit social science courses from any level.
5. No more than two courses numbered 198-199 may be used towards a degree requirement (excluding majors in the Department of Cognitive Sciences and Economics which allow three such numbered courses).

Students are reminded that the Pass/Not Pass option is not applicable to course requirements 1 through 4 above or to any additional requirements listed for specific major programs. However, I&C SCI 31 is an exception to this rule and may be taken Pass/Not Pass.

Courses used to meet requirements 2 through 5 above are included in the computation of the grade point average in courses required in the major program.

Maximum Overlap Between Major and Minor Requirements: Students completing both a major and a minor within the School of Social Sciences may count courses taken to fulfill the School's mathematics and computer science requirement toward satisfaction of both the major and the minor. No other course overlap is allowed. For students completing a major within the School of Social Sciences and a minor outside of the School of Social Sciences, a maximum of two courses may overlap between a major and a minor. For students pursuing a minor in Mathematics, Psychology and Social Behavior, or Statistics, a total of three courses may overlap. No course overlap is permitted between minors.

Transfer Study Recommendations

The School recommends that students wishing to transfer to UCI do the following:

1. Complete the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer to UCI.
2. Refer to the ASSIST (http://www.assist.org/web-assist/welcome.html) website for information about community college courses that will fulfill UCI lower-division major requirements.

Specific course recommendations:

Prospective **Economics majors:** complete the equivalent of UCI's MATH 4 at a community college (in addition to the courses required for transfer-student admission; see the Department of Economics section).

Prospective **International Studies majors:** complete two semesters of foreign language at the intermediate level.

Prospective **Psychology majors:** complete a three-course sequence in introductory, physiological, and either social or abnormal psychology.

Transfer Students

Freshmen and Sophomores: Students transferring to UCI as freshmen or sophomores will fulfill the regular requirements of the four-year program either through work at UCI or through transfer credit for comparable work elsewhere.

Juniors: Following review by the School of Social Sciences, it may be determined that junior transfer students electing to major in one of the School's degree programs, who have good records at other accredited colleges and universities, have satisfied School requirement 2 and the University requirements. However, all transfer students must fulfill the upper-division writing general education requirement (category I) while at UCI. Students anticipating transfer to UCI in their junior year should plan their curriculum so as to anticipate the special mathematics requirement (School requirement 1). Every effort will be made to accommodate individual variation in background, provided students are prepared to commit themselves to intensive work in areas of deficiency. Ordinarily, the typical two-year program for junior transfers is simply the last two years of the regular four-year program, except that students who have not satisfied the mathematics requirements of the School should plan to do so in the junior year and must do so before graduation.

Seniors: Students wishing to graduate with a degree in the School by transferring to UCI in their senior year should plan their work carefully to ensure that the requirements can be met in one year of residence. In general, differences between the program at UCI and programs elsewhere make senior transfers difficult.

Service Learning, Community Service, and Internships

Service learning is a meaningful educational activity that integrates community service within the curriculum. It is an opportunity for students to make positive contributions to underserved and marginalized communities through academic courses, field studies, and internships.

Service learning provides out-of-class experiences to reinforce understanding of academic theory while addressing serious community concerns. When combined with a structured curriculum that includes research components, students can explore the role of the social scientist while seeking solutions to problems affecting society. The School of Social Sciences' philosophy is to practice research, service, and good citizenship.

The School actively supports service learning through its philosophy of enhancing the learning process by motivating, inspiring, and teaching students how to recognize and accept their civic responsibilities. The goal is to educate students about social issues and provide them with the necessary tools to solve the difficult problems society faces. Under the guidance and supervision of faculty and staff, students are offered the opportunity to experience personal, professional, social, and intellectual growth through the following School of Social Sciences programs: public- and private-sector internships, community service, field studies, and the major in Social Policy and Public Service.

Undergraduate Programs in K–12 Education

Undergraduate students who wish to pursue a career in the field of K–12 education are well-served in the School of Social Sciences and the School of Education. The following interrelated programs provide opportunities for students to gain knowledge and experience in this important area.

Minor in Educational Studies

The minor in Educational Studies allows students to explore a broad range of issues in the field of education and provides a strong foundation for K-12 teaching. Both introductory and advanced courses are included, giving students a solid preparation for later teacher credential programs and many related occupations. NOTE: A Statement of Intent is required of all students wishing to enroll in this minor. See the School of Education (p. 414) section of the *Catalogue* for more information.

School of Education Programs

The School of Education provides many other opportunities for prospective educators, including a mentoring program which provides students with valuable experience while they work with credentialed teachers; UC Links, a program in which undergraduates tutor K–8 students in after-school settings; and advising services provided by counselors who assist students in planning future careers in education. Further information about these programs is available from the School of Education counselors at 2001 Berkeley Place.

Students interested in obtaining a teaching credential should see the School of Education (p. 414) section of the *Catalogue* for information.

Special Programs

Campuswide Honors Program

The Campuswide Honors Program is available to selected high-achieving students from all academic majors from their freshman through senior years. For more information contact the Campuswide Honors Program, 1200 Student Services II; (949) 824-5461; honors@uci.edu; or visit the Campuswide Honors Program (http://www.honors.uci.edu) website.

UC Education Abroad Program

Upper-division students have the opportunity to experience a different culture while making progress toward degree objectives through the University's Education Abroad Program (EAP). UCEAP is an overseas study program which operates in cooperation with host universities and colleges throughout the world. Visit the Study Abroad Center (http://www.studyabroad.uci.edu) website for additional information.

Interdisciplinary Minors

A variety of interdisciplinary minors are available to all UCI students. The minor in Chicano/Latino Studies, offered by the School of Social Sciences, is designed to provide an awareness, knowledge, and appreciation of the language, history, culture, literature, sociology, anthropology, politics, social ecology, health, medicine, and creative (art, dance, film, drama, music) accomplishments of Chicano/Latino communities.

The **minor in Conflict Resolution,** sponsored by the International Studies program in the School of Social Sciences, provides skills in conflict analysis and resolution and a useful understanding of integrative institutions at the local, regional, and international levels. The curriculum includes training that students may apply toward State of California certification as a mediator.

Information about the following minors is available in the Interdisciplinary Studies (p. 1081) section of the *Catalogue*.

The **minor in Civic and Community Engagement** seeks to provide students with the knowledge, skills, attitudes, and values to engage as citizens and active community members in the twenty-first century. The minor is distinguished both by *what* students learn, and by *how* they learn it.

The **minor in Global Sustainability** trains students to understand the changes that need to be made in order for the human population to live in a sustainable relationship with the resources available on this planet.

The **minor in the History and Philosophy of Science** explores how science is actually done and how it has influenced history, and is concerned with determining what science and mathematics are, accounting for their apparent successes, and resolving problems of philosophical interest that arise in the sciences.

The **minor in Native American Studies** focuses on history, culture, religion, and the environment. The three core courses serve as an introduction to the Native American experience from the perspective of different historical periods and frameworks of analysis.

Information about the following interdisciplinary minors is available in the School of Humanities (p. 623) section.

The **minor in African American Studies** offers undergraduate students an opportunity to study those societies and cultures established by the people of the African diaspora and to investigate the African American experience from a variety of disciplinary perspectives and theoretical approaches.

The **minor in Archaeology** introduces students to modern archaeological theory and practice, to different approaches and theoretical frameworks used in the reconstruction of cultures based on their material remains, and the use of such approaches and frameworks in a comparative context that emphasizes one geographic area.

The **minor in Asian American Studies** examines the historical and contemporary experiences of Asians after their arrival in the United States and seeks to provide an awareness of the history, culture (e.g., literary and creative art accomplishments), psychology, and social organization of Asian American communities.

The **minor in Asian Studies** creates opportunities for students to explore Asian topics in a variety of fields, to develop advanced language skills, and to acquire broader perspectives.

The **minor in Latin American Studies** is designed to develop in students an awareness, knowledge, and appreciation of Latin American issues in the areas of language, history, culture, literary studies, sociology, anthropology, political science, health, folk medicine, and creative (art, dance, film, drama, music) accomplishments.

The **minor in Religious Studies** focuses on the comparative study of religions in various cultural settings around the world and seeks to provide a wide-ranging academic understanding and knowledge of the religious experience in society.

The **minor in Gender and Sexuality Studies** fosters critical and creative analysis of the various disciplinary perspectives—historical, political, economic, representational, technological, and scientific—that have (or have not) constituted women, gender, and sexuality as objects of study. Department of Gender and Sexuality Studies also offers a minor in Queer Studies.

Careers in Social Sciences

Business and industry often look to social science graduates to fill positions in management, finance, marketing and advertising, personnel, production supervision, and general administration. In the public sector, a wide variety of opportunities are available in city, county, state, and federal government. Teaching is a frequently chosen career at all levels from elementary school teacher to professor. In addition, many graduates enter professional practice, becoming lawyers, psychologists, researchers, or consultants in various fields.

Because all degrees offered by the School of Social Sciences involve an educational program that is interdisciplinary and that prepares students to understand quantitative methods of data analysis, graduates are well-positioned for research and analysis careers at all levels of government and in private firms. Their solid grounding in contemporary social science methods and their familiarity with a broad spectrum of social scientific thinking gives them an excellent foundation for the pursuit of further training in graduate and professional programs.

The UCI Career Center provides services to students and alumni including career counseling, information about job opportunities, a career library, and workshops on resume preparation, job search, and interview techniques. Additional information is available in the Career Center (p. 124) section.

Graduate Program

The School of Social Sciences offers graduate training in the following areas: Anthropology (Ph.D. in Anthropology), Cognitive Sciences (Ph.D. in Psychology), Economics (Ph.D. in Economics), Logic and Philosophy of Science (Ph.D. in Philosophy), Mathematical Behavioral Sciences (Ph.D. in Social Science), Politics and Society (Ph.D. in Political Science), and Sociology (Ph.D. in Sociology). In addition, an interdisciplinary concentration in Public Choice is offered within the programs in Economics and Political Science, a concentration in Cognitive Neuroscience is offered within the program in Cognitive Sciences, a specialized concentration in Transportation Economics is offered within the program in Economics, an emphasis in Social Networks is offered within the Mathematical Behavioral Sciences concentration, and a concentration in Political Psychology is offered within the program in Political Science. When an applicant’s interests lie outside of or across these areas, the Associate Dean of Graduate Studies, School of Social Sciences, may, on rare occasions, appoint a three-member faculty committee to guide an independent course of study for the Ph.D. degree in Social Science.

The M.A. degree in Anthropology, Economics, Philosophy, Political Science, Psychology, Social Science, or Sociology may be conferred upon students in Ph.D. programs after completion of the necessary requirements.

Additionally, the M.A. degree program in Social Science with a concentration in Demographic and Social Analysis is supervised by faculty from the Schools of Social Sciences and Social Ecology. Students may apply directly to this M.A. program.

A concentration in Medicine, Science, and Technology Studies is available within the M.A. degree in Social Science.

A Master of Public Policy (M.P.P.) program (p. 1565) is also available and is jointly supervised by faculty from the Schools of Social Sciences and Social Ecology. Students may apply directly to this program.

In cooperation with the UCI School of Education, students enrolled in a School of Social Sciences graduate program may choose to pursue a teaching credential while working toward their degree. After completion of requirements for an M.A. degree, students may apply for admission into the credential program administered by the School of Education. As required by law, the applicant must pass the California Basic Educational Skills Test (CBEST), obtain a Certification of Clearance, and successfully complete the appropriate subject area examination or an approved subject-matter program. A detailed description of the program may be obtained from the Social Sciences Graduate Office or the School of Education.

Admission

Potential graduate students should apply by January 15 to receive fullest consideration for financial aid. Applicants should indicate the title of the degree sought (Anthropology, Economics, Political Science, Psychology, or Social Science), and the academic area of concentration (see above). All applicants are required to submit Graduate Record Examination General Test scores. Letters of recommendation and the applicant's statement of interest are important factors in the admission decision.

In addition to the University admission requirements described in the Graduate Division section, individual graduate programs may prescribe special requirements or expectations of applicants, subject to the approval of the Graduate Council. Such requirements are minimum standards only; successful applicants typically must exceed them by a substantial margin.

Financial Support

Many students receive financial support in the form of fellowships, teaching assistantships, or research assistantships available under grants to individual faculty. Before accepting an offer of admission with financial support for the first year, applicants should inquire about the likelihood of such support in future years. Occasionally, a newly admitted student may receive a multiyear commitment of some specified financial support, but this is not the rule. Students are also advised to seek aid from sources external to the University. NOTE: Teaching assistantships do not include remission of fees, tuition, or nonresident supplemental tuition.

Length of Study and Residence

The normative time for completion of the Ph.D. degree is either five, six, or seven years, depending upon the specific program. See the department sections for information.

Students admitted to the M.A. concentration in Demographic and Social Analysis should be able to earn the M.A. within one to two years.

Because the intellectual training offered by the School requires full-time study and constant contact with the faculty, the School does not accept part-time students.

Master of Public Policy

The Master of Public Policy (M.P.P.) program is a two-year professional degree program administered by both the School of Social Ecology and the School of Social Sciences. Students are required to complete 72 units of graduate courses. In the first year, students will attend an introductory conference, participate in a workshop, and take seven core courses and two elective courses. In the summer after the first year, students will participate in a policy-relevant internship in an appropriate government, business, or nonprofit setting. In the second year, students take three core courses and five elective courses.

The core course requirements in year one of the program are Qualitative Methods and Public Policy, Statistical Methods for Public Policy, Information and the Policy Process, Microeconomics and Public Policy, Policy Processes and Institutions of Governance, Collaborative Governance and Public Management, and Social Mobilization, Power, and Justice. The core course requirements in year two are The Economics of Government, Policy and Ethics, and Capstone Research Project and Briefing.

Additional information is available at the Master of Public Policy (http://mpp.web.uci.edu) website.

Faculty

Neerja Aggarwal, Ph.D. University of California, Irvine, *Lecturer of Economics*

Nurudeen O. Alao, Ph.D. Northwestern University, *Lecturer of Social Sciences; International Studies*

Edwin Amenta, Ph.D. University of Chicago, *Professor of Sociology; Political Science* (political sociology, historical and comparative sociology, social movements, social policy)

Mohammad Amjad, Ph.D. University of California, Riverside, *Lecturer of Political Science*

Olufunmilayo B. Arewa, J.D. Harvard University, *Professor of School of Law; Anthropology*

Jacob P. Avery, Ph.D. University of Pennsylvania, *Assistant Professor of Sociology* (poverty and inequality, culture and interaction, city and community, human service organizations, sociology of knowledge, ethnography)

Francisco J. Ayala, Ph.D. Columbia University, *Donald Bren Professor* and *University Professor of Ecology and Evolutionary Biology; Logic and Philosophy of Science*

Stephen D. Bach, Ph.D. University of California, Irvine, *Lecturer of International Studies; Engineering*

Stanley Bailey, Ph.D. University of California, Los Angeles, *Associate Professor of Sociology* (race and ethnicity, religion, immigration, Latin America)

Nina Bandelj, Ph.D. Princeton University, *Associate Professor of Sociology; European Languages and Studies* (economic sociology, culture, organizations, social networks, political economy, globalization, social change, central and eastern Europe)

Jeffrey A. Barrett, Ph.D. Columbia University, *Professor of Logic and Philosophy of Science; Philosophy*

William H. Batchelder, Ph.D. Stanford University, *Professor of Cognitive Sciences*

Frank D. Bean, Ph.D. Duke University, *UCI Chancellor's Professor of Sociology; Economics* (international migration, demography, racial and ethnic relations, economic sociology, family)

Christine Beckman, Ph.D. Stanford University, *Associate Professor of Paul Merage School of Business; Sociology*

Matthew N. Beckmann, Ph.D. University of Michigan, *Associate Professor of Political Science*

D. Bell, Ph.D. University of California, Berkeley, *Professor Emeritus of Economics*

Bruce G. Berg, Ph.D. Indiana University, *Associate Professor of Cognitive Sciences*

Victoria Bernal, Ph.D. Northwestern University, *Associate Professor of Anthropology; Culture and Theory*

Susan C. Bibler Coutin, Ph.D. Stanford University, *Associate Dean of the Graduate Division and Professor of Criminology, Law and Society; Anthropology; Culture and Theory* (law, culture, immigration, human rights, citizenship, political activism, Central America)

Marianne Bitler, Ph.D. Massachusetts Institute of Technology, *UCI Chancellor's Fellow* and *Professor of Economics; Education*

Thomas D. Boellstorff, Ph.D. Stanford University, *Professor of Anthropology; Culture and Theory* (virtual worlds, sexuality, postcoloniality, HIV/AIDS, mass media and popular culture, language and culture, Indonesia, Southeast Asia)

Daniel E. Bogart, Ph.D. University of California, Los Angeles, *Associate Professor of Economics*

Catherine I. Bolzendahl, Ph.D. Indiana University, *Associate Professor of Sociology* (gender, the welfare state, political sociology, comparative sociology, family, quantitative methodology)

Graeme T. Boushey, Ph.D. University of Washington, *Assistant Professor of Political Science*

Geoffrey C. Bowker, Ph.D. University of Melbourne, *Professor of Informatics; Anthropology* (values in design, social studies of databases, science and technology studies)

John P. Boyd, Ph.D. University of Michigan, *Professor Emeritus of Anthropology*

William A. Branch, Ph.D. University of Oregon, *UCI Chancellor's Fellow* and *Professor of Economics*

Alyssa Brewer, Ph.D. Stanford University, *Assistant Professor of Cognitive Sciences*

Susan K. Brown, Ph.D. University of Washington, *Associate Professor of Sociology* (immigration, inequality, urban sociology)

David Brownstone, Ph.D. University of California, Berkeley, *Professor of Economics*

Jan K. Brueckner, Ph.D. Stanford University, *Department Chair and Professor of Economics; Planning, Policy, and Design*

Daniel R. Brunstetter, Ph.D. University of California, Davis, *Associate Professor of Political Science; European Languages and Studies* (political theory, international relations, French political thought)

Michael L. Burton, Ph.D. Stanford University, *Professor Emeritus of Anthropology; Economics*

Carter Butts, Ph.D. Carnegie Mellon University, *Professor of Sociology; Electrical Engineering and Computer Science; Statistics* (mathematical sociology, social networks, quantitative methodology, human judgment and decision making, economic sociology)

Lawrence F. Cahill, Ph.D. University of California, Irvine, *Professor of Neurobiology and Behavior; Cognitive Sciences*

Kitty C. Calavita, Ph.D. University of Delaware, *Professor Emerita of Criminology, Law and Society; Sociology* (sociology of law, criminology, social deviance, immigration, inequality)

Alejandro E. Camacho, LL.M. Georgetown University, *Professor of School of Law; Political Science*

Belinda Campos, Ph.D. University of California, Berkeley, *Associate Professor of Chicano/Latino Studies; Psychology and Social Behavior* (culture, relationships, positive emotion, health)

Francis A. Cancian, Ph.D. Harvard University, *Professor Emeritus of Anthropology; Economics*

David O. Carter, J.D. University of California, Los Angeles, *Lecturer of Political Science*

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Jeanett Castellanos, Ph.D. Washington State University, *Lecturer with Security of Employment of Social Sciences*

Leo Chavez, Ph.D. Stanford University, *Professor of Anthropology*

Ricardo Chavira, M.A. California State University, Northridge, *Lecturer of Social Sciences; International Studies*

Erwin Chemerinsky, J.D. Harvard University, *Dean of the School of Law, Raymond Pryke Endowed Chair in First Amendment Law* and *Professor of School of Law; Political Science*

Jiawei Chen, Ph.D. Johns Hopkins University, *Associate Professor of Economics*

Natalia Chernyshoff, Ph.D. University of California, Davis, *Lecturer of Economics*

Joanne Christopherson, Ph.D. University of California, Irvine, *Lecturer of Social Sciences*

Charles F. Chubb, Ph.D. New York University, *Professor of Cognitive Sciences*

Damon Clark, Ph.D. Oxford University, *Assistant Professor of Economics*

Benjamin N. Colby, Ph.D. Harvard University, *Professor Emeritus of Anthropology*

Gilverto Q. Conchas, Ph.D. University of Michigan, *Associate Professor of Education; Sociology*

Thomas M. D'Zmura, Ph.D. University of Rochester, *Professor of Cognitive Sciences*

Russell Dalton, Ph.D. University of Michigan, *Professor of Political Science; European Languages and Studies; Political Science*

James N. Danziger, Ph.D. Stanford University, *Professor Emeritus of Political Science*

Arthur S. De Vany, Ph.D. University of California, Los Angeles, *Professor Emeritus of Economics*

Louis Desipio, Ph.D. University of Texas at Austin, *Professor of Chicano/Latino Studies; Political Science*

John D. Dombrink, Ph.D. University of California, Berkeley, *Professor of Criminology, Law and Society; Sociology* (crime and criminal justice, deviance and social control)

Yingying Dong, Ph.D. Boston College, *Assistant Professor of Economics*

Barbara A. Dosher, Ph.D. University of Oregon, *UCI Distinguished Professor of Cognitive Sciences*

Thomas J. Douglas, Ph.D. University of California, Irvine, *Lecturer of Anthropology*

Christopher E. Drover, Ph.D. University of California, Riverside, *Lecturer of Anthropology*

John Duffy, Ph.D. University of California, *Professor of Economics*

Greg Duncan, Ph.D. University of Michigan, *UCI Distinguished Professor of Education; Economics; Psychology and Social Behavior* (economics of education, program evaluation, child development)

Robert Henry Duncan, Ph.D. University of California, Irvine, *Lecturer of International Studies*

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George Farkas, Ph.D. Cornell University, *Professor of Education; Education; Sociology*

Katherine Faust, Ph.D. University of California, Irvine, *Professor of Sociology* (social networks, animal social organization, population processes and social networks, research methods)

David Feldman, Ph.D. University of Missouri-Columbia, *Professor of Planning, Policy, and Design; Political Science*

Martha S. Feldman, Ph.D. Stanford University, *Roger W. and Janice M. Johnson Chair in Civic Governance and Public Management* and *Professor of Planning, Policy, and Design; Paul Merage School of Business; Political Science; Sociology*

Paul Feldstein, Ph.D. University of Chicago, *Professor Emeritus of Paul Merage School of Business; Economics*

Cynthia Feliciano, Ph.D. University of California, Los Angeles, *Associate Professor of Sociology; Chicano/Latino Studies; Education* (race/ethnicity/minority relations, migration and immigration, education)

Raúl A. Fernández, Ph.D. Claremont Graduate University, *Director of the UC-Cuba Academic Initiative* and *Professor Emeritus of Chicano/Latino Studies; Culture and Theory; Social Sciences*

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James J. Flink, Ph.D. University of Pennsylvania, *Professor Emeritus of Social Sciences*

Glenda M. Flores, Ph.D. University of Southern California, *Assistant Professor of Chicano/Latino Studies; Sociology*

Matthew Foreman, Ph.D. University of California, Berkeley, *Professor of Mathematics; Logic and Philosophy of Science* (ergodic theory and dynamical systems, logic and foundations)

Charless C. Fowlkes, Ph.D. University of California, Berkeley, *Associate Professor of Computer Science; Cognitive Sciences; Electrical Engineering and Computer Science* (computer vision, machine learning, computational biology)

David J. Frank, Ph.D. Stanford University, *Professor of Sociology; Education; Political Science* (globalization, sexuality, the natural environment, higher education)

Steven A. Frank, Ph.D. University of Michigan, *Professor of Ecology and Evolutionary Biology; Logic and Philosophy of Science*

Lewis A. Froman, Ph.D. Northwestern University, *Professor Emeritus of Political Science*

Paula Garb, Ph.D. Russian Academy of Sciences, *Lecturer of Social Sciences; International Studies; Undergraduate Education*

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Michelle Garfinkel, Ph.D. Brown University, *Professor of Economics*

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Samuel L. Gilmore, Ph.D. Northwestern University, *Lecturer of Sociology*

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Teresa A. Griffith, Ph.D. University of California, Irvine, *Lecturer of Linguistics*

Bernard N. Grofman, Ph.D. University of Chicago, *Jack Peltason Chair* and *Professor of Political Science; Economics*

Emily D. Grossman, Ph.D. Vanderbilt University, *Associate Professor of Cognitive Sciences*

Richard L. Hasen, J.D. University of California, Los Angeles, *UCI Chancellor's Professor of School of Law; Political Science*

Jeremy Heis, Ph.D. University of Pittsburgh, *Associate Professor of Logic and Philosophy of Science; Philosophy*

William Hernandez, J.D. Georgetown University, *Lecturer of Paul Merage School of Business; International Studies*

Gregory S. Hickok, Ph.D. Brandeis University, *Professor of Cognitive Sciences; Linguistics*

John Hipp, Ph.D. University of North Carolina at Chapel Hill, *UCI Chancellor's Fellow* and *Professor of Criminology, Law and Society; Sociology* (community context of crime, household decisions and neighborhood change, research methods)

Ann Hironaka, Ph.D. Stanford University, *Associate Professor of Sociology* (political sociology, war and peace, environmental sociology, ethnic and racial conflict)

David Hirshleifer, Ph.D. University of Chicago, *Paul Merage Chair in Business Growth* and *Professor of Paul Merage School of Business; Economics*

Donald D. Hoffman, Ph.D. Massachusetts Institute of Technology, *Professor of Cognitive Sciences; Logic and Philosophy of Science*

Matthew L. Huffman, Ph.D. University of California, Santa Barbara, *Professor of Sociology; Paul Merage School of Business* (race/gender inequality, organizations, labor markets)

James R. Hull, Ph.D. University of North Carolina at Chapel Hill, *Lecturer with Potential Security of Employment of Social Sciences; Sociology*

Simon Huttegger, Ph.D. University of Salzburg, *UCI Chancellor's Fellow* and *Associate Professor of Logic and Philosophy of Science*

Mizuko Ito, Ph.D. Stanford University, *John D. and Catherine T. MacArthur Foundation Chair in Digital Media and Learning* and *Professor in Residence of Anthropology; Education; Informatics* (ethnography, game studies, youth culture, learning sciences, online communities)

Geoffrey J. Iverson, Ph.D. New York University, *Professor of Cognitive Sciences*

Ivan G. Jeliazkov, Ph.D. Washington University, *Associate Professor of Economics; Statistics*

Brian C. Jenkins, Ph.D. University of North Carolina at Chapel Hill, *Lecturer of Economics*

Angela C. Jenks, Ph.D. University of California, Berkeley, *Lecturer with Potential Security of Employment of Anthropology*

Valerie Jenness, Ph.D. University of California, Santa Barbara, *Dean of the School of Social Ecology* and *Professor of Criminology, Law and Society; Sociology* (links between deviance and social control (especially law), the politics of crime control and criminalization, social movements and social change, corrections and public policy)

Linda Cohen Jennings, Ph.D. California Institute of Technology, *Professor of Economics; School of Law*

Kent E. Johnson, Ph.D. Rutgers, The State University of New Jersey, *Associate Professor of Logic and Philosophy of Science; Linguistics*

Philippe Jorion, Ph.D. University of Chicago, *Professor of Paul Merage School of Business; Economics*

Marek Kaminski, Ph.D. University of Maryland, College Park, *Associate Professor of Political Science; Economics*

Pamela A. Kelley, J.D. Yale University, *Lecturer of Political Science*

Claire J. Kim, Ph.D. Yale University, *Associate Professor of Asian American Studies; Culture and Theory; Political Science*

Eleana Kim, Ph.D. New York University, *Associate Professor of Anthropology*

Igor Kopylov, Ph.D. University of Rochester, *Associate Professor of Economics; Economics*

Jeffrey Krichmar, Ph.D. George Mason University, *Professor of Cognitive Sciences; Computer Science*

Charis E. Kubrin, Ph.D. George Washington University, *Professor of Criminology, Law and Society; Sociology* (crime, neighborhood effects and social processes, race/ethnicity and violence, immigration and crime)

Arthur D. Lander, Ph.D. University of California, San Francisco, *Donald Bren Professor* and *Professor of Developmental and Cell Biology; Biomedical Engineering; Logic and Philosophy of Science; Pharmacology* (systems biology of development, pattern formation, growth control)

Jee-Young J. Lee, Ph.D. Columbia University, *Professor of Sociology; Asian American Studies* (immigration, race/ethnicity, social inequality, Asian American studies)

Michael Lee, Ph.D. University of Adelaide, *Professor of Cognitive Sciences*

Karen Leonard, Ph.D. University of Wisconsin, *Professor Emerita of Anthropology*

Mimi Liljeholm, Ph.D. University of California, Los Angeles, *Assistant Professor of Cognitive Sciences*

Elizabeth F. Loftus, Ph.D. Stanford University, *UCI Distinguished Professor of Psychology and Social Behavior; Cognitive Sciences; Criminology, Law and Society; School of Law* (cognitive psychology, human memory, psychology and law)

Cecelia M. Lynch, Ph.D. Columbia University, *Professor of Political Science*

Gary S. Lynch, Ph.D. Princeton University, *Professor of Psychiatry and Human Behavior; Anatomy and Neurobiology; Cognitive Sciences*

David Christian Lyon, Ph.D. Vanderbilt University, *Assistant Professor of Anatomy and Neurobiology; Cognitive Sciences*

G. Craig MacAndrew, Ph.D. University of Chicago, *Professor Emeritus of Anthropology*

Penelope J. Maddy, Ph.D. Princeton University, *UCI Distinguished Professor of Logic and Philosophy of Science; Mathematics; Philosophy* (philosophy of mathematics and logic, meta-philosophy)

Lilith Mahmud-Abdelwahab, Ph.D. Harvard University, *Assistant Professor of Gender and Sexuality Studies; Anthropology; Culture and Theory* (elites, race and nationalism, cultural capital, secrecy and conspiracy, feminist ethnography, critical studies of Europe)

David B. Malament, Ph.D. The Rockefeller University, *Professor Emeritus of Logic and Philosophy of Science*

Virginia Mann, Ph.D. Massachusetts Institute of Technology, *Professor of Cognitive Sciences; Education; Linguistics*

George E. Marcus, Ph.D. Harvard University, *UCI Chancellor's Professor of Anthropology*

Raffaele Mari, M.A. San Diego State University, *Lecturer of Economics*

William M. Maurer, Ph.D. Stanford University, *Dean of the School of Social Sciences* and *Professor of Anthropology; Criminology, Law and Society; Culture and Theory; School of Law* (anthropology of law, globalization, Caribbean, anthropology of money and finance, gender and kinship)

Shampa Mazumdar, Ph.D. Northeastern University, *Lecturer of Sociology*

Michael T. McBride, Ph.D. Yale University, *Associate Professor of Economics; Logic and Philosophy of Science*

Anthony J. McGann, Ph.D. Duke University, *Associate Professor of Political Science*

James L. McGaugh, Ph.D. University of California, Berkeley, *Research Professor and Professor Emeritus of Neurobiology and Behavior; Logic and Philosophy of Science*

Martin C. McGuire, Ph.D. Harvard University, *UCI Endowed Chair* and *Professor Emeritus of Economics*

Richard B. McKenzie, Ph.D. Virginia Polytechnic Institute and State University, *Professor Emeritus of Economics; Paul Merage School of Business*

James W. Meeker, Ph.D. State University of New York at Buffalo, *Professor of Criminology, Law and Society; Sociology* (sociology of law, criminal justice, research methodology, statistics, access to civil justice)

Richard Mendelsohn, Ph.D. Massachusetts Institute of Technology, *Adjunct Professor of Logic and Philosophy of Science*

Carrie Menkel-Meadow, J.D. University of Pennsylvania, *UCI Chancellor's Professor of Political Science; School of Law*

David S. Meyer, Ph.D. Boston University, *Professor of Sociology; Planning, Policy, and Design; Political Science* (social movements, public policy, peace and war, social justice)

John Middlebrooks, Ph.D. University of California, San Francisco, *Professor of Otolaryngology; Biomedical Engineering; Cognitive Sciences; Neurobiology and Behavior* (hearing research, neurophysiology, auditory prosthesis, computational neuroscience, auditory cortex)

Fabio Milani, Ph.D. Princeton University, *Associate Professor of Economics*

Kristen R. Monroe, Ph.D. University of Chicago, *UCI Chancellor's Professor of Political Science*

Michael J. Montoya, Ph.D. Stanford University, *UCI Chancellor's Fellow* and *Associate Professor of Anthropology; Chicano/Latino Studies; Culture and Theory; Program in Public Health* (social inequality and health, race and ethnicity, social and cultural studies of science, technology, and medicine, participation of ethnic populations in biomedical research, the U.S./Mexican border, critical bioethics)

Alejandro Morales, Ph.D. Rutgers, The State University of New Jersey, *Professor of Chicano/Latino Studies; Spanish and Portuguese*

Patrick M. Morgan, Ph.D. Yale University, *Professor Emeritus of Political Science*

Keith Murphy, Ph.D. University of California, Los Angeles, *Assistant Professor of Anthropology; Linguistics*

Sylvia Nam, Ph.D. University of California, Berkeley, *Assistant Professor of Anthropology*

Louis E. Narens, Ph.D. University of California, Los Angeles, *Professor of Cognitive Sciences; Logic and Philosophy of Science*

David Neumark, Ph.D. Harvard University, *UCI Chancellor's Professor of Economics; Paul Merage School of Business*

Riley D. Newman, Ph.D. University of California, Berkeley, *Professor Emeritus of Physics and Astronomy; Logic and Philosophy of Science; Physics and Astronomy*

Nick R. Noviello, Ph.D. University of California, Irvine, *Lecturer of Social Sciences*

Charles T. O'Connell, Ph.D. University of California, Los Angeles, *Lecturer of International Studies; Sociology*

Cailin O'Connor, B.A. Harvard University, *Assistant Professor of Logic and Philosophy of Science*

Sheila G. O'Rourke, Ph.D. University of California, Irvine, *Lecturer of Anthropology*

Kevin E. Olson, Ph.D. Northwestern University, *Associate Professor of Political Science; Culture and Theory* (contemporary European political theory, cultural politics, politics of diversity, popular sovereignty, citizenship, nineteenth- and twentieth-century political theory)

Valerie A. Olson, Ph.D. William Marsh Rice University, *Assistant Professor of Anthropology*

Lisa Pearl, Ph.D. University of Maryland, College Park, *Associate Professor of Cognitive Sciences; Linguistics; Logic and Philosophy of Science*

Jack W. Peltason, Ph.D. Princeton University, *Professor Emeritus of Political Science*

Andrew Penner, Ph.D. University of California, Berkeley, *Assistant Professor of Sociology* (gender, inequality, education, family, race)

Kristin Peterson, Ph.D. William Marsh Rice University, *Associate Professor of Anthropology; Culture and Theory; European Languages and Studies*

Mark P. Petracca, Ph.D. University of Chicago, *Associate Professor of Political Science; Planning, Policy, and Design*

Bojan M. Petrovic, Ph.D. University of California, Irvine, *Lecturer of Social Sciences; Political Science*

Dale J. Poirier, Ph.D. University of Wisconsin-Madison, *Professor of Economics; Statistics*

Andrew Policano, Ph.D. Brown University, *Dean's Leadership Circle Endowed Professorship* and *Professor of Paul Merage School of Business; Economics*

Francesca Polletta, Ph.D. Yale University, *Professor of Sociology* (social movements, democracy, culture, sociology of law, race and ethnicity, social theory)

Henry N. Pontell, Ph.D. State University of New York at Stony Brook, *Professor of Criminology, Law and Society; Sociology* (white-collar and corporate crime, criminology, criminal justice, deviance and social control, sociology of law)

M. Ross Quillian, Ph.D. Carnegie Mellon University, *Professor Emeritus of Political Science*

Charles C. Ragin, Ph.D. University of North Carolina at Chapel Hill, *UCI Chancellor's Professor of Sociology* (comparative and historical sociology, social inequality, political sociology, quantitative methodology, qualitative methodology)

Priya Ranjan, Ph.D. Columbia University, *Professor of Economics*

Maria G. Rendon, Ph.D. Harvard University, *Assistant Professor of Planning, Policy, and Design; Sociology*

Virginia Richards, Ph.D. University of California, Berkeley, *Professor of Cognitive Sciences*

Gary Richardson, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Economics; European Languages and Studies* (economic history, macroeconomics, Great Depression, Industrial Revolution, property rights and economic development)

Belinda B. Robnett-Olsen, Ph.D. University of Michigan, *Professor of Sociology; African American Studies; Culture and Theory* (social movements, race and ethnicity, gender, social change, African Americans)

Guillaume Rocheteau, Ph.D. University of Paris, *UCI Chancellor's Fellow and Professor of Economics*

Jose Antonio Rodriguez Lopez, Ph.D. University of California, Berkeley, *Assistant Professor of Economics*

A. K. Romney, Ph.D. Harvard University, *Professor Emerita of Anthropology; Cognitive Sciences*

Rocio Rosales, Ph.D. University of California, Los Angeles, *Assistant Professor of Sociology*

Ana Rosas, Ph.D. University of Southern California, *Associate Professor of Chicano/Latino Studies; History*

Shawn W. Rosenberg, M.S. Oxford University, *Professor of Political Science; Psychology and Social Behavior* (political psychology, deliberative democracy, ideology, social theory, social and development psychology)

Kevin Roth, M.S. Cornell University, *Assistant Professor of Economics*

Vicki L. Ruiz, Ph.D. Stanford University, *UCI Distinguished Professor of History; Chicano/Latino Studies; Culture and Theory* (Chicana/Latina history, U.S. labor, immigration, gender)

Ruben G. Rumbaut, Ph.D. Brandeis University, *Professor of Sociology; Criminology, Law and Society; Education* (international migration, immigration laws, criminalization, incarceration, inequality)

Donald G. Saari, Ph.D. Purdue University, *UCI Distinguished Professor of Economics; Logic and Philosophy of Science; Mathematics* (ergodic theory and dynamical systems, mathematics of complex social phenomena)

Kourosh Saberi, Ph.D. University of California, Berkeley, *Professor of Cognitive Sciences*

Kamal Sadiq, Ph.D. University of Chicago, *Associate Professor of Political Science*

Jean-Daniel M. Saphores, Ph.D. Cornell University, *Professor of Civil and Environmental Engineering; Economics; Planning, Policy, and Design* (transportation economics, planning and policy, environmental and natural resource economics and policy, quantitative methods)

Barbara W. Sarnecka, Ph.D. University of Michigan, *Associate Professor of Cognitive Sciences; Logic and Philosophy of Science*

George Sarraf, Ph.D. Claremont Graduate University, *Lecturer of Economics*

David Scharp, Ph.D. Washington University, *Lecturer of International Studies*

Seymour A. Schlosser, M.A. University of California, Los Angeles, *Lecturer of International Studies*

Evan Schofer, Ph.D. Stanford University, *Professor of Sociology* (comparative political sociology, sociology of education, quantitative methods and statistics, globalization, sociology of the environment, organizations, sociology of science)

William R. Schonfeld, Ph.D. Princeton University, *Professor Emeritus of Political Science*

Jonas Schultz, Ph.D. Columbia University, *Professor Emeritus of Physics and Astronomy; International Studies; Logic and Philosophy of Science*

Tonya L. Schuster, Ph.D. University of California, Riverside, *Lecturer of Sociology; Program in Public Health*

Gabriele J. Schwab, Ph.D. University of Konstanz, *Department Chair and UCI Chancellor's Professor of Comparative Literature; Anthropology; Culture and Theory; European Languages and Studies* (modern literature, critical theory, psychoanalysis, comparative literature)

Carl E. Schwarz, Ph.D. University of California, Santa Barbara, *Lecturer of Political Science; International Studies*

Armin Schwegler, Ph.D. University of California, Berkeley, *Professor of Spanish and Portuguese; Linguistics*

Sherilyn K. Sellgren, MB.A. University of California, Irvine, *Lecturer of Political Science*

Caesar D. Sereseres, Ph.D. University of California, Riverside, *Associate Professor of Political Science*

Carroll S. Seron, Ph.D. New York University, *Professor of Criminology, Law and Society; School of Law; Sociology* (sociology of law, sociology of professions, law and society, sociology of legal profession, methods and police misconduct)

Nilopa Shah, Ph.D. University of California, Irvine, *Lecturer of Economics*

Paul R. Shirey, Ph.D. University of California, Irvine, *Lecturer of Social Sciences; Economics*

Stergios Skaperdas, Ph.D. Johns Hopkins University, *Clifford S. Heinz Chair* and *Professor of Economics*

Brian Skyrms, Ph.D. University of Pittsburgh, *UCI Distinguished Professor of Logic and Philosophy of Science; Economics; Philosophy*

Kenneth A. Small, Ph.D. University of California, Berkeley, *Professor Emeritus of Economics*

Steven L. Small, M.D. University of Rochester, *Dr. Stanley van den Noort Endowed Chair* and *Professor of Neurology; Cognitive Sciences; Neurobiology and Behavior*

Charles Smith, Ph.D. University of California, San Diego, *Associate Professor of Political Science*

David A. Smith, Ph.D. University of North Carolina at Chapel Hill, *Professor of Sociology; Planning, Policy, and Design* (world systems analysis, urbanization, development, comparative-historical sociology, dependent development in east asia)

David A. Snow, Ph.D. University of California, Los Angeles, *UCI Distinguished Professor of Sociology* (collective behavior, protest and social movements, framing processes, social psychology and culture, homelessness and social problems, qualitative methods)

Etel Solingen, Ph.D. University of California, Los Angeles, *Thomas T. and Elizabeth C. Tierney Chair in Global Peace and Conflict Studies* and *Professor of Political Science*

Dorothy J. Solinger, Ph.D. Stanford University, *Professor of Political Science*

George Sperling, Ph.D. Harvard University, *UCI Distinguished Professor of Cognitive Sciences; Neurobiology and Behavior*

Ramesh Srinivasan, Ph.D. Tulane University, *Professor of Cognitive Sciences; Biomedical Engineering* (cognitive neuroscience, brain development, consciousness, perception, EEG, brain dynamics)

P. Kyle Stanford, Ph.D. University of California, San Diego, *Professor of Logic and Philosophy of Science; Philosophy*

Arnold Starr, M.D. New York University, *Professor Emeritus of Neurology; Cognitive Sciences; Neurobiology and Behavior*

Judith Stepan-Norris, Ph.D. University of California, Los Angeles, *Professor of Sociology* (labor unions, sociology of work, political sociology, American society, research methods, historical-comparative methods, class formation)

Hal S. Stern, Ph.D. Stanford University, *Dean of the Donald Bren School of Information and Computer Sciences, Ted and Janice Smith Family Foundation Endowed Chair in Information and Computer Science,* and *Professor of Statistics; Cognitive Sciences*

Mark Steyvers, Ph.D. Indiana University, *Professor of Cognitive Sciences; Psychology and Social Behavior* (wisdom of crowds, aggregating human judgments, computational models of the mind, machine learning and statistics, memory and decision making)

Yang Su, Ph.D. Stanford University, *Associate Professor of Sociology* (social movements and collective action, political sociology, China's political transition)

Naomi Sugie, Ph.D. Princeton University, *Assistant Professor of Criminology, Law and Society; Sociology* (sociology of crime and punishment, inequality, families, criminal justice policy, methods, new technologies for data collection)

Eric Swanson, Ph.D. Stanford University, *Professor of Economics*

James M. Swanson, Ph.D. Ohio State University, *Professor Emeritus of Pediatrics; Cognitive Sciences*

Bryan Sykes, Ph.D. University of California, Berkeley, *Assistant Professor of Criminology, Law and Society; Sociology* (demography, criminology, research methods, health, social inequality, statistics)

Rein Taagepera, Ph.D. University of Delaware, *Professor Emeritus of Political Science*

Shauhin A. Talesh, J.D. University of Connecticut, *Acting Professor of School of Law; Criminology, Law and Society; Sociology* (civil procedure, consumer law, insurance, business organizations, empirical legal studies, law and society)

Gary B. Thom, Ph.D. Yale University, *Professor Emeritus of Political Science*

Jean Tompihe, Ph.D. University of California, Los Angeles, *Lecturer of International Studies*

Keith Topper, Ph.D. University of California, Los Angeles, *Associate Professor of Political Science; Culture and Theory* (political theory, critical theory, poststructuralism, theories of power, language and politics, theory and politics of interpretation, politics of culture, philosophy of the social sciences)

Bernard H. Tranel, Ph.D. University of California, San Diego, *Professor of Linguistics*

Denis Trapido, Ph.D. Stanford University, *Assistant Professor of Paul Merage School of Business; Sociology*

Judith Treas, Ph.D. University of California, Los Angeles, *Professor of Sociology* (gender, inequality, family, aging and life course, social demography)

Jennifer S. Trueblood, Ph.D. Indiana University, *Assistant Professor of Cognitive Sciences*

Kristin E. Turney, Ph.D. University of Pennsylvania, *Assistant Professor of Sociology; Criminology, Law and Society* (social inequality, family demography, population health, incarceration and punishment, intergenerational transmission of disadvantage, child well-being)

Carole J. Uhlaner, Ph.D. Harvard University, *Associate Professor of Political Science; Economics*

Robert M. Uriu, Ph.D. Columbia University, *Associate Professor of Political Science*

Alfonso Valdez, Ph.D. University of Southern California, *Lecturer of Social Sciences*

Joachim S. Vandekerckhove, Ph.D. Catholic University of Leuven, *Assistant Professor of Cognitive Sciences*

Roxanne Varzi, Ph.D. Columbia University, *Associate Professor of Anthropology; Culture and Theory; Film and Media Studies* (Islam, visual anthropology, anthropology of war, media, youth culture, religion and public space, Iran)

Linda T. Võ, Ph.D. University of California, San Diego, *Associate Professor of Asian American Studies; Culture and Theory; Planning, Policy, and Design; Sociology* (race and ethnic relations, immigrants and refugees, gender relations, community and urban studies)

Wilima Wadhwa, Ph.D. University of California, Irvine, *Lecturer of Economics*

Roger Walsh, Ph.D. University of Queensland, *Professor of Psychiatry and Human Behavior; Anthropology*

Sean P. Walsh, Ph.D. University of Notre Dame, *Assistant Professor of Logic and Philosophy of Science; Mathematics* (philosophy of mathematics, philosophy of logic and mathematical logic)

Feng Wang, Ph.D. University of Michigan, *Professor of Sociology* (contemporary demographic, economic, and social processes, social inequality in state socialisms, contemporary China)

Geoff Ward, Ph.D. University of Michigan, *Associate Professor of Criminology, Law and Society; Sociology* (race relations, courts and sentencing, juvenile justice, social movements, justice workers)

Martin P. Wattenberg, Ph.D. University of Michigan, *Professor of Political Science*

James O. Weatherall, Ph.D. Stevens Institute of Technology, *Associate Professor of Logic and Philosophy of Science*

Kai Wehmeier, Ph.D. University of Münster, *Director, Center for the Advancement of Logic, its Philosophy, History, and Applications and Professor of Logic and Philosophy of Science; Philosophy*

Norman M. Weinberger, Ph.D. Case Western Reserve University, *Professor Emeritus of Neurobiology and Behavior; Logic and Philosophy of Science*

Christian Werner, Ph.D. Berlin Free University, *Professor Emeritus of Economics*

Douglas R. White, Ph.D. University of Minnesota, *Professor Emeritus of Anthropology*

Joseph L. White, Ph.D. Michigan State University, *Professor Emeritus of Social Sciences*

Daniel Whiteson, Ph.D. University of California, Berkeley, *Associate Professor of Physics and Astronomy; Logic and Philosophy of Science*

Christopher A. Whytock, J.D. Georgetown University, *Professor of School of Law; Political Science*

Charles E. Wright, Ph.D. University of Michigan, *Associate Professor of Cognitive Sciences*

Martin Zeman, Ph.D. Humboldt University of Berlin, *Professor of Mathematics; Logic and Philosophy of Science* (logic and foundations)

Fan-Gang Zeng, Ph.D. Syracuse University, *Director of Hearing Research and Professor of Otolaryngology; Anatomy and Neurobiology; Biomedical Engineering; Cognitive Sciences* (cochlear implants and auditory neuroscience)

Mei Zhan, Ph.D. Standford University, *Associate Professor of Anthropology; Culture and Theory* (medical anthropology, cultural and social studies of science, globalization, transnationalism, gender, China and United States)

Anthropology Courses

ANTHRO 2A. Introduction to Sociocultural Anthropology. 4 Units.
Introduction to cultural diversity and the methods used by anthropologists to account for it. Family relations, economic activities, politics, gender, and religion in a wide range of societies. Stresses the application of anthropological methods to research problems. Course may be offered online.

(III, VIII)

ANTHRO 2B. Introduction to Biological Anthropology. 4 Units.
Evolutionary theory and processes, comparative primate fossil record, human variation, and the adequacy of theory, and empirical data.

(III)

ANTHRO 2C. Introduction to Archaeology. 4 Units.
Archaeological theory and cultural processes with emphasis on the American Southwest, Mesoamerica, and Mesopotamia.

(III)

ANTHRO 2D. Introduction to Language and Culture. 4 Units.
Explores what the study of language can reveal about ourselves as bearers of culture. After introducing some basic concepts, examines how cultural knowledge is linguistically organized and how language might shape our perception of the world.

Same as LINGUIS 68.

(III)

ANTHRO 10A. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Same as SOCIOL 10A.
Overlaps with PSYCH 10A, SOCECOL 13, SOC SCI 10A, POL SCI 10A, SOC SCI 9A.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Va)

ANTHRO 10B. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Prerequisite: SOCIOL 10A.

Same as SOCIOL 10B.
Overlaps with PSYCH 10B, SOCECOL 13, SOC SCI 10B, POL SCI 10B, SOC SCI 9B.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Va)

ANTHRO 10C. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Prerequisite: SOCIOL 10B.

Same as SOCIOL 10C.
Overlaps with PSYCH 10C, SOCECOL 13, SOC SCI 10C, POL SCI 10C, SOC SCI 9C.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Vb)

ANTHRO 20A. People, Cultures, and Environmental Sustainability. 4 Units.
Anthropological consideration of global environmental sustainability from the perspective of human cultures and communities. Causes and consequences of population growth, natural resource management, environmental law, environmental ethics. Case studies emphasize tropical rain forests, arid lands of Africa and North America.

(VIII)

ANTHRO 20B. Anthropology of Food. 4 Units.
Examines how food communicates ideas about ethnocentrism, disgust, privilege, gender, race, labor, social identities and hierarchies, globalization, power, and the "Western diet" and its health consequences.

Same as CHC/LAT 66.

(III, VII)

ANTHRO 30A. Global Issues in Anthropological Perspective. 4 Units.
Explores anthropological perspectives on issues of importance in an increasingly global society. Topics include emphases on ethnic conflict; identity; immigration and citizenship; religion and religious diversity; medical anthropology; legal anthropology; development and economic change; gender.

Restriction: Anthropology majors have first consideration for enrollment.

(VIII)

ANTHRO 30B. Ethnography and Anthropological Methods. 4 Units.
Explores ethnography, anthropology's classic method. Students obtain hands-on training in participant observation, interviewing, and other methods, in local communities, and the preparation of research reports. Also provides theoretical and reflexive readings on ethnography.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 30C. Visual Anthropology . 4 Units.
Focusing on the construction of culture through visuality, this course engages traditional ethnographic films, popular media and anthropological texts to analyze ethics, “reality” and fiction; propaganda and documentary, construction of a frame, the responsibility of the filmmaker, photographer, and anthropologist.

ANTHRO 41A. Global Cultures and Society. 4 Units.
Offers a general overview of the rise of global interdependence in political, economic, demographic, and cultural terms. Considers what drove people from relative isolation into intensified intercourse with one another, and investigates the consequences of this shift.

Same as INTL ST 11.

Restriction: Anthropology and International Studies majors have first consideration for enrollment.

(III, VIII)

ANTHRO 50B. Gender and Global Health. 4 Units.
Examines the social forces, life circumstances, and political and economic processes that influence gendered health outcomes. Focuses especially on women located at the economic and political margins of societies throughout the world.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 85A. Cultures in Collision: Indian-White Relations Since Columbus . 4 Units.
An introduction to theories, terms, concepts, and methods used by anthropologists and sociologists to understand Native American cultures. How racial construction of an Indian "other" emerged, how anthropology contributed to Indian invisibility, and the persistence of Indian identity are examined.

Same as SOCIOL 65.

(VII)

ANTHRO 89. Special Topics in Anthropology. 1-4 Units.
Studies in selected areas of Anthropology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 121AW. Kinship and Social Organization. 4 Units.
Organization of social life primarily in preindustrial societies. Theories of kinship, marriage regulations, sexual behavior, and social roles. Comparisons of biological, psychological, sociological, and economic explanations of social organization.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

ANTHRO 121D. Cross-Cultural Studies in Gender. 4 Units.
Familiarizes students with the diversity of women's experiences around the world. Gender roles and relations are examined within cultural and historical contexts. A central concern is how class, race, and global inequalities interact with women's status.

Prerequisite: ANTHRO 2A or ANTHRO 2B.

Same as INTL ST 153B.

ANTHRO 121G. Political Anthropology. 4 Units.
Utilizes anthropological accounts of Western and non-Western societies to question conventional ways of thinking about power and politics. Classical traditions in political anthropology are critiqued; an alternative view is presented through recent anthropological political analyses of various topics.

ANTHRO 121J. Urban Anthropology. 4 Units.
Cultural roles of urban centers and processes of urbanization in comparative perspective, focusing on both nonwestern, nonindustrial societies of past and present; the relationship between modern urban centers and Third World peoples. Migration, urban poverty, in Africa, Asia, Latin America.

Same as INTL ST 153C.

ANTHRO 125A. Economic Anthropology. 4 Units.
Economic systems in comparative perspective: production, distribution, and consumption in market and non-market societies; agricultural development in the third world.

Prerequisite: One course in general science, anthropology, economics, geography, or sociology.

Same as ECON 152A.

Restriction: Economics, Quantitative Economics, Business Economics, and Anthropology majors have first consideration for enrollment.

ANTHRO 125B. Ecological Anthropology. 4 Units.
Studies relationships between human communities and their natural environments. The role of environment in shaping culture; effects of extreme environments on human biology and social organization; anthropologist's role in studying global environmental problems, e.g., African famine, tropical rain forests destruction.

Prerequisite: ANTHRO 2A or ANTHRO 2B or ANTHRO 2C.

ANTHRO 125F. Humans and Other Animals. 4 Units.
Explores peoples' relationships with other animals, a topic that continues to shape anthropological understandings of humanness, culture, and the social. Subthemes: symbol and matter, nature/culture, ontologies, relations, moralities, ecologies, futures.

Prerequisite: ANTHRO 2A or ANTHRO 2B or ANTHRO 2D.

ANTHRO 125S. The Anthropology of Money. 4 Units.
Anthropological approaches to money; impact of money on subsistence economies; cultural history of money; and modern transformations of money. Students conduct ethnographic research on alternative money practices in Southern California, and create an online exhibition and research paper.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 125X. Transnational Migration. 4 Units.
Examines the movement of people across national borders, governmentality and the role of state practices to control populations, and issues of citizenship, belonging, and identity. Examples are drawn from the United States, Europe, Latin America, Asia, and Africa.

Same as CHC/LAT 161, INTL ST 117A.

(VIII)

ANTHRO 125Z. Muslim Identities in North America. 4 Units.
Explores multiple identities of Muslims in North America, including indigenous Muslims and immigrants of many national origins. Explores religious, political, cultural, ethnic, class differences among American Muslims, turning to Islamic institutions or events near UCI to conduct fieldwork projects.

Same as ASIANAM 142.

ANTHRO 126A. Elite Cultures. 4 Units.
The distinctive contribution that ethnographic studies have made to the understanding of elites past and present, in particular societies and globally.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 127A. Law and Modernity. 4 Units.
The rise and spread of Enlightenment legal traditions, social contract theory, individual rights, ideologies of "liberty, equality, fraternity"; contradictions of liberal law, its understandings of "primitive" and "civilized"; pervasive myths of property, difference, race, and rights. Reading- and writing-intensive.

Same as CRM/LAW C191.

ANTHRO 128A. Science, Technology, Controversy. 4 Units.
Explores ways in which the social sciences conceive of science as a sociocultural practice. Emphasis on literature in Science and Technology Studies (STS), especially writings that concern the relationship of science to space and place, power, and politics.

Restriction: Anthropology majors only.

ANTHRO 128B. Race, Gender, and Science. 4 Units.
Perfect for pre-health, science and social science majors wanting to appreciate how science and society interact. Race and gender as biological and socio-cultural constructs are examined. Questions explored: What is disease? What is science? What are social and biological differences.

Same as CHC/LAT 176, GEN&SEX 188A.

(VII)

ANTHRO 128C. Digital Cultures . 4 Units.
Explores cultural and political implications of the infotech revolution and the ways new media are used around the world, new cultural practices and spaces (e.g., cybercafes), debates surrounding the meanings of these new technologies, and their implications for transforming society.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 129. Special Topics: Social and Economic Anthropology. 1-4 Units.
Studies in selected areas of Social and Economic Anthropology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 132A. Psychological Anthropology. 4 Units.
Cultural differences and similarities in personality and behavior. Child-rearing practices and consequent adult personality characteristics, biocultural aspects of child development and attachment, culture and behavior evolutionary models, politically linked personality, cognitive anthropology, psychology of narrative forms, comparative national character studies.

Prerequisite: ANTHRO 2A or PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)

Same as PSYCH 173A.

Restriction: Psychology majors have first consideration for enrollment.

ANTHRO 134A. Medical Anthropology. 4 Units.
Introduces students to cross-cultural perspectives and critical theories in anthropological studies of medicine. Special attention is given to diverse ways of understanding bodies, illnesses, and therapeutic practices in our changing world.

Same as CHC/LAT 178A.

(VIII)

ANTHRO 134B. Anthropology of Drugs. 4 Units.
Examines the increasing role "drugs" play in shaping the expression, understanding, and representation of the self and social life. The shifting construction of licit/illicit; cultural and ethnographic representations of drug use; pharmaceutical industry; production and management of addiction and disease.

Restriction: Upper-division students only.

(III)

ANTHRO 134C. Medicine, Food, and Health. 4 Units.
With anthropological studies of edible things as its foundation, this course explores topics related to the relationship between medical knowledge, eating, and health from a medical anthropological perspective.

Prerequisite: ANTHRO 2A or ANTHRO 2B or ANTHRO 2D.

ANTHRO 134F. Anthropology of the Body. 4 Units.
Examines human bodies as both biological and,sociocultural entities and explores the relationship among mind, body,and society cross-culturally. Topics include embodiment; race, sex, gender and the body; somatization; control of the body; commodified bodies; and hybrid/cyborg bodies.

ANTHRO 134G. HIV/AIDS in a Global Context. 4 Units.
Examines issues concerning cultural conceptions of HIV infection and disease worldwide. Topics include treatment and prevention, identity and behavior, risk, ethnicity, gender, youth, sexuality, activism, drug use, illness, religion, the clinical encounter, national belonging, and the pharmaceutical industry.

(VIII)

ANTHRO 134GW. HIV/AIDS in a Global Context. 4 Units.
Examines issues concerning cultural conceptions of HIV infection and disease worldwide. Topics include treatment and prevention, identity and behavior, risk, ethnicity, gender, youth, sexuality, activism, drug use, illness, religion, the clinical encounter, national belonging, and the pharmaceutical industry.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VIII)

ANTHRO 135A. Religion and Social Order. 4 Units.
An anthropological exploration of religious belief and practices in diverse social and historical contexts. Emphasis placed on selected non-western traditions of the sacred, and on issues of power, ritual, moral order, and social transformation.

ANTHRO 135I. Modern South Asian Religions. 4 Units.
Nineteenth- and twentieth-century developments in Hinduism, Islam, and Sikhism are covered, with emphasis on changing forms as well as contents of religious movements and the state.

Same as INTL ST 158A.

(VIII)

ANTHRO 136A. Nationalism and Ethnicity in the Contemporary World. 4 Units.
An exploration of the concepts of identity, culture, ethnicity, race, and nation through ethnographic cases, with a view to asking larger questions: how do people create nativeness and foreignness? How does "culture" get worked into contemporary racisms and nationalisms.

Same as INTL ST 153E.

(VIII)

ANTHRO 136B. History of Anthropological Theory. 4 Units.
Provides foundational knowledge in the discipline of anthropology by reviewing competing approaches in anthropological theory, from the nineteenth century to the present. Covers historically fundamental approaches—social evolutionism, functionalism—and recent movements such as feminism, cultural studies, poststructuralism, and postmodernism.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 136D. Conflict Resolution in Cross-Cultural Perspective. 4 Units.
Examines theories of conflict management. Analyzes how conflict is mitigated in diverse cultures: at the interpersonal level, between groups, and on the international scale. Students discuss readings, hear from conflict management practitioners, and simulate negotiations.

Same as POL SCI 154G, SOC SCI 183E, INTL ST 183E.

(VIII)

ANTHRO 136G. Colonialism and Gender. 4 Units.
An anthropological enquiry into the ways colonial relations of power have been structured and gendered throughout the world, and to what effect. Examines the social locations of men and women in the everyday exercise of colonial and imperial power.

Same as INTL ST 153D.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 136K. The Woman and the Body. 4 Units.
Probes culture and politics of the female body in contemporary American life. Focusing on "feminine beauty," examines diverse notions of beauty, bodily practices, and body politics embraced by American women of different classes, ethnicities, and sexualities.

(VII)

ANTHRO 137A. Reading Images Culturally. 4 Units.
Provides analytical tools necessary to undertake research on visual representations. Images, as cultural productions, are steeped in the values, ideologies, and taken-for-granted beliefs of the culture which produced them. Of concern are representations of race, identity, gender, and the "Other.".

Same as CHC/LAT 116.

(VII)

ANTHRO 138H. Music of Indonesia and the Philippines. 4 Units.
Thousands of islands are encompassed by Philippines, Malaysia, and Indonesia. Common cultural ties are obscured by colonial conditions and influences during last two centuries. Reviews region's major forms of music, from earliest communal societies to complex stratified and recent cultures.

ANTHRO 138J. Music of Japan and Okinawa. 4 Units.
A survey of the musics that developed in the islands of Japan and Okinawa from the perspective of the social, political, and economic forces that played upon the culture and that formed the context of these musical languages.

Restriction: Upper-division students only. Anthropology majors have first consideration for enrollment.

ANTHRO 138M. Music as Expressive Culture. 4 Units.
Fundamental requirements for development of a musical tradition. Guiding structural principles for new forms of expression to be understood and accepted. How members of society develop individual musical cultures which permit them to interact with the personal cultures of others.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 138Q. Latino Music: A View of Its Diversity and Strength. 4 Units.
A survey of the music of the many Latin cultures of the Americas including Mexico, Central and South America, as well as the Caribbean and of those many Latin cultures which thrive and survive in the United States.

Same as CHC/LAT 115A.

(VIII)

ANTHRO 139. Special Topics in Cultural and Psychological Anthropology. 1-4 Units.
Studies in selected areas of Cultural and Psychological Anthropology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 141A. Ancient Civilization of Mexico and the Southwest. 4 Units.
The prehistory and cultural evolution of the civilization which originated in Mexico, including the Olmecs, Aztecs, Toltecs, Maya, and Zapotec, as well as the Pueblos of the Southwestern U.S. Topics include the origins of food production and of the state.

Same as INTL ST 177I.

ANTHRO 149. Special Topics in Archaeology. 1-4 Units.
Studies in selected areas of Archaeology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 150A. Language and Social Cognition. 4 Units.
Explores the relationship between language and cognition in social and cultural contexts. The overall goal is to think through how language structure and use impact how individuals perceive, think about, and understand the world around them.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 151A. Improvisation, Language, and Culture. 4 Units.
Addresses improvisation, both in performance and in everyday life. Examines improvisation as the "flexible regulation" of everyday behavior by exploring different scholarly treatments of language and interaction, and working on developing actual theatrical improvisation skills.

Restriction: Upper-division students only.

ANTHRO 152A. Language Origins: Evolution, Genetics, and the Brain. 4 Units.
Examines how human language(s) may have originated. Studies pertinent techniques (reconstruction) and addresses related questions, including Is our language faculty inborn (i.e., genetically encoded)? Can brain imaging and population genetics research help to unlock this mystery of human evolution?.

Same as HISTORY 135G, GLBLCLT 105, LINGUIS 175.

ANTHRO 161T. Field Research: Asian Immigrants and Refugees in Orange County. 4 Units.
Instruction in field work methodology via research projects involving the local communities of immigrants and refugees from Asia. Open only to School of Social Sciences majors.

Restriction: Seniors only. School of Social Sciences majors only.

ANTHRO 161TW. Field Research: Asian Immigrants and Refugees in Orange County. 4 Units.
Instruction in field work methodology via research projects involving the local communities of immigrants and refugees from Asia.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Seniors only. School of Social Sciences majors only

(Ib)

ANTHRO 162A. Peoples and Cultures of Latin America. 4 Units.
Surveys the prehistory of Latin America and its indigenous cultures, emphasizing the impact of colonial rule, capitalism, and twentieth-century transformations. Emphasis on communities from several countries. In some years, emphasis on comparisons between the Latin American and Caribbean experiences.

Same as INTL ST 177J.

(VIII)

ANTHRO 162B. Indian North America. 4 Units.
A survey of indigenous peoples in North America: American Indians, Alaska Natives, First Nations, Native Americans. Tribal populations and geographic distributions, political and social organization, sovereignty, self-determination, intergovernmental relations; cultural continuity and change; management, preservation, development of environments/resources.

(VII)

ANTHRO 162BW. Indian North America. 4 Units.
A survey of indigenous peoples in North America: American Indians, Alaska Natives, First Nations, Native Americans. Tribal populations and geographic distributions, political and social organization, sovereignty, self-determination, intergovernmental relations; cultural continuity and change; management, preservation, development of environments/resources.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VII)

ANTHRO 162C. Race and Empire in Colonial Latin America. 4 Units.
Explores how native people of Latin America with enslaved and free African incorporated and defied Spanish and Portuguese colonization. Focuses on religious adaptions, resistance movements, legal systems, and the emergence of multicultural communities to explain how race shaped European empires.

Same as HISTORY 165.

ANTHRO 163A. Peoples of the Pacific. 4 Units.
The cultural history and recent developments among the Pacific peoples of Polynesia, Micronesia, Melanesia, New Guinea, and Australia.

Same as INTL ST 158B.

(VIII)

ANTHRO 164A. Twenty-First Century Africa. 4 Units.
Comparative studies of the cultures and societies of Sub-Saharan Africa, with emphasis on critical study of colonialism and postcoloniality, social transformation, and the politics of identity.

Prerequisite: ANTHRO 2A.

Same as INTL ST 157A.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 164P. Peoples and Cultures of Post-Soviet Eurasia. 4 Units.
Examines the cultures and political conflicts of the more than 130 indigenous ethnic groups in the European and Asian territories of the former U.S.S.R. Emphasis is on the theoretical issues of ethnicity, nationalism, and conflict management.

Same as INTL ST 162B, POL SCI 154F.

(VIII)

ANTHRO 165A. Modern Iran: Cinema and Society. 4 Units.
Exploring modern Iran through film, literature, photography, travel writing, philosophy and social science texts introduces students to important concepts in post-colonial studies, social thought, war culture, religion and media as experienced through the paradigm of a non-Western modernity.

ANTHRO 169. Special Topics in Area Studies. 1-4 Units.
Studies in selected areas of Anthropology. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 179. Special Topics: Methods and Formal Representations. 1-4 Units.
Studies in selected areas of Methods and Formal Representations. Topics addressed vary each quarter.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 180AW. Anthropology Majors Seminar. 4 Units.
A course in anthropological theory designed especially for majors in Anthropology. Different issues are considered in different years.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be taken for credit 3 times.

Restriction: Anthropology majors only.

(Ib)

ANTHRO 190. Senior Thesis. 4 Units.
Senior thesis with Anthropology faculty.

Repeatability: May be taken for credit 3 times.

ANTHRO H190A. Honors Research Workshop. 4 Units.
Students articulate the goals and significance of their research projects. Written work consists of an eight- to fifteen-page research proposal, due by quarter's end, describing the research question, the relevant literature, and methods of data collection and analysis.

Prerequisite: 3.3 or greater GPA.

Restriction: Anthropology Honors Program students only.

ANTHRO H190B. Honors Field Research. 4 Units.
Students begin or continue ethnographic field research that combines exploratory field research (e.g., participant-observation, interviews, study of archival and documentary materials) with fixed format data collection methods (e.g., standardized interviews, behavioral observations).

Prerequisite: ANTHRO H190A.

ANTHRO H191W. Honors Senior Thesis. 4 Units.
Student drafts a senior honor thesis (typically) with the following sections: problem statement, literature review, ethnographic background, description of the methods, results, and conclusions.

Prerequisite: ANTHRO H190A and ANTHRO H190B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

ANTHRO 197. Field Study. 1-4 Units.
Field study with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

ANTHRO 198. Directed Group Study. 1-4 Units.
Directed study with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

ANTHRO 199. Independent Study. 1-4 Units.
Independent research with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

ANTHRO 202A. Proseminar in Anthropology. 4 Units.
Year-long intensive introduction to the history of anthropological thought and reading in classical and contemporary ethnography for first-year graduate students.

Restriction: Graduate students only.

ANTHRO 202B. Proseminar in Anthropology. 4 Units.
Year-long intensive introduction to the history of anthropological thought and reading in classical and contemporary ethnography for first-year graduate students.

Prerequisite: ANTHRO 202A.

Restriction: Graduate students only.

ANTHRO 202C. Proseminar in Anthropology. 4 Units.
Year-long intensive introduction to the history of anthropological thought and reading in classical and contemporary ethnography for first-year graduate students.

Prerequisite: ANTHRO 202B.

Restriction: Graduate students only.

ANTHRO 204A. Proseminar in Medicine, Science, and Technology. 4 Units.
Explores the phenomena studied by "medical anthropology" and "science and technology studies" are inextricably linked, and how understanding formations requires moving between disparate fields of inquiry. Required for students pursuing a Graduate Certificate in Anthropoligies of Medicine, Science, and Technology.

Restriction: Students pursuing a Graduate Certification in Anthropoligies of Medicine, Science, and Technology have first consideration for enrollment.

ANTHRO 208A. Anthropological Fieldwork Methodology. 4 Units.
A survey of anthropological fieldwork methodology techniques, including attention to contemporary analysis of fieldwork.

Restriction: Graduate students only.

ANTHRO 211A. Statistics and Research Design. 4 Units.
Introduces basic concepts of research design for anthropology in conjunction with relevant concepts from the field of statistics, which will be learned in conjunction with the research designs that require use of those methods.

Restriction: Graduate students only.

ANTHRO 212A. Research Design and Data Analysis. 4 Units.
Introduces advanced concepts of research design for anthropology, presents statistical models for multivariate analysis and for analysis of systems of relationships, and includes practice in sampling and data analysis.

Restriction: Graduate students only.

ANTHRO 213A. Grant and Proposal Writing. 4 Units.
Focuses on production, critique, and revision of student research proposals. A practical seminar designed to improve student proposals, help students through the application processes, and increase students' chances of obtaining support for their research.

Same as SOC SCI 255C.

Restriction: Graduate students only.

ANTHRO 221A. Oral History, Life History. 4 Units.
Interdisciplinary and comparative work in oral and life history; methods of interviewing.

Same as SOC SCI 253A.

Restriction: Graduate students only.

ANTHRO 228A. Anthropology Encounters. 4 Units.
Cultural encounters have long provided the ground for ethnographic research. This seminar refocuses on "encounter" not only as the material condition but also as a productive heuristic device in anthropological inquiry. Examines the reorientation of anthropology as a "global discipline.".

ANTHRO 230A. Anthropology and History. 4 Units.
An examination of the complex, long-standing relationship between anthropology and history. Themes include: history, culture, and colonialism; history and the power to represent; nostalgia and the uses of the past in struggles over "national history.".

Restriction: Graduate students only.

ANTHRO 230D. Ethnographies. 4 Units.
Surveys changes in the character of ethnographic writing in the face of changing fields and topics of research. The emergence of new research terrains and the comparative contexts of ethnography are emphasized.

ANTHRO 231C. Technomethods for Sociocultural Research. 4 Units.
An introduction to using particular technologies for conducting contemporary ethnographic fieldwork. Focuses both on the practical use of these tools and the conceptual work that is necessary for successfully integrating them into specific research projects.

ANTHRO 232B. Medical Anthropology. 4 Units.
Explores historical and contemporary theoretical positions and debates in medical anthropology. Topics may include subjectivity, theories of the body, biopolitics, biomedical technologies, sexuality, pharmaceuticals, political economy and health, infectious disease and epidemics, health disparities, and humanitarianism.

Restriction: Students pursuing a Graduate Certification in Anthropoligies of Medicine, Science, and Technology have first consideration for enrollment.

ANTHRO 232C. Ethnographies of Science and Medicine. 4 Units.
Surveys current ethnographic research pertaining to medical anthropology and science and technology studies.

ANTHRO 234C. Anthropology of Food. 4 Units.
Course examines the role of food in culture history and in anthropological thinking about ethnocentrism, disgust, privilege, gender, race, identities, social relationships, kinship, social hierarchies, globalization, production, consumption, food scarcities, body image, health, and power.

Restriction: Graduate students only.

ANTHRO 235A. Transnational Migration. 4 Units.
Examines borders and boundaries as material and semiotic constructs. Drawing upon an array of literatures, but loosely situated in U.S. geo/biopolitics, explores transformative troublings of places, spaces, borders, and bodies of all sorts.

Same as SOC SCI 254A, CHC/LAT 215.

Restriction: Graduate students only.

ANTHRO 240A. Economic Anthropology. 4 Units.
Classic and contemporary theory in economic anthropology. Case studies: Latin America (primarily Mexico and the Andes), Africa, and the Pacific. Substantive topics: non-market exchange, markets and marketplaces, households, gender, management of common property (fisheries, pastoral lands, forests), labor, and development.

Restriction: Graduate students only.

ANTHRO 242A. Language and the Social World. 4 Units.
An introduction to the study of language in culture. Topics include theories of the sign; the relation of language structure to linguistic practice; language and group formation; linguistic ideologies; conversation analysis; and language and embodiment.

ANTHRO 245A. Seminar in Political Anthropology. 4 Units.
Explores anthropological approaches to politics. Covers a range of issues and topics, including: theories of culture, power, and hegemony; approaches to colonial and post-colonial relations of global inequality; and ethnographic approaches to the modern state.

Restriction: Graduate students only.

ANTHRO 246B. Law, Colonialism, & Nationalism. 4 Units.
Origins and spread of law in colonial and nationalist contexts: law's role in constituting and policing difference. Recent theoretical approaches; property in things and people; human and indigenous rights; "customary" law; legal foundations of nationalism; resistance to/through law; globalization.

Restriction: Graduate students only.

ANTHRO 246C. Nations, States, and Gender. 4 Units.
Explores the ways in which nations, nationalism, states, and citizenship are gendered relations and processes. Questions include: How do women construct themselves as political subjects and how are constructions of citizenship and discourses of rights gendered.

Restriction: Graduate students only.

ANTHRO 247A. Structuralism and Post-Structuralism. 4 Units.
Traces recent theoretical discussions and arguments over the philosophical and historical "subject" from structuralist decenterings toward the characteristically "post-structuralist" contemporary concern with the historical and political constitution of subjectivities and subject positions.

Restriction: Graduate students only.

ANTHRO 248A. Approaches to Globalization. 4 Units.
Historical and contemporary approaches to the world economy, emphasizing anthropological questions of culture, power, identity, inequality. Examines "neo-imperialism," "late capitalism," accumulation, global markets, urban space, the state, business and policy globalization discourse, "local" responses to and instantiations of the "global.".

Same as SOC SCI 254L.

Restriction: Graduate students only.

ANTHRO 249A. Humanism and Posthumanism. 4 Units.
Examines alternative forms of human, humanisms, and posthumanisms to explore the inherent ambiguities and shifting boundaries of knowing and being human, and to venture into modes of analysis that problematize the universality and globality of liberal humanism.

ANTHRO 249B. Multispecies Anthropology. 4 Units.
Examines how the co-constituting categories of animal and human in tandem with investigating how engagements with human/animal relations continue to define and alter anthropology. Subthemes: meaning, nature/culture, non-humanism, ontologies, relations, matter, evolutions, ecologies, and futures.

ANTHRO 250A. The Cultural Politics of Visual Representation. 4 Units.
Develops a theoretical framework for analyzing and reading visual images. Images, as cultural productions, are steeped in the values, ideologies, and taken-for-granted beliefs of the culture which produced them and a political economy that is class, race, and gender inflected.

ANTHRO 250B. Digital Technologies, Culture, and Media. 4 Units.
Explores questions of sociality in cyberspace, including what social theories and ethnographic methods are effective in studying online cultures. Topics include general issues like indexicality, reference, temporality, spatiality, and embodiment, and topics such as language, gender, ethnicity, property, and inequality.

Restriction: Graduate students only.

ANTHRO 252A. Queer Anthropology. 4 Units.
Explores historical and contemporary scholarship that employs ethnographic approaches to address the discursive construction of sexuality. Also examines how the discipline of anthropology has been shaped by the study of sexuality.

Restriction: Graduate students only.

ANTHRO 253A. Design, Aesthetics, and Social Life. 4 Units.
Anthropology has only recently recognized that design demands consideration as a cultural form linked to, yet nonetheless distinct from, other aesthetic endeavors. Course is largely oriented toward collaboratively working out a conceptual basis for a distinctly anthropological approach to design.

ANTHRO 254A. Postcoloniality and the Subject. 4 Units.
Examines key issues regarding postcoloniality and conceptions of selfhood in the context of varied forms of colonial and state power. In particular, explores how technology and desire intersect with these questions of subjectification.

ANTHRO 256A. Ethnographies of Technology. 4 Units.
Surveys current ethnographic research pertaining to technologies, technical systems, and infrastructures.

ANTHRO 257A. Natures and Environments. 4 Units.
Examines social scientific understandings of natural contexts and human milieus via a survey of key analytic categories. Begins by examining historical and ongoing definitions and problems organized around “nature” and “environment” as separate but imbricated concepts.

ANTHRO 259A. Dissertation Writing Seminar. 4 Units.
Intended for advanced, post-fieldwork Anthropology graduate students. Emphasis on the presentation of research design and results, problems of ethnographic writing, and qualitative and quantitative data and analysis. Prerequisites: post-fieldwork; graduate standing in Anthropology or consent of instructor.

Restriction: Graduate students only.

ANTHRO 289. Special Topics in Anthropology. 1-4 Units.
Studies in selected areas of Anthropology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ANTHRO 290. Dissertation Research. 4-12 Units.
Dissertation research with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ANTHRO 299. Independent Study. 4-12 Units.
Independent research with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Chicano/Latino Studies Courses

CHC/LAT 61. Introduction to Chicano/Latino Studies I. 4 Units.
An introduction to the study of the historical foundations of the Chicano/Latino experience. Addresses such topics as empire, migration, immigrant settlement, economic integration, race, gender, and the formation of group identities.

(III, VII)

CHC/LAT 62. Introduction to Chicano/Latino Studies II. 4 Units.
Provides an introduction to the arts, literature, and culture of Chicano/Latino communities. Analyzes representations of and cultural production in Chicano/Latino communities through such media as folklore, literature, art, film, architecture, dance theatre, performance, music, poetry, mass media, and language.

(III, VII)

CHC/LAT 63. Introduction to Chicano/Latino Studies III. 4 Units.
Examines contemporary public policy issues in Chicano/Latino communities. Each offering addresses at least three of the following themes: migration, immigrant incorporation, identity construction, language policy, health policy, politics, sexuality, gender, labor, class, and education. Course may be offered online.

(III, VII)

CHC/LAT 64. Introduction to Race and Ethnicity in Political Science. 4 Units.
Examines major theories that attempt to explain the roles of race and ethnicity in U.S. politics. Course may be offered online.

Same as POL SCI 61A.

(III, VII)

CHC/LAT 65. Ethnic and Immigrant America. 4 Units.
Focusing on Asian, Latino, and Black immigrant groups, examines the second generation's experience of straddling two cultures and growing up American. Covers topics such as assimilation, bilingualism, race relations, education, bicultural conflicts, interracial marriage, and multiracial identities.

Same as SOCIOL 68A.

(VII)

CHC/LAT 66. Anthropology of Food. 4 Units.
Examines how food communicates ideas about ethnocentrism, disgust, privilege, gender, race, labor, social identities and hierarchies, globalization, power, and the "Western diet" and its health consequences.

Same as ANTHRO 20B.

(III, VII)

CHC/LAT 69. Lower-Division Special Topics in Chicano/Latino Studies. 4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

CHC/LAT 101. Research in the Latino Community. 4 Units.
Students engage in firsthand research in the local Orange County environment. Students identify a research problem, conduct a literature review, develop questions and/or hypotheses, appropriate methods, and write a proposal.

Prerequisite: Two courses from CHC/LAT 61 or CHC/LAT 62 or CHC/LAT 63 and two courses from CHC/LAT 110-189.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 101B. Supervised Research for Chicano/Latino Studies Majors. 4 Units.
Students who have designed a research project & begun collecting data in CHC/LAT 101 will continue to collect/analyze data for their research projects. By end of the course, students will be prepared to write up their findings in CHC/LAT 102W.

Prerequisite: CHC/LAT 101.

Restriction: Chicano/Latino Studies majors only.

CHC/LAT 102W. Chicano/Latino Research Seminar. 4 Units.
Taught as a writing and research seminar in Chicano/Latino Studies. Student develops own project; engages in peer editing; drafts, writes, and presents paper at Spring research conference. Prior course work in Chicano/Latino Studies helpful, i.e., CHC/LAT 61, 62, 63.

Prerequisite: CHC/LAT 101. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. Chicano/Latino Studies Majors only.

(Ib)

CHC/LAT 110. Chicano Literature and Culture. 4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter. Taught in English.

Repeatability: May be taken for credit 4 times as topics vary.

Same as SPANISH 140.

CHC/LAT 114. Film Media and the Latino Community. 4 Units.
Uses film as a resource for understanding contemporary issues and problems facing the Chicano/Latino community. (Does not study cinema as a genre.).

Same as SOC SCI 173G.

(VII)

CHC/LAT 115A. Latino Music: A View of Its Diversity and Strength. 4 Units.
A survey of the music of the many Latin cultures of the Americas including Mexico, Central and South America, as well as the Caribbean and of those many Latin cultures which thrive and survive in the United States.

Same as ANTHRO 138Q.

(VIII)

CHC/LAT 116. Reading Images Culturally. 4 Units.
Provides analytical tools necessary to undertake research on visual representations. Images, as cultural productions, are steeped in the values, ideologies, and taken-for-granted beliefs of the culture which produced them. Of concern are representations of race, identity, gender, and the "Other.".

Same as ANTHRO 137A.

(VII)

CHC/LAT 121. Latina/Latino Pop: Latina/Latino Popular Culture. 4 Units.
With a focus on the politics of language and space/place, prepares students to critically analyze sites of Latina/Latino popular culture including: music, film, performance, sports, media, and varied subcultures.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 129. Special Topics in Literature, Arts, Media, Culture. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 130. Introduction to Cuba: History, Culture, and Society. 4 Units.
Introduction to Cuban history, culture, and society using social science texts, visual and musical materials. Examines major historical moments including the historical relationship between the United States and explores evolution of Cuban music from the earliest times to present.

Same as INTL ST 177F, SOC SCI 173Q.

(VIII)

CHC/LAT 132A. Chicana/Chicano History: Pre-Colonial to 1900. 4 Units.
Examines social history of the southwest region from antiquity to 1900. Discusses major questions, theory and research methods pertinent to Chicanas/Chicanos. Themes include: indigenous empires, conquest, colonialism, social stratification, ideology, marriage, sexuality, industrial capitalism, accommodation and resistance.

Same as HISTORY 151A.

CHC/LAT 132B. Chicana/Chicano History: Twentieth Century. 4 Units.
Examines social history of the Southwest with emphasis on Mexican-origin people. Discusses major questions, theory and research methods pertinent to Chicana/Chicano history. Themes explored include: immigration, xenophobia, class struggle, leadership, generational cohorts, unionization, education, barrioization, ethnicity, patriarchy, sexuality.

Same as HISTORY 151B.

CHC/LAT 133B. Twentieth-Century Mexico. 4 Units.
Examines the history of contemporary Mexico beginning with the Mexican Revolution and concluding with the present administration. Social, economic, and political effects of the Revolution; formation of a "one-party democracy"; economic transformation of the nation; the present crisis.

Same as HISTORY 161C.

CHC/LAT 134. U.S. Latino Literature and Cultures. 4 Units.
Focuses on aspects of literature, art, cultural production, and history of the multifaceted Latino cultures that have developed within the United States. Focuses on one group, such as Caribbean Americans, Chicanos, Central Americans, or a comparative perspective of several groups.

Same as SPANISH 110C.

CHC/LAT 135. Latinas in the Twentieth Century U.S.. 4 Units.
Latinas in the U.S. from 1900 to present, offering a diversity of their cultures, regional histories, sexualities, generations, and classes.

Same as HISTORY 151C.

CHC/LAT 138. Chicano/Chicana Labor History. 4 Units.
Examines origins of Latino/ Latina labor from colonial period to present. Emphasis on the issues of race, culture, class, and gender. Focus on processes and institutions including: encomienda, migration, unions, informal economies, Bracero program, domestic work.

Same as SOC SCI 167.

CHC/LAT 139. Special Topics in Chicano/Latino History. 1-4 Units.
Studies in selected areas of Chicano/Latino History. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Chicano/Latino majors only.

CHC/LAT 140A. Latina/Latino Queer Sexualities. 4 Units.
Introduces students to the notion of "queer" in relation to Chicanas/Chicanos and Latinas/Latinos and provides students with theoretical frameworks to explore the shifting categories of sexuality, gender, Chicano, Latino within the scholarship areas of Chicana/Chicano and Latina/Latino Studies.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 142. Latinos and the Law. 4 Units.
Examines a range of theoretical, empirical, and policy approaches to legal issues affecting the Latino population, with emphasis on California. Discusses topics concerning the purpose of law, the creation of law, and the enforcement of law.

Same as CRM/LAW C171.

(VII)

CHC/LAT 147. Comparative Minority Politics. 4 Units.
Examines the political experiences of Blacks, Latinos, and Asian Americans in the United States from roughly 1950 to the present. Focuses on how each group has pursued political empowerment via both conventional political channels and social movements.

Same as AFAM 151, ASIANAM 132, POL SCI 124C.

CHC/LAT 148. Racial and Ethnic Relations in the United States. 4 Units.
Examines central questions and issues in the field of race and ethnicity; the emergence, maintenance, and consequences of the ethnic and racial stratification system in the United States; the future of racial and ethnic relations; and relevant public policy issues.

Same as SOCIOL 167A.

Restriction: Sociology majors have first consideration for enrollment.

CHC/LAT 148W. Racial and Ethnic Relations in the United States. 4 Units.
Examines central questions and issues in the field of race and ethnicity; the emergence, maintenance, and consequences of the ethnic and racial stratification system in the United States; the future of racial and ethnic relations; and relevant public policy issues.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOCIOL 167AW.

Restriction: Chicano/Latino Studies and Sociology majors have first consideration for enrollment.

(Ib)

CHC/LAT 150. U.S. Intervention in Latin America. 4 Units.
Explores political, economic, social, and cultural ties that bind Latin America to the United States. Focuses on U.S. intervention and Latin American response from early nineteenth century to present day. Case studies include Mexico, Guatemala, Cuba, Chile, and Central America.

Same as INTL ST 177D, SOC SCI 123A, HISTORY 166.

CHC/LAT 151. Latinos in U.S. Politics. 4 Units.
Comparing the political issues facing Latino groups by examining their migration histories, voting behavior, nonelectoral participation, and policy issues. Latino issues are examined on the national, state, and local levels, including formal representation, immigration, affirmative action, and language policy.

Same as POL SCI 124B.

(VII)

CHC/LAT 151A. Latin American Politics. 4 Units.
Introduces the main concepts and theoretical approaches underlying the study of Latin American politics, examines recent political dynamics, and explores the challenges the region faces in the twenty-first century and how countries will attempt to address them.

Same as INTL ST 176K, POL SCI 153A.

Restriction: Political Science majors, Chicano/Latino Studies majors, and International Studies majors have first consideration for enrollment.

CHC/LAT 151B. Revolution in Latin America. 4 Units.
Presents a comparative analysis of the causes, development, and consequences of selected revolutionary movements, focusing on outbreaks in Mexico, Bolivia, Cuba, Chile, Nicaragua, and Grenada. Explores topics of state formation, economic nationalism, social justice, ethnicity, and role of international affairs.

Same as SOC SCI 173N, HISTORY 166D, INTL ST 177C.

CHC/LAT 152A. Race, Ethnicity, and Social Control. 4 Units.
Provides a historical and sociological survey of racial and ethnic group relations in contexts of crime control, emphasizing the roles of racial ideology, structural racism, and social movements in shaping these dynamic relations, and their significance to American liberal democracy.

Prerequisite: CRM/LAW C7.

Same as CRM/LAW C116.

CHC/LAT 153. Cross-Cultural Research on Urban Gangs. 4 Units.
Taking an urban policy approach, examines the background and contemporary traditions of gangs in several ethnic groups including African-, Asian-, and Mexican-Americans. Cross-cultural exploration of the varied facets of gang life. The major social-control institutions affecting them.

Same as CRM/LAW C156.

(VII)

CHC/LAT 154. Latino Metropolis. 4 Units.
Explores the processes of Latino urbanization in the United States and the spatialization of Latino identities, particularly in the context of Southern California with selected comparisons drawing from other cities.

Same as PP&D 172.

(VII)

CHC/LAT 155. Culture Change and the Mexican People. 4 Units.
Reviews culture contact and colonization, innovation diffusion, acculturation, assimilation, culture conflict and marginality, modernization, urbanization, legal transformations. Mexico and the Southwestern U.S. are reviewed through several centuries to better appreciate the indigenous base of the Mexican people.

Same as CRM/LAW C172.

CHC/LAT 156W. Chicano/Latinos and Labor. 4 Units.
Explores theories that explain the occupational pathways and workplace experiences of Latinos in various work sectors. Investigates jobs such as migrant labor, child street vendors, Latina/Latino professionals, and Latinos migrating to the U.S. South that work in poultry processing plants.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

CHC/LAT 157. Cuban Society and Revolution. 4 Units.
Explores the causes, development, and legacy of the 1959 Revolution. Themes include economic dependency, democracy, race, gender, culture, and the always volatile relations between Cuba and the United States.

Same as POL SCI 153G, HISTORY 166C, INTL ST 177E.

CHC/LAT 158. Feminisms of Color. 4 Units.
Surveys the development of Chicana feminist thought and practice. Focuses on historical contemporary writings by and about Chicana feminists. Draws from interdisciplinary scholarship in order to survey the diversity of Chicana feminisms.

(VII)

CHC/LAT 158W. Feminisms of Color. 4 Units.
Surveys the development of Chicana feminist thought and practice. Focuses on historical contemporary writings by and about Chicana feminists. Draws from interdisciplinary scholarship in order to survey the diversity of Chicana feminisms.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VII)

CHC/LAT 159. Special Topics in Society, Labor, Politics, Law, Gender, Race, Ethnicity. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Chicano/Latino majors only.

CHC/LAT 160. Perspectives on the U.S. - Mexican Border. 4 Units.
Economic aspects of the historical development of the United States-Mexican border. The current economic situation in the Southwest and border areas as it affects both Mexico and the Latino/Chicano population is also examined.

Same as SOC SCI 173I, INTL ST 177B.

(VII)

CHC/LAT 161. Transnational Migration. 4 Units.
Examines the movement of people across national borders, governmentality and the role of state practices to control populations, and issues of citizenship, belonging, and identity. Examples are drawn from the United States, Europe, Latin America, Asia, and Africa.

Same as ANTHRO 125X, INTL ST 117A.

(VIII)

CHC/LAT 163. U.S. Immigration Policy. 4 Units.
Examines selected immigration policy debates since the nineteenth century, rationale and consequences of immigration law since 1965, problems of administration, implementation and enforcement, impact of immigration policy on foreign relations, and contemporary debate regarding the future of U.S. policy.

Same as POL SCI 126C.

(VII)

CHC/LAT 166. Chicano Movement. 4 Units.
Explores the history of Mexicans in the U.S. with particular attention paid to their integration into the U.S. capitalist economy. Examines this economic history and the Chicano movement, "El Movimiento," within the wide context of socio-economic change.

Same as PP&D 177.

Restriction: Chicano/Latino Studies, Urban Studies, and Social Ecology majors have first consideration for enrollment.

CHC/LAT 168. Chicano/Latino Social Psychology. 4 Units.
Examines theories, research, and major issues of relevance to understanding social psychological processes in Chicano/Latino populations. Topics include social development, cultural orientations, gender and sexuality, close relationships, happiness and well-being, stereotyping, prejudice and discrimination, and mental and physical health.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PSY BEH 192Q.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

CHC/LAT 169. Special Topics in Globalization, Transnationalism, Immigration, U.S.-Mexico Border. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

CHC/LAT 170. Chicano/Latino Families. 4 Units.
Introduction to the research, literature, and issues surrounding the topic of Chicano/Latino families including cultural history, contemporary issues, organization of family, traditions, lifestyles, values, beliefs, generational differences, gender issues, ethnic identity, evolution of demographic patterns, current economic and political standings.

Same as SOC SCI 165, PSYCH 174H.

CHC/LAT 171. Chicano/Latino Psychology. 4 Units.
Examines research and literature investigating Chicano/Latino ethnicity as a variable influencing behavior. Explores mental health needs and issues of Chicano/Latinos and discusses competent, sensitive methods of mental health service delivery.

Same as PSYCH 174F.

CHC/LAT 176. Race, Gender, and Science. 4 Units.
Perfect for pre-health, science and social science majors wanting to appreciate how science and society interact. Race and gender as biological and socio-cultural constructs are examined. Questions explored: What is disease? What is science? What are social and biological differences.

Same as ANTHRO 128B, GEN&SEX 188A.

(VII)

CHC/LAT 177. Culture and Close Relationships. 4 Units.
Examines cultural influences on close relationship processes including attraction, love, friendship, family, social support, and significance of close relationships for health and well-being. National and ethnic sources of cultural variation examined include Latin America, Asia, Africa, and the Middle East.

Same as PSY BEH 192R.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

CHC/LAT 177W. Culture and Close Relationships. 4 Units.
Examines cultural influences on close relationship processes including attraction, love, friendship, family, social support, and significance of close relationships for health and well-being. National and ethnic sources of cultural variation examined include Latin America, Asia, Africa, and the Middle East.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PSY BEH 192RW.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(Ib, VII)

CHC/LAT 178. Health and the Latino Paradox. 4 Units.
Examines research and theories concerning the physical and mental health of U.S. Latino populations. Contemporary accounts, health care implications, and new directions for understanding sources of risks and resilience for health in Latino populations are evaluated and discussed.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PSY BEH 192S.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

CHC/LAT 178A. Medical Anthropology. 4 Units.
Introduces students to cross-cultural perspectives and critical theories in anthropological studies of medicine. Special attention is given to diverse ways of understanding bodies, illnesses, and therapeutic practices in our changing world.

Same as ANTHRO 134A.

(VIII)

CHC/LAT 179. Special Topics in Health, Medicine, and Psychosocial Dynamics. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 182. Latina/Latino Access and Persistence in Higher Education. 4 Units.
Introduction to how social, political, and economic forces impact on Latina/Latino racial/ethnic minorities with regard to their access and persistence in the U.S. higher education system. Investigates historical perspectives and theoretical underpinnings of college access and retention research.

Same as EDUC 182.

CHC/LAT 183. Multicultural Education in K-12 Schools. 4 Units.
Provides a theoretical and empirical overview of educational issues affecting low-income immigrant and U.S.-born minority student populations in an increasingly diverse and changing society.

Same as EDUC 124.

(VII)

CHC/LAT 184. College Advising for High School Students. 4 Units.
Provides a brief introduction to college-access issues and in-depth understanding in the field of college advising. Students learn how to help high school students develop higher education plans and guide them through the college application process.

Same as EDUC 183.

CHC/LAT 189. Special Topics in Educational Policy and Issues. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

CHC/LAT H190A. Honors Research Preparation. 4 Units.
Students write a proposal describing their research question, the relevant background literature, and the method of data collection and analysis. Field work for the project may begin this quarter.

Restriction: Open only to students in the Honors Program in Chicano/Latino Studies.

CHC/LAT H190B. Honors Field Research. 4 Units.
Students begin or continue their research for their senior honors thesis.

Prerequisite: CHC/LAT H190A.

CHC/LAT H190C. Honors Thesis. 4 Units.
Student drafts a senior honor thesis (typically) with the following sections: problem statement, literature review, description of the methods, results, and conclusions.

Prerequisite: CHC/LAT H190A and CHC/LAT H190B.

CHC/LAT H190CW. Honors Thesis. 4 Units.
Student drafts a senior honor thesis (typically) with the following sections: problem statement, literature review, description of the methods, results, and conclusions.

Prerequisite: CHC/LAT H190A and CHC/LAT H190B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

CHC/LAT 191A. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as SOC SCI 186A, PSYCH 144A.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

CHC/LAT 191B. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144A or SOC SCI 186A or CHC/LAT 191A. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children and be culturally sensitive.

Same as SOC SCI 186B, PSYCH 144B.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

CHC/LAT 191C. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144B or SOC SCI 186B or CHC/LAT 191B. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as SOC SCI 186C, PSYCH 144C.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

CHC/LAT 198. Group Directed Study. 1-4 Units.
Directed study with Chicano/Latino faculty.

Repeatability: Unlimited as topics vary.

CHC/LAT 199. Independent Study. 1-4 Units.
Independent research with Chicano/Latino faculty.

Repeatability: May be repeated for credit unlimited times.

CHC/LAT 200A. Theoretical Issues in Chicano/Latino Research. 4 Units.
Introduction to theoretical issues in the scholarship in Chicano/Latino Studies. Theories from social sciences, humanities, critical theory. Topics: immigration, identity, gender and sexuality, globalization, transnationalism, social, political, and economic integration, race theory, labor market participation, social history, cultural productions.

CHC/LAT 210A. Cultural and Historial Precedents for Latinos and Medical Care. 2 Units.
Introduction to the history of Latinos, focusing on relevant pre-Columbian, colonial, and modern social and cultural developments, including issues of race, gender, sexuality, religious beliefs, and health beliefs and practices.

Grading Option: In progress only.

Overlaps with CHC/LAT 212.

CHC/LAT 210B. Cultural and Historical Precedents for Latinos and Medical Care. 2 Units.
Introduction to the history of Latinos, focusing on relevant pre-Columbian, colonial, and modern social and cultural developments, including issues of race, gender, sexuality, religious beliefs, and health beliefs and practices.

Prerequisite: CHC/LAT 210A.

Overlaps with CHC/LAT 212.

Restriction: Chicano/Latino Studies 210A-B and 212 may not both be taken for credit.

CHC/LAT 211A. Latinos/Latinas and Medical Care: Contemporary Issues. 2 Units.
Introduction to medical anthropological and social science perspectives on Latinos/Latinas in relation to a number of health and medically-related issues, i.e., immigration, gender, reproduction, culture, social structure, political economy, sexuality, utilization of medical services, and health beliefs.

CHC/LAT 211B. Latinos/Latinas and Medical Care: Contemporary Issues. 2 Units.
Introduction to medical anthropological and social science perspectives on Latinos/Latinas in relation to a number of health and medically-related issues, i.e., immigration, gender, reproduction, culture, social structure, political economy, sexuality, utilization of medical services, and health beliefs.

Prerequisite: CHC/LAT 211A.

CHC/LAT 215. Transnational Migration. 4 Units.
Examines borders and boundaries as material and semiotic constructs. Drawing upon an array of literatures, but loosely situated in U.S. geo/biopolitics, explores transformative troublings of places, spaces, borders, and bodies of all sorts.

Same as SOC SCI 254A, ANTHRO 235A.

Restriction: Graduate students only.

CHC/LAT 217. Street Ethnography. 4 Units.
Focuses on urban street populations, especially gangs, and outlines some of the major conceptual and theoretical issues related to this topic and the processes of street socialization. Methods of inquiry include mapping, ethnohistory, survey questionnaires, and other quantitative techniques.

Same as CRM/LAW C222.

Restriction: Graduate students only.

CHC/LAT 221. Race, Ethnicity, and Social Control. 4 Units.
Origins and organization of racialized social control, with emphasis on criminal justice. Racial politics of criminal/juvenile justice considered in comparative (historical and international) perspective. Exploration of theoretical and methodological issues for research on race, ethnicity, and social control.

Same as CRM/LAW C241.

Restriction: Graduate students only.

CHC/LAT 235. U.S. Ethnic Politics. 4 Units.
Assesses theories of ethnic political attitudes and behaviors in U.S. politics and examines methodological approaches to testing theories of ethnic politics. The primary focus is contemporary ethnic politics with attention to ethnic politics in American political development.

Same as POL SCI 245A.

Restriction: Graduate students only.

CHC/LAT 289. Special Topics in Chicano/Latino Studies. 1-4 Units.
Current research in Chicano/Latino Studies.

Repeatability: May be repeated for credit unlimited times.

CHC/LAT 290. Dissertation Research. 4 Units.
Dissertation research with Chicano/Latino faculty.

Repeatability: May be taken for credit 10 times.

Restriction: Graduate students only.

CHC/LAT 299. Independent Study. 4 Units.
Independent study with Chicano/Latino Studies faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Cognitive Sciences Courses

PSYCH 7A. Introduction to Psychology. 4 Units.
Introduction to field of psychology, addressing the application of scientific methods to the study of human development, learning, memory, problem solving, perception, biological mechanisms, emotions and motivation, personality, psychopathology, and effects of diverse social and cultural contexts on human behavior. Course may be offered online.

Same as PSY BEH 9.
Overlaps with PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B.

Restriction: Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9A. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSY BEH 11A.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9B. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSY BEH 11B.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9C. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSY BEH 11C.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9D. Psychology Fundamentals Research. 1.3 Unit.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9A.

PSYCH 9E. Psychology Fundamentals Research. 1.3 Unit.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9B.

PSYCH 9F. Psychology Fundamentals Research. 1.3 Unit.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9C.

PSYCH 10A. Probability and Statistics in Psychology I. 4 Units.
An introduction to probability and statistics. Emphasis on thorough understanding of the probabilistic basis of statistical inference. Examples drawn primarily from psychology.

Overlaps with ANTHRO 10A, SOCECOL 13, SOC SCI 10A, SOCIOL 10A, POL SCI 10A.

Restriction: Psychology majors have first consideration for enrollment.

(Va)

PSYCH 10B. Probability and Statistics in Psychology II. 4 Units.
An introduction to probability and statistics. Emphasis on thorough understanding of the probabilistic basis of statistical inference. Examples drawn primarily from psychology.

Prerequisite: PSYCH 10A.

Overlaps with ANTHRO 10B, SOCECOL 13, SOC SCI 10B, SOCIOL 10B, POL SCI 10B.

Restriction: Psychology majors have first consideration for enrollment.

(Va)

PSYCH 10C. Probability and Statistics in Psychology III. 4 Units.
An introduction to probability and statistics. Emphasis on thorough understanding of the probabilistic basis of statistical inference. Examples drawn primarily from psychology.

Prerequisite: PSYCH 10B.

Overlaps with ANTHRO 10C, SOCECOL 13, SOC SCI 10C, SOCIOL 10C, POL SCI 10C.

Restriction: Psychology majors have first consideration for enrollment.

(Vb)

PSYCH 21A. Adolescent Psychology. 4 Units.
Focuses on psychosocial dynamics of today's adolescents in America emphasizing the quest for identity, independence, values, and sexual orientation. The influence of society, family, school, and peers is analyzed. Strategies for helping troubled adolescents are discussed.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Overlaps with PSY BEH 112D.

(III)

PSYCH 46A. Introduction to Human Memory. 4 Units.
Covers the core concepts of modern research and theorizing about human memory, including structural subdivisions (e.g., perceptual memory, short-term memory, long-term memory), different measures of memory (e.g., recall, reorganization), and some practical applications of memory research (e.g., mnemonics). Course may be offered online.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Overlaps with PSYCH 140M, PSY BEH 192J.

(III)

PSYCH 56L. Acquisition of Language. 4 Units.
What children say, what they mean, and what they understand. Theories about the learning of language by one-, two-, and three-year olds. Comparison of kinds of data on which these theories are based.

Same as LINGUIS 51.

(III)

PSYCH 78A. Self-Identity and Society. 4 Units.
Studies sociological contributions to theory and research in social psychology, with focus on the social influences on personality, attitudes, beliefs, and behavior; socialization, human groups, and social interaction.

Same as SOCIOL 31.
Overlaps with SOCIOL 61A.

(III)

PSYCH 89. Special Topics in Lower-Division Psychology. 4 Units.
Studies in selected areas of psychology at the lower-division level. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

PSYCH H101A. Honors Seminar in Psychology I. 4 Units.
Focuses on the research activities and honors thesis research projects of each student and the research of various Cognitive Sciences faculty. Students discuss their research interests in the early and later stages of their projects. Research projects and write-ups required.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Honors Program in Psychology students only.

PSYCH H101B. Honors Seminar in Psychology II. 4 Units.
Focuses on the research activities and honors thesis research projects of each student and the research of various Cognitive Sciences faculty. Students discuss their research interests in the early and later stages of their projects. Research projects and write-ups required.

Prerequisite: PSYCH H101A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Honors Program in Psychology students only.

PSYCH H101C. Honors Seminar in Psychology III. 4 Units.
Focuses on the research activities and honors thesis research projects of each student and the research of various Cognitive Sciences faculty. Students discuss their research interests in the early and later stages of their projects. Research projects and write-ups required.

Prerequisite: PSYCH H101B.

Repeatability: May be taken for credit 2 times.

Restriction: Honors Program in Psychology students only.

PSYCH 109. Cognitive Sciences Research Seminar. 4 Units.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9B.
Prerequisite: PSYCH 9A.

Restriction: Cognitive Sciences majors have first consideration for enrollment.

PSYCH 110. Quantitative Methods for Cognitive Sciences Research. 4 Units.
Basics of quantitative methods used in cognitive science research focusing on linear algebra, Fourier analysis, multivariate statistics, and signal detection theory. Examples drawn from models and methods used in cognitive sciences research with practical examples.

Prerequisite: MATH 2A and MATH 2B and STATS 7 AND (PSYCH 114M or I&C SCI 31).

Restriction: Cognitive Sciences majors have first consideration for enrollment.

PSYCH 111BW. Honors Advanced Experimental Psychology. 4 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH H111B.
Prerequisite: PSYCH H111A and (PSYCH H11A or PSYCH 112A). Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Honors Program in Psychology students only.

(Ib)

PSYCH H111A. Honors Experimental Psychology. 4 Units.
Emphasis on design of experiments and analysis of results. Experiments are conducted in laboratory sections.

Corequisite: PSYCH H111LA.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and 10B and 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Overlaps with PSYCH 112A.

Restriction: Campuswide Honors Program students only.

PSYCH H111B. Honors Advanced Experimental Psychology Laboratory. 2 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH 111BW.

PSYCH H111C. Honors Research in Experimental Psychology. 4 Units.
Each student conducts a research project in experimental psychology. The projects are discussed in a seminar format. Written reports on each project are submitted at the end of the quarter.

Prerequisite: PSYCH 111BW or PSYCH 112B.

Restriction: Honors Program in Psychology students only.

PSYCH 112A. Experimental Psychology. 4 Units.
Emphasis on design of experiments and analysis of results. Experiments are conducted in laboratory sections.

Corequisite: PSYCH 112LA.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Overlaps with PSYCH H111A, PSYCH 112F, PSYCH 112G.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112B. Advanced Experimental Psychology. 4 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH 112LB.
Prerequisite: PSYCH 112A and PSYCH 112LA.

Overlaps with PSYCH 112F, PSYCH 112FW, PSYCH 112G, PSYCH 112GW.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112BW. Advanced Experimental Psychology. 4 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH 112LB.
Prerequisite: PSYCH 112A and PSYCH 112LA. Satisfactory completion of the Lower-Division Writing requirement.

Overlaps with PSYCH 112F, PSYCH 112FW, PSYCH 112G, PSYCH 112GW.

Restriction: Psychology majors have first consideration for enrollment.

(Ib)

PSYCH 112C. Research in Experimental Psychology. 4 Units.
Each student conducts a research project in experimental psychology. The projects are discussed in a seminar format. Written reports on each project are submitted at the end of the quarter.

Prerequisite: PSYCH 112B and PSYCH 112LB.

Overlaps with PSYCH 112F, PSYCH 112FW, PSYCH 112G, PSYCH 112GW.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112D. Effective Graphical Presentation of Data. 4 Units.
Learn to use MATLAB to produce graphical displays of data based on psychological principles for effective design. Approach is problem-oriented, with emphasis on case-studies using data from psychological experiments and real-world corpora. Assessment via independent individual projects.

Corequisite: PSYCH 112LD.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and STATS 7)).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LA. Experimental Psychology Laboratory. 2 Units.
Required laboratory section and co-requisite for Psych 112A.

Corequisite: PSYCH 112A.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LB. Advanced Experimental Psychology Laboratory. 2 Units.
Required laboratory section and co-requisite for PSYCH 112B and PSYCH 112BW.

Corequisite: PSYCH 112B or PSYCH 112BW.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LC. Research in Experimental Psychology.
Required laboratory section and co-requisite for PSYCH 112C.

Corequisite: PSYCH 112C.

PSYCH 112LD. Effective Graphical Presentation of Data Lab . 2 Units.
Lab to learn to use MATLAB to produce graphical displays of data based on psychological principles for effective design. Approach is problem-oriented, with emphasis on case-studies using data from psychological experiments and real-world corpora. Assessment via independent individual projects.

Corequisite: PSYCH 112D.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LM. Research Methods in Psychology Laboratory. 2 Units.
Required laboratory section and co-requisite for PSYCH 112M.

Corequisite: PSYCH 112M.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LR. Cognitive Robotics Laboratory. 2 Units.
Required laboratory section and co-requisite for Psych 112R.

Corequisite: PSYCH 112R.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112M. Research Methods in Psychology. 4 Units.
Research methods in psychology for majors who wish to fulfill this requirement separately from upper-division writing. Covers both experimental and descriptive research methods, analysis of results, and reading the psychological literature. Research experience is provided in laboratory sections.

Corequisite: PSYCH 112LM.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Overlaps with PSYCH 112F, PSYCH 112FW.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112R. Cognitive Robotics. 4 Units.
Introduces concepts on experimental design, embodiment, robot construction, and computer programming. Concepts of embodied intelligence and case studies of cognitive robotics are covered in lecture. Simple robots are constructed and programmed to carry out different behavioral experiments in lab.

Corequisite: PSYCH 112LR.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 113T. Introduction to Psychological Tests and Measurement. 4 Units.
Principles of psychological measurement, including elementary psychophysics, psychometrics, test theory, and the measurement of abilities, attitudes, traits, and interests. Reliability and validity of psychological measurements.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C) and PSYCH 10A.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 114M. MATLAB Programming. 4 Units.
MATLAB is a mathematical software package for solving quantitative problems often encountered in experimental psychology. Topics include rudiments of programming, statistical analysis of data, matrix algebra, signal processing, graphic visualization, and simulated models of cognitive and perceptual processes.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 119. Special Topics in Research Methodologies. 1-4 Units.
Studies in selected areas of research methodologies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 120A. Abnormal Psychology. 4 Units.
Introduction to psychopathology and behavioral deviations, and the concepts of theories regarding these conditions.

Prerequisite: PSYCH 7A or PSYCH 9C or PSY BEH 9 or PSY BEH 11C.

Overlaps with PSY BEH 102C.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 120D. Developmental Psychology. 4 Units.
A general introduction to the study of the physical, intellectual, social, and emotional development of the child from birth to adulthood.

Prerequisite: PSYCH 7A or PSYCH 9A or PSY BEH 9 or PSY BEH 11A

Overlaps with PSY BEH 111D.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 120H. History of Psychology. 4 Units.
A history of the development of various schools and systems of psychological thought.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSY BEH 192A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 120P. Personality Theories. 4 Units.
A survey of the evolution of personality theory during this century. An overview of major perspectives in the field, with special attention to Freud, Jung, and Adler.

Prerequisite: PSYCH 7A or PSYCH 9C or PSY BEH 9 or PSY BEH 11C.

Overlaps with PSY BEH 170S.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 121M. Theories of Motivation. 4 Units.
Factors affecting the behavioral performance of organisms. A survey of theoretical and empirical approaches to the physiological, psychological, and social factors which generate behavior.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Overlaps with PSY BEH 176S.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 121P. Positive Psychology. 4 Units.
Positive psychology, at the subjective level, is about valued subjective experiences; at the individual level, it is about positive individual traits; and at the group level, it is about the civic virtues and institutions that move individuals toward better citizenship.

Prerequisite: (PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 121S. Psychology of Sleep and Consciousness. 4 Units.
Covers the physiology, neurochemistry, and neuroanatomy associated with sleep, contemporary sleep theory, REM and NREM, phenomenology, sleep disorders, examination of differences between conscious and unconscious cognitive function, the history of sleep and dream theories from ancient time to present day.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 122C. Clinical Psychology. 4 Units.
Provides overview of the clinical psychology field including theories and techniques used in counseling and testing.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 122I. Organizational/Industrial Psychology. 4 Units.
Introduction to applied psychology in organizations, including personnel testing, selection, training and evaluation, job and classification analysis, job satisfaction and motivation, organizational development, leadership, market research and consumer psychology. Potential ethical problems are discussed.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSY BEH 11B or PSY BEH 11C or PSYCH 7A or PSYCH 9A or PSYCH 9B or PSYCH 9C.

Same as PSY BEH 180S.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 123P. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as LPS 143, PHILOS 143.

Restriction: Psychology and Philosophy majors have first consideration for enrollment.

PSYCH 124S. Sports Psychology. 4 Units.
Discusses the field of sports psychology with an emphasis on clinical practice including motivation, goal setting, performance skills, and mental skills. Discusses and utilizes a wide range of techniques designed to enhance performance and manage problems among athletes.

Prerequisite: (PSYCH 7A or PSYCH 9C) or (PSY BEH 9 or PSY BEH 11C).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 124V. Psychology of Violence. 4 Units.
Discusses the psychology of violence and aggression with an emphasis on understanding the psychological, social, and physiological roots of violent and aggressive behavior. Psychological treatment techniques and strategies for prevention of aggressive and violent behavior are also discussed.

Prerequisite: (PSYCH 7A or PSYCH 9C) or (PSY BEH 9 or PSY BEH 11C).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 127A. Adult Development. 4 Units.
Examines why and how we change (with attention to gains as well as losses) from ages 18-65 and the nature and sources of continuity over time. Topics include physical and intellectual functioning, personality, coping strategies, and social roles and relationships.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 113D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127C. Clincal Child Psychology. 4 Units.
Examines research and theory concerning childhood psychopathology behavior disorders. Diagnosis and assessment, early identification of high-risk children, fears and phobias, antisocial behavior, childhood psychoses, autism, depression, attention deficit/hyperactivity disorders, and ethical and policy implications of identifying children who are different.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSY BEH 152C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127D. Development of Gender Differences. 4 Units.
Examination of research on how sexes differ in physiology, cognitive functioning, personality, and social behavior. Sex-differentiated development from the prenatal period through adulthood. Explanations for male-female differences are sought, focusing on biological (genetic, hormonal), and social (familial, cultural) mechanisms.

Prerequisite: PSY BEH 9 or PSYCH 9B or PSY BEH 11B or PSYCH 7A.

Same as PSY BEH 117D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127E. Psychology and Emotion. 4 Units.
General theories of emotion and research regarding cognitive, behavioral, physiological, and subjective experience of emotion. Specific topics include emotion regulation, emotion and health, emotional intelligence, and emotional development.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSY BEH 177S.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127G. Gerontology. 4 Units.
Examines stereotypes and myths associated with aging; physiological and psychological changes that accompany old age; distinguishes behavior changes due to aging per se from those due to historical and socioeconomic factors; political, social aspects of old age in contemporary society.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 114D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127H. Child Health Psychology. 4 Units.
Exploration of psychological antecedents, concomitants, and consequences of medical illnesses in children. Children's beliefs about health, illness, and medication; the role of stress; coronary-prone behavior; therapeutic adherence and physician-patient interaction; coping with chronic illness; effects of child's illness on family.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 9C or PSYCH 7A. Recommended: SOCECOL 10.

Same as PSY BEH 138H.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Public Health Policy majors have first consideration for enrollment.

PSYCH 127I. Infant Development. 4 Units.
Study of human development from conception through the first two years of life, covering processes and events in the domains of physical, social, and cognitive development.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 110D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127T. Child Therapies. 4 Units.
Examines research methodologies, empirical data, and implications of diverse intervention strategies. Primary topics include psychotherapy process and outcome, family therapies, behavioral intervention, cognitive behavior modification, pediatric psychopharmacology, and ethical and social policy implications of intervening in other people's lives.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 122C.

Same as PSY BEH 155C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 129. Special Topics in General Psychology. 4 Units.
Studies in selected areas of general psychology. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 130A. Perception and Sensory Processes. 4 Units.
A general introduction to the scientific study of sensory processes and perceptual phenomena, with special emphasis on the visual system.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.

Same as PSY BEH 192E.
Overlaps with PSYCH 131A, PSYCH 131B.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 131A. Vision. 4 Units.
Visual perception and the anatomy and physiology of the visual system. Topics include: the retina and the visual pathway; visual sensitivity; color vision; spatial vision; motion perception; and the development of the visual system.

Same as BIO SCI N182.
Overlaps with PSYCH 130A.

Restriction: Upper-division students only. Psychology majors have first consideration for enrollment.

PSYCH 131B. Hearing. 4 Units.
Auditory perception, the anatomy and physiology of the auditory system, and the physics of sound. Topics include: neural transduction of sound, sensitivity, sound localization, complex sound perception, and hearing loss.

Prerequisite: (PSYCH 9A and PSYCH 9B) or (PSY BEH 11A and PSY BEH 11B).

Overlaps with PSYCH 130A, PSY BEH 192E.

Restriction: Upper-division students only. Psychology majors have first consideration for enrollment.

PSYCH 135A. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 235A.

PSYCH 135B. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 235B.

PSYCH 135C. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 235C.

PSYCH 135M. The Mind/Body Problem. 4 Units.
What is consciousness and what is matter and how are the two related? How can brains have minds? This multidisciplinary course draws on information from the fields of computer vision, artificial intelligence, cognition, neurophysiology, philosophy, and psychophysics.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 139. Special Topics in Perception and Sensory Processes. 4 Units.
Studies in selected areas of perception and sensory processes. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 140C. Cognitive Science. 4 Units.
Introduction to investigations of the structure and function of the mind, from viewpoints of computation, neuroscience, philosophy, and cognitive psychology. Topics include: perception, attention, knowledge representations, learning and memory, action, reasoning, and language.

Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSYCH 11B) or PSYCH 7A or (PSYCH 9A and PSYCH 9B).

Same as PSY BEH 192G.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 140L. Principles of Learning Theory. 4 Units.
Investigation of the learning and memory processes of humans and animals. Basic experimental approaches to learning and memory, empirical results, and theoretical interpretations of the evidence are discussed.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.

Same as PSY BEH 192I.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 140M. Human Memory. 4 Units.
Developments in the area of memory; history of memory research; theories of the nature of memory. Visual memory, recognition memory, high-speed scanning, free recall, short-term memory, mnemonics, retrieval, relationship of memory to thinking. Selected theoretical formulations for memory.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 192J.
Overlaps with PSYCH 46A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 141J. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as EDUC 141A.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

PSYCH 141K. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as EDUC 141B.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

PSYCH 141L. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lecture, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as EDUC 141C.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

PSYCH 141M. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as EDUC 141D.

PSYCH 141N. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as EDUC 141E.

PSYCH 141O. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as EDUC 141F.

PSYCH 141P. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as EDUC 141G.

PSYCH 141Q. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as EDUC 141H.

PSYCH 141R. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as EDUC 141I.

PSYCH 143P. Human Problem Solving. 4 Units.
Modern developments in the psychology of human problem solving. Topics include: concept identification, arithmetic, sets, logic puzzles, story problems, group problem solving, and theorem proving.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 192K.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 144A. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as SOC SCI 186A, CHC/LAT 191A.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

PSYCH 144B. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144A or SOC SCI 186A or CHC/LAT 191A. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children and be culturally sensitive.

Same as SOC SCI 186B, CHC/LAT 191B.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

PSYCH 144C. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144B or SOC SCI 186B or CHC/LAT 191B. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as SOC SCI 186C, CHC/LAT 191C.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

PSYCH 145P. Attention and Learning Deficits in Children I. 4 Units.
Learning in normal and attention-deficit disordered children. Covers the normal developmental course of learning and a variety of deficits. Includes field work with attention-deficit disordered children.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 145Q. Attention and Learning Deficits in Children II. 4 Units.
Learning in normal and attention-deficit disordered children. Covers the normal developmental course of learning and a variety of deficits. Includes field work with attention-deficit disordered children.

Prerequisite: PSYCH 145P.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 145R. Attention and Learning Deficits in Children III. 4 Units.
Learning in normal and attention-deficit disordered children. Covers the normal developmental course of learning and a variety of deficits. Includes field work with attention-deficit disordered children.

Prerequisite: PSYCH 145Q.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 146MW. Writing about Memory. 4 Units.
Covers a broad range of texts, literary, philosophical, and scientific, each probing the nature of memory and its meaning in human life. Readings are drawn from across many disciplines and many perspectives.

Prerequisite: PSYCH 7A or PSYCH 9B or PSY BEH 9 or PSY BEH 11B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Psychology majors have first consideration for enrollment.

(Ib)

PSYCH 147C. Cognitive Behavior Therapy. 4 Units.
Presentation of principles and procedures of therapeutic interventions based on cognitive-behavior methods. Cognitive factors in learning, emotional arousal, psychological disorder, and psychotherapy reviewed. Introduces the application of cognitive behavioral methods to problems of depression, anxiety, anger, pain, and impulsivity.

Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSY BEH 11C) or PSYCH 7A or (PSYCH 9A and PSYCH 9C).

Same as PSY BEH 154C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 148A. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 228A.

PSYCH 148B. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 228B.

PSYCH 148C. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 228C.

PSYCH 149. Special Topics in Cognition and Learning. 4 Units.
Studies in selected areas of cognition and learning. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 150. Psychology of Language. 4 Units.
Examines language using the tools of experimental psychology. From sounds to words to spoken and written sentences, explores how language is used in real time, and how its use reveals how it is represented in the mind.

Same as LINGUIS 155.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 151. Brainwaves in Language Research. 4 Units.
Provides a hands-on introduction to the use of electroencephalography (EEG) in language processing research. In addition to theoretical discussions, students design, deploy, and analyze a novel EEG experiment of their own during the quarter.

Prerequisite: PSYCH 150.

PSYCH 156A. Acquisition of Language II. 4 Units.
Focuses on native language learning, exploring the way in which infants and very young children unconsciously uncover the rich systematic knowledge of their native language. Examines both experimental and computational studies that quantitatively investigate the "how" of language acquisition.

Prerequisite: Recommended: PSYCH 56L or LINGUIS 51.

Same as LINGUIS 150.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 157M. Computational Methods for Language Research. 4 Units.
Focuses on computational methods useful for language research. Students become familiar with software and programming languages used for extracting information from electronic datasets and for creating basic simulations of linguistic cognition. No prior programming experience assumed.

Prerequisite: PSYCH 155 or LINGUIS 155 or PSYCH 156A or LINGUIS 150.

Same as LINGUIS 107M.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 247M.

PSYCH 158A. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 248A.

PSYCH 158B. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 248B.

PSYCH 158C. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 248C.

PSYCH 159. Special Topics in Semiotics and Language. 4 Units.
Studies in selected areas of language sciences. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 160A. Introduction to Cognitive Neuroscience. 4 Units.
Introduction to the neural basis of human perceptual, motor, and cognitive abilities. Topics include sensory perception, motor control, memory, language, attention, emotion, frontal lobe function, functional brain imaging, and neuropsychological disorders.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or BIO SCI 35 or BIO SCI N110.

Same as PSY BEH 192L, BIO SCI N166.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 160D. Brain Disorders and Behavior. 4 Units.
Examines the localization of human brain functions and the effects of neurological disorders on psychological functions such as perception, motor control, language, memory and decision-making.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or BIO SCI 35 or BIO SCI N110.

Same as BIO SCI N165.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 161. Language and the Brain . 4 Units.
Research analysis on biological bases of human linguistic capacity. Development, focusing on hemispheric specialization, plasticity; localization of specific linguistic functions in adults, with emphasis on study of aphasias; relation of linguistic capacity to general cognitive capacity, considering research on retardation.

Prerequisite: BIO SCI 35 or BIO SCI N110.

Same as BIO SCI N160, LINGUIS 158.

Restriction: Psychology and Biology majors have first consideration for enrollment.

PSYCH 161H. Hearing and the Brain. 4 Units.
An overview of brain mechanisms of hearing, including perception of simple sounds, speech, and music. Begins with sound itself, and looks at processing by the ear, auditory pathways, auditory cortex, and beyond. Also auditory development, learning, and clinical issues.

Prerequisite: PSYCH 160A or BIO SCI N110.

Same as BIO SCI N147.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 161P. Perceptual Neuroscience. 4 Units.
Examines the physiology of cortical networks underlying human perceptual experience.

Prerequisite: PSYCH 160A or PSY BEH 192L.

Same as PSY BEH 192P.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 162A. Neurobiology of Learning and Memory. 4 Units.
How the brain and behavior change as a result of experience, with an emphasis on identifying the neurochemical processes through which memory is stored and the parts of the brain that are involved.

Prerequisite: BIO SCI 35 or BIO SCI N110.

Same as BIO SCI N158.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 162B. Human Memory Disorders. 4 Units.
Focuses on models and methods of assessing human memory and its disorders. Exposure to conventional and new assessment devices provided.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 164A. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 264A.

PSYCH 164B. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 264B.

PSYCH 164C. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 264C.

PSYCH 165A. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 263A.

PSYCH 165B. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 263B.

PSYCH 165C. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 263C.

PSYCH 168E. Embodied Cognition. 4 Units.
Addresses concepts of embodiment in cognitive sciences. Introduces the notion of how the brain is closely coupled to the body and its interaction with the environment. Case studies of both natural and artificial systems are explored.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 169. Special Topics in Cognitive Neuroscience . 4 Units.
Studies in selected areas of cognitive neuroscience. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 171. Psychology of a Diverse Society. 4 Units.
Examines the social and cultural bases of human behavior, including ethnicity, gender, gender orientation, class, and religion. Analysis of historical, political, and economic factors influencing a diverse society.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 172S. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.

Same as REL STD 112B, SOC SCI 130B, LPS 140B.

PSYCH 173A. Psychological Anthropology. 4 Units.
Cultural differences and similarities in personality and behavior. Child-rearing practices and consequent adult personality characteristics, biocultural aspects of child development and attachment, culture and behavior evolutionary models, politically linked personality, cognitive anthropology, psychology of narrative forms, comparative national character studies.

Prerequisite: ANTHRO 2A or PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)

Same as ANTHRO 132A.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 174A. Asian American Psychology. 4 Units.
Examines the social and psychological concerns of Asian Americans; e.g., coping with racial prejudice, maintaining bicultural identities, dealing with cross-cultural conflicts in interracial relationships, and trying to reconcile generational differences between immigrant parents and their American-born children.

Same as ASIANAM 141.

PSYCH 174E. African American Psychology. 4 Units.
Historical overview of the development of black psychology and the African American frame of reference. Topics include personality development, psychological assessment, issues in education, black mental health, and the role of the African American psychologist in the community.

Same as AFAM 153.

PSYCH 174F. Chicano/Latino Psychology. 4 Units.
Examines research and literature investigating Chicano/Latino ethnicity as a variable influencing behavior. Explores mental health needs and issues of Chicano/Latinos and discusses competent, sensitive methods of mental health service delivery.

Same as CHC/LAT 171.

PSYCH 174H. Chicano/Latino Families. 4 Units.
Introduction to the research, literature, and issues surrounding the topic of Chicano/Latino families including cultural history, contemporary issues, organization of family, traditions, lifestyles, values, beliefs, generational differences, gender issues, ethnic identity, evolution of demographic patterns, current economic and political standings.

Same as CHC/LAT 170, SOC SCI 165.

PSYCH 176A. Political Psychology. 4 Units.
Examines how psychological theory and research may be used to better understand political thought and behavior. Drawing on theories of learning, cognition, and personality, discusses the formation of political attitudes, the process of political decision-making, the nature of political leadership.

Same as POL SCI 137C.

Restriction: Psychology and Political Science majors have first consideration for enrollment.

PSYCH 177D. Deviance. 4 Units.
Perspectives on deviance and criminality in behavior, institution, community, and myth. The suitability of contemporary theories of deviant behavior.

Same as SOCIOL 156, CRM/LAW C107.

Restriction: Criminology, Law and Society, Social Ecology, Sociology, and Psychology majors have first consideration for enrollment.

PSYCH 177F. Forensic Psychology: Advanced Seminar. 4 Units.
The focus is on the psychology of criminal offending, particularly violent behavior. Examines violence, sexual offending, and mental disorder related to crime with regard to clinical assessment and treatment; mental health services within forensic institutions.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and (PSY BEH 178S or CRM/LAW C149).

Same as PSY BEH 156C, CRM/LAW C136.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Criminology, Law and Society majors have first consideration for enrollment.

PSYCH 177P. Developmental Psychopathology. 4 Units.
Research and theory of origins, course, and outcomes of disordered behavior. Continuity and change in patterns of behavior; environmental challenges and buffers; stress/competence in children; vulnerable/invincible children; children of mentally ill parents; families at risk; childhood antecedents of adult disorders.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 120A. Recommended: SOCECOL 10.

Same as PSY BEH 153C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 178N. Social Psychology of Networks. 4 Units.
Review of network methods used in small group and organizational research. Discussion of social psychological literature relevant to the network of study of cognitive social structure, exchange/communication, identity negotiation, and social control. Case study of network datasets exemplifies research issues.

Same as SOCIOL 135.

Restriction: Sociology and Psychology majors have first consideration for enrollment.

PSYCH 179. Special Topics in Interdisciplinary Studies. 1-4 Units.
Studies in selected areas of interdisciplinary studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 190. Senior Thesis. 4 Units.
Student writes senior thesis on a topic of psychology with guidance from a three-member committee comprised of Cognitive Sciences faculty. Senior thesis includes the following: research statement, literature review, experimental design, data collection and analysis, and a written final thesis.

Grading Option: In progress only.

Repeatability: May be taken for credit 3 times.

PSYCH 198. Directed Group Study. 1-4 Units.
Directed study with Cognitive Sciences faculty.

Repeatability: May be repeated for credit unlimited times.

PSYCH 199. Independent Study. 1-4 Units.
Independent research with Cognitive Sciences faculty.

PSYCH 201A. Cognitive Sciences Research Seminar. 1.3 Unit.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 201B. Cognitive Sciences Research Seminar. 1.3 Unit.
Weekly reports and colloquia by faculty, students, and visitors.

Prerequisite: PSYCH 201A.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 201C. Cognitive Sciences Research Seminar. 1.4 Unit.
Weekly reports and colloquia by faculty, students, and visitors.

Prerequisite: PSYCH 201B.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 202A. Proseminar in the Cognitive Sciences. 1 Unit.
Introduction to the conceptual foundations and basic research results in the cognitive sciences for first-year graduate students.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PSYCH 203A. Discrete Mathematics and Probability. 4 Units.
Logic and set theory are covered during the first three weeks, using an interactive computer system. The remaining seven weeks are devoted to probability theory and cover elementary concepts from samples spaces to Chebychev's Inequality and the moment generating function.

Restriction: Graduate students only.

PSYCH 203B. Introduction to Mathematical Statistics. 4 Units.
An introduction to statistical estimation and statistical inference. Topics include sufficiency and the Rao-Blackwell Theorem, completeness and the Lehmann-Scheffe Theorem. The method of maximum likelihood is explored in some detail. Inference in linear models covers regression and analysis of variance.

Restriction: Graduate students only.

PSYCH 203C. Algorithmic Statistics. 4 Units.
Discussion of the fundamentals of statistical inference and computational implementations of common statistical models.

Restriction: Graduate students only.

PSYCH 203D. Applied Mathematics for Cognitive Sciences Research. 4 Units.
Covers the basics of linear systems analysis, focusing on linear algebra, Fourier analysis, differential equations, and elementary signal processing. Applications in Cognitive Science and Cognitive Neuroscience research will be developed.

Prerequisite: PSYCH 205A.

Restriction: Psychology graduate students only.

PSYCH 204A. Seminar in Professional Development. 1 Unit.
Development of professional skills. Focuses on grant writing and submission process, responsible conduct of research, and ethics training.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 204B. Seminar in Professional Development. 1 Unit.
Development of professional skills. Focus on scientific presentations and preparation.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 204C. Seminar in Professional Development. 1 Unit.
Development of professional skills. Focuses on career opportunities, interests and information, and community outreach.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 205A. Computational and Research Methods with MATLAB. 4 Units.
Introduces rudiments of programming, statistical analysis and probability theory, graphic visualization, GUI design, spectral analysis, and simulation models using MATLAB, a software package for solving quantitative problems often encountered in experimental psychology.

Restriction: Graduate students only.

PSYCH 205B. Running Experiments Using MATLAB. 4 Units.
Provides an in-depth introduction to writing MATLAB programs to run auditory and visual experiments. Topics covered include program structure, stimulus generation, presentation, and data collection.

Prerequisite: PSYCH 205A.

PSYCH 205C. Computational Statistics. 4 Units.
Introduction to a number of computational statistics approaches including exploratory data analysis and modeling using a probabilistic framework with Bayesian graphical models. Emphasis will be on in-class programming using MATLAB.

Restriction: Graduate students only.

PSYCH 210A. Introduction to Cognitive and Brain Sciences I: Perception. 4 Units.
Discusses models of cognition and evidence linking cognition and the brain. Focus is on visual, auditory, and somatic perception and bottom-up mechanisms of attention.

Restriction: Graduate students only.

PSYCH 210B. Introduction to Cognitive and Brain Sciences II: Cognition. 4 Units.
Discusses models of cognition and evidence linking cognition and the brain. Focus is on emotion, top-down attention, goal-directed behavior, categorization, judgment, and decision-making.

Restriction: Graduate students only.

PSYCH 211. Attention and Perception. 4 Units.
Focuses on selective attention, the process of selecting a subset of available information for analysis and representation, and on how stimulus salience, behavioral goals, and expectations influence attentional deployment and perception. Also explores related cognitive processes and applications.

Restriction: Graduate students only.

PSYCH 212. Learning, Memory, and Knowledge Organization. 4 Units.
Addresses fundamental issues in human memory, inductive learning, and knowledge organization. Knowledge representation, storage, retrieval, acquisition, and relation to the environment are explored. Prominent computational approaches are reviewed.

Restriction: Graduate students only.

PSYCH 213. The Mind/Body Problem. 4 Units.
Course is multidisciplinary, drawing on information from the fields of quantum physics, computer vision, artificial intelligence, cognition, neurophysiology, philosophy, and psychophysics.

Restriction: Graduate students only.

PSYCH 214. Bayesian Cognitive Modeling. 4 Units.
Considers a range of statistical methods of data analysis and simple cognitive models using the Bayesian graphical modeling framework.

Restriction: Graduate students only.

PSYCH 215L. Language Acquisition. 4 Units.
Focuses on native language learning, exploring the way in which infants and very young children unconsciously uncover the rich systematic knowledge of their native language. Examines both experimental and computational studies that quantitatively investigate the "how" of language acquisition.

Restriction: Graduate students only.

PSYCH 215N. Neuroscience of Language. 4 Units.
Covers fundamental issues in the neuroscience of language processing. Topics include word and sentence-level psycholinguistics, and the neural basis of these language functions as revealed by neuropsychological and functional imaging studies.

Restriction: Graduate students only.

PSYCH 215S. Structure of Language. 4 Units.
Explores the structure of human languages, and the theoretical architectures that have been proposed to capture that structure. Special focus on the nature of linguistic facts, the structure of linguistic argumentation, and the psychological claims of linguistic theories.

Restriction: Graduate students only.

PSYCH 216. Introduction to Cognitive Neuroscience. 4 Units.
Explores the neural basis of higher cognitive functions such as perception, attention, language, memory, and executive function as understood from functional brain imaging, neuropsychological disorders, and other neuroscience techniques.

Restriction: Graduate students only.

Concurrent with PSYCH 160A.

PSYCH 217. Vision. 4 Units.
Examines visual sensation and perception using psychophysical and neuroscientific perspectives. Covers visual stimulus description and generation; the eye and retinal processing; LGN and cortical visual area function; specialized processing for form, depth, motion, and color perception; and neurological disorders.

Restriction: Graduate students only.

PSYCH 218. Hearing. 4 Units.
Examines auditory sensation and perception using psychophysical and neuroscientific perspectives. Covers physical aspects of sound; subcortical auditory processing; aspects of sensation and perception such as sensitivity, sound localization, and complex-sound recognition; neuroscientific studies of cortical function; and abnormal auditory processing.

Restriction: Graduate students only.

PSYCH 219. Cognitive Development I: Core Knowledge. 4 Units.
Explores the study of cognitive development in infancy and childhood. Emphasizes the role of this research in answering questions concerning the origins of human knowledge. Addresses topics of space, objects, agency, navigation, number, and conceptual change.

Restriction: Graduate students only.

PSYCH 220. Cognitive Development II: Conceptual Change. 4 Units.
The cognition of human infants is similar to that of other primates. But adult human knowledge is vastly different from that of any other animal. Examines the childhood conceptual changes that underlie adult human cognitive achievements.

Restriction: Graduate students only.

PSYCH 228A. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 148A.

PSYCH 228B. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 148B.

PSYCH 228C. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 148C.

PSYCH 229. Special Topics in Human Cognition. 1.3-4 Units.
Current research in brain/ behavior relationships, human memory, and learning theory is presented.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 231P. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as LPS 243, PHILOS 243.

PSYCH 233A. Observer Theory I. 4 Units.
Provides framework for mathematical analysis of perception/cognition and its relation to the physical world. Permits a unified treatment of perceptual and physical interactions and lays the foundation for a nondualistic, nonreductionistic science. Mathematical aspects include study of Markovian dynamic systems.

Restriction: Graduate students only.

PSYCH 234A. Mathematical Models of Cognitive Processes I . 4 Units.
Mathematical models of various cognitive processes developed since 1960, including learning, memory, perception, psycholinguistics, and problem solving. Models are formulated in different mathematical languages: calculus, algebra, logic, probability, and computer. Difficulties in testing and validating models discussed.

Restriction: Graduate students only.

PSYCH 235A. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 135A.

PSYCH 235B. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 135B.

PSYCH 235C. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 135C.

PSYCH 236. Multivariate Time Series Analysis. 4 Units.
Introduces multivariate time series analysis theory and methods emphasizing computational methods in spectral analysis, autoregressive modeling, information theory, principal and independent components analysis, and nonlinear dynamics. Applications to human neuroimaging data are extensively discussed.

Prerequisite: PSYCH 205A.

Restriction: Graduate students only.

PSYCH 237. Advanced Bayesian Cognitive Modeling. 4 Units.
Considers a range of advanced cognitive process models including models of signal detection, memory retention, category learning, stimulus representation, and reasoning using the Bayesian graphical modeling framework.

Prerequisite: PSYCH 214.

Restriction: Graduate students only.

PSYCH 238. Auditory Signal Processing and Experimental Design. 4 Units.
Topics include physics and measurement of sounds, digital signal processing (DSP), recording/processing of speech and music, generating complex sounds (e.g., FM and AM), use of sound level meter and artificial ear (coupler), digital filtering, signal mixing, autocorrelation and cross-correlation.

Prerequisite: PSYCH 205A.

PSYCH 239. Special Topics in Methodology and Models. 1.3-4 Units.
Current research in cognitive sciences methodologies, concepts, and models is presented.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 245A. Computational Models of Language Learning. 4 Units.
Focuses on computational models of native language learning, exploring how probabilistic learning and inference fare on difficult case studies within language acquisition. In all cases, grounds the learning models in available empirical data and considers their psychological plausibility.

Prerequisite: PSYCH 215L.

Restriction: Graduate students only.

PSYCH 247M. Computational Methods for Language Research. 4 Units.
Focuses on computational methods useful for language research. Students become familiar with software and programming languages used for extracting information from electronic datasets and for creating basic simulations of linguistic cognition. No prior programming experience assumed.

Prerequisite: PSYCH 215L or PSYCH 215S or PSYCH 215N or PSYCH 245A.

Restriction: Graduate students only.

Concurrent with PSYCH 157M and LINGUIS 107M.

PSYCH 248A. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 158A.

PSYCH 248B. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 158B.

PSYCH 248C. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 158C.

PSYCH 249. Special Topics in Language Science. 1.3-4 Units.
Foundations and current research in theoretical, experimental, and computational linguistics.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 254. Human Information Processing. 4 Units.
Detailed introduction to speed-accuracy tradeoff experimental procedures; speed-accuracy tradeoff issues; quantitative modeling of temporal aspects of human information processing.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only or Honors Program in Psychology undergraduate students.

PSYCH 259. Special Topics in Human Performance. 1.3-4 Units.
Current research in the human issues involved with sensation, perception, and cognition.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 261N. Cortical Neuroscience. 4 Units.
Physiology of the cerebral cortex, theoretical neuroscience, and the neural basis of perception.

Prerequisite: PSYCH 216.

PSYCH 262. Functional Neuroanatomy. 4 Units.
It is impossible to truly understand human behavior without some understanding of the physical structure that enables behavior. Examines recent findings in functional neuroantomy through lectures and papers discussing links between particular behaviors and specific brain structures.

Restriction: Graduate students only.

PSYCH 263A. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with PSYCH 165A.

PSYCH 263B. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Restriction: Graduate students only.

Concurrent with PSYCH 165B.

PSYCH 263C. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Restriction: Graduate students only.

Concurrent with PSYCH 165C.

PSYCH 264A. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with PSYCH 164A.

PSYCH 264B. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with PSYCH 164B.

PSYCH 264C. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with PSYCH 164C.

PSYCH 265. Introduction to Functional MRI. 4 Units.
Describes the fundamentals of imaging the human brain function using functional Magnetic Resonance Imaging (fMRI). Topics include basic fMRI physics, experimental design, and data acquisition and analysis.

Restriction: Graduate students only.

PSYCH 267. Cognitive Neuroscience of Music. 4 Units.
Introduction to cortical mechanisms involved in music perception and production.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSYCH 268A. Computational Neuroscience. 4 Units.
Introduction to computational neuroscience. Mathematical models of single neurons, neural circuits, thalamocortical systems, and cortical mass action can stimulate single-unit, local field potential, and EEG dynamics. These models are used to investigate mechanisms of sensation, motor control, attention, and consciousness.

Prerequisite: PSYCH 205A and (PSYCH 216 or PSYCH 261N).

PSYCH 268R. Cognitive Robotics. 4 Units.
Introduces concepts for studying cognitive function by embedding brain models on robotic platforms. Topics include robot construction, computer programming, and the notion of embodiment. Students construct simple robots and program these robots to perform different behaviors.

PSYCH 269. Special Topics in Cognitive Neuroscience. 1.3-4 Units.
Current research in cognitive neuroscience.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 271A. Cognitive Neuroscience Brownbag. 1.3 Unit.
Participants, who include faculty interested in auditory and visual perception/psychophysics, along with interested graduate students, make research presentations and discuss current publications. The seminar also serves as a forum for presentations by visiting researchers.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PSYCH 271B. Cognitive Neuroscience Brownbag. 1.3 Unit.
Participants, who include faculty interested in auditory and visual perception/psychophysics, along with interested graduate students, make research presentations and discuss current publications. The seminar also serves as a forum for presentations by visiting researchers.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PSYCH 271C. Cognitive Neuroscience Brownbag. 1.4 Unit.
Participants, who include faculty interested in auditory and visual perception/psychophysics, along with interested graduate students, make research presentations and discuss current publications. The seminar also serves as a forum for presentations by visiting researchers.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PSYCH 289. Special Topics in Sensation and Perception. 1.3-4 Units.
Current research in the reception and processing of visual and auditory stimuli presented.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 290. Dissertation Research. 1-12 Units.
Dissertation research with Cognitive Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology graduate students only.

PSYCH 299. Individual Study. 4-12 Units.
Individual research with Cognitive Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Economics Courses

ECON 1. Introduction to Economics. 4 Units.
An analysis of the problems society faces in organizing itself to provide goods and services. How decisions of government, business, and the individual relate to current economic problems such as unemployment, inflation, poverty, and environmental pollution.

Restriction: Non-Economics majors only. ECON 1 may not be taken for credit if taken concurrently or after ECON 20A or ECON 20B.

(III)

ECON 11. The Internet and Public Policy. 4 Units.
How the Internet works. Current public policy issues concerning the Internet. Introductory economics. Communications law. Interactions between information technology, economics, and law. Case studies about Internet and communications policy.

Same as I&C SCI 11.

(II or III).

ECON 12. Federal Reserve: Past, Present, and Future. 4 Units.
Studies central banking in the United States from colonial times to the present. Focuses on the past, present, and future of the Federal Reserve and precursors to that system, which was established in 1913.

ECON 13. Global Economy. 4 Units.
Acquaints students with the fundamental patterns of the global economy. Emphasizes the historical roots and political implications of economic choices.

Same as INTL ST 13.

Restriction: International Studies, Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(III, VIII)

ECON 15A. Probability and Statistics in Economics I. 4 Units.
An introduction to probability, statistics, and econometrics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Examples from economics. MGMT 7 may not be used to substitute for ECON 15A-ECON 15B.

Prerequisite: MATH 2A and MATH 2B and MATH 4.

Restriction: No credit for MGMT 7 if taken after ECON 15A and ECON 15B. Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Va)

ECON 15B. Probability and Statistics in Economics II. 4 Units.
An introduction to probability, statistics, and econometrics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Examples from economics. MGMT 7 may not be used to substitute for ECON 15A-ECON 15B.

Prerequisite: MATH 2A and MATH 2B and MATH 4.

Restriction: No credit for MGMT 7 if taken after ECON 15A OR 15B. Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Va)

ECON 17. An Economic Approach to Religion. 4 Units.
Introduction to how basic economic concepts such as demand, supply, consumption, production, competition, free-riding, innovation, regulation, and rent-seeking can be applied to understand observed religious behavior.

Same as REL STD 17.

(III)

ECON 20A. Basic Economics I. 4 Units.
The fundamentals of microeconomics. The behavior of firms and consumers: markets, supply/demand, utility maximization, resource allocation, and efficiency. Course may be offered online.

Overlaps with ECON 23.

(III)

ECON 20B. Basic Economics II. 4 Units.
The fundamentals of macroeconomics. Government behavior: monetary and fiscal policy, inflation, and unemployment. Effective fall 2006, the content of Economics 20B is macroeconomics. This course cannot be taken to repeat Economics 20B taken prior to fall 2006. Course may be offered online.

Prerequisite: ECON 20A or ECON 13.

(III)

ECON 23. Basic Economics for Engineers. 4 Units.
The fundamentals of microeconomics. The behavior of firms and of consumers: markets, supply/demand, utility maximization, resource allocation, and efficiency.

Overlaps with ECON 20A.

(III)

ECON 25. The Economics of Accounting Decisions. 4 Units.
Introduction to accounting concepts and principles, including the accounting model and accounting style, transaction analysis, and preparation of financial statements. An analysis of the similarities and differences between accounting and economic concepts (e.g., value, profits).

Prerequisite: ECON 20A.

Overlaps with MGMT 30A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 26A. Managerial Accounting. 4 Units.
An introduction to the fundamentals of management accounting, including the study of terms and concepts, comparisons of different costing systems, analysis of cost-volume profit relationships, preparation of information for planning, control, and evaluation of performance, and decision analysis.

Prerequisite: MATH 2A and MATH 2B and MATH 4.

Overlaps with MGMT 30B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 100A. Intermediate Economics I. 4 Units.
Determinants of supply and demand; operation of competitive and monopolistic markets; imperfections of the market system, explanations of unemployment, inflation, recessions; public policy for macroeconomic problems.

Prerequisite: ECON 20A and ECON 20B and MATH 2A and MATH 2B.

Overlaps with ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 100B. Intermediate Economic II. 4 Units.
Determinants of supply and demand; operation of competitive and monopolistic markets; imperfections of the market system, explanations of unemployment, inflation, recessions; public policy for macroeconomic problems.

Prerequisite: ECON 100A.

Overlaps with ECON 105B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 100C. Intermediate Economic III. 4 Units.
Determinants of supply and demand; operation of competitive and monopolistic markets; imperfections of the market system, explanations of unemployment, inflation, recessions; public policy for macroeconomic problems.

Prerequisite: ECON 100B.

Overlaps with ECON 105C.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 105A. Intermediate Quantitative Economics I . 4 Units.
An advanced and mathematical version of ECON 100A for students in the Quantitative Economics major.

Prerequisite: ECON 20A and ECON 20B and MATH 2A and MATH 2B and MATH 3A and MATH 4.

Overlaps with ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 105B. Intermediate Quantitative Economics II . 4 Units.
An advanced and mathematical version of ECON 100B for students in the Quantitative Economics major.

Prerequisite: ECON 105A.

Overlaps with ECON 100B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 105C. Intermediate Quantitative Economics III . 4 Units.
An advanced and mathematical version of ECON 100C for students in the Quantitative Economics major.

Prerequisite: ECON 105B.

Overlaps with ECON 100C.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 107. Economics of Asymmetric Information. 4 Units.
Focuses on the effects of asymmetric information in the markets for traditional economic goods and resources, such as labor, insurance, used cars, credit, and in auctions and bargaining problems. Prerequisite:.

Prerequisite: ECON 100A or ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 109. Special Topics in Economic Theory. 4 Units.
Studies in selected areas of Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 115. Behaviorial Economics. 4 Units.
Studies the behavioral and psychological biases in economics settings. Both individual decisions and games are discussed.

Prerequisite: ECON 20A and ECON 20B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 116A. Game Theory I. 4 Units.
Extensive form games with perfect information, and coalitional games. The key solution concepts are Nash Equilibrium, Backward Induction, and the Core. Substantive examples include public good production, oligopoly, electoral competition, auctions, holdup, market entry, and voting.

Prerequisite: ECON 15A and ECON 15B and (ECON 100A or ECON 105A).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 116B. Game Theory II. 4 Units.
Two-quarter sequence on game theory. Bayesian games, extensive form games with imperfect information, zero-sum games.

Prerequisite: ECON 116A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 117. Experimental Economics . 4 Units.
Students will learn what constitutes proper experimental design and what laboratory experiments teach us about human behavior and the economy. Students will participate in a sample experiment, evaluate the results, and discuss experiment design and larger issues.

Prerequisite: ECON 15B and ECON 100B.

ECON 122A. Applied Econometrics I. 4 Units.
Introduction to econometrics emphasizing practical applications in microeconomics and macroeconomics.

Prerequisite: ECON 15A and (ECON 15B or MATH 130B or MATH 133A or MATH 131C or STATS 120C) and ECON 20B.

Overlaps with ECON 123A, ECON 123B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 122B. Applied Econometrics II. 4 Units.
Introduction to econometrics emphasizing practical applications in microeconomics and macroeconomics.

Prerequisite: ECON 122A.

Overlaps with ECON 123B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 122CW. Data Analysis Writing. 4 Units.
Research writing course in econometrics focusing on individual research projects. Students employ econometric analysis to address an economic question in a 20-page paper and present their findings to the class in a short presentation.

Prerequisite: ECON 15A and ECON 15B and ECON 122A and ECON 122B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 123A. Econometrics I. 4 Units.
Specification, estimation, and testing of econometric models. Applications in various areas of microeconomics and macroeconomics.

Prerequisite: (MATH 2A and MATH 2B and MATH 4) or (MATH 3A and STATS 120A and STATS 120B and (STATS 120C or MATH 131C)) and ((ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C)).

Overlaps with ECON 122A, ECON 122B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 123B. Econometrics II. 4 Units.
Specification, estimation, and testing of econometric models. Applications in various areas of microeconomics and macroeconomics.

Prerequisite: ECON 123A

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 123C. Econometrics III. 4 Units.
Seminar course in which students do an original econometric research project.

Prerequisite: ECON 123B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 123CW. Econometrics III. 4 Units.
Seminar course in which students do an original econometric research project.

Prerequisite: ECON 123B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 124. Advances in Econometrics I. 4 Units.
Aims to supplement the training in econometrics for students who have completed either Economics 122A-B or 123A-B-C by covering chapters in the two texts used in these sequences which were not covered.

Prerequisite: (ECON 122A and ECON 122B) or (ECON 123A and ECON 123B).

ECON 125. Business Forecasting. 4 Units.
Students learn how to produce forecasts of the behavior of economic (and other) variables. The techniques examined are linear regression, nonlinear regression, and nonparametric kernel regression, AR, MA, ARMA, ARIMA, and Box-Jenkins.

Prerequisite: ECON 15A and ECON 15B and ECON 20A and ECON 20B.

Overlaps with MGMT 180.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 129. Special Topics in Quantitative Methods. 4 Units.
Studies in selected areas of Quantitative Methods. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 131A. The Economics of Risk and Uncertainty. 4 Units.
The theory of insurance and joint-ownership of risky enterprises; optimal procedures for the allocation of uncertain payoffs.

Prerequisite: ECON 15A and ECON 15B and ((ECON 100A and ECON 100B) or (ECON 105A and ECON 105B) or (MATH 131A and MATH 131B and STATS 120A and STATS 120B and STATS 120C) or (MATH 130B or MATH 133A or MATH 131C)).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 132A. Introduction to Financial Investments. 4 Units.
Modern theories of investment and their application to the study of financial markets. The relation between risk and return, diversification, asset pricing, efficient markets hypothesis, and the market valuation of stocks, bonds, options, and futures.

Prerequisite: (ECON 15A and ECON 15B and ECON 122A and ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C) or (MATH 131A and MATH 131B and STATS 120A and STATS 120B and STATS 120C) or (MATH 130B or MATH 133A or MATH 131C). Prerequisite or corequisite: ECON 100C or ECON 105C.

Overlaps with MGMT 141.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 134A. Corporate Finance. 4 Units.
Provides an overview of the modern theory and practice of corporate finance and focuses on two fundamental financial decisions; investment as well as financing. Beginning with discounted cash flow analysis, basic theory will be applied to the valuation of stocks.

Prerequisite: ((ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C)) and MATH 131A and MATH 131B and STATS 120A and STATS 120B and STATS 120C.

Overlaps with MGMT 109.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 135. Mathematics of Finance. 4 Units.
After reviewing tools from probability, statistics, and elementary differential and partial differential equations, concepts such as hedging, arbitrage, Puts, Calls, the design of portfolios, the derivation and solution of the Blac-Scholes, and other equations are discussed.

Prerequisite: MATH 3A.

Same as MATH 176.

Restriction: Mathematics, Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 139. Special Topics in Financial Economics. 4 Units.
Studies in selected areas of Financial Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 140. Managerial Econonmics. 4 Units.
A collection of concepts and methods for effective decision making. Explores how the tools of microeconomics, including game theory and industrial organization theory, can be used to make better managerial decisions, particularly those involving allocation of resources within firms.

Prerequisite: ECON 100A and ECON 100B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 141B. Public Economics II. 4 Units.
Theory of public goods, externalities, voting models, analysis of bureaucracy, the Tiebout model, income redistribution, intergovernmental grants.

Prerequisite: (ECON 100A and ECON 100B) or ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 142A. Industrial Organization I. 4 Units.
The theory of market structure. Imperfect markets, government policies and industry performance.

Prerequisite: (ECON 15A and ECON 15B and ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 142B. Industrial Organization II. 4 Units.
Regulation and antitrust theory and performance in industries.

Prerequisite: (ECON 15A and ECON 15B and ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 142CW. Industrial Organization III. 4 Units.
Research in industrial organization. Satisfies the honors research requirement.

Prerequisite: ECON 15A and ECON 15B and ECON 122A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 143. Energy Economics. 4 Units.
The economics of markets for oil, natural gas, electricity, renewable energy and their interactions with each other and the rest of the economy. Effects of government intervention, policy measures, economic policy issues arising between energy use and the environment.

Prerequisite: (ECON 100A and ECON 100B and ECON 100C) or ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 144A. Urban Economics I. 4 Units.
Why cities exist, economics of urban land-use, housing demand and tenure choice, traffic congestion.

Prerequisite: ECON 20A and ECON 20B and ECON 15A and ECON 15B. Recommended: ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 144B. Urban Economics II. 4 Units.
Housing policy analysis, urban public goods and services, crime, pollution, urban amenities.

Prerequisite: ECON 20A and ECON 20B. Recommended: ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 144CW. Urban Economics III. 4 Units.
Allows students to apply knowledge of urban economics in the conduct of individual research.

Prerequisite: ECON 20A and ECON 20B. Recommended: ECON 100A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 145. Health Economics. 4 Units.
Considers why some people are healthier than others, why health outcomes differ across countries, the problems of moral hazard and of adverse selection that appear in health insurance, and how hospitals and physicians behave.

Prerequisite: ECON 100A.

ECON 145E. Economics of the Environment. 4 Units.
Surveys economic aspects of natural resources, pollution, population, and the environment. Examines the causes of pollution; analysis of public policies regarding these problems. Emphasis on microeconomic aspects of environmental problems.

Prerequisite: ECON 15A and ECON 15B and ECON 122A and ((ECON 100A and ECON 100B) or ECON 105A).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 145FW. Economics of the Environment II. 4 Units.
Applications of the tools covered in ECON 145E to such topics as global warming, destruction of the ozone layer, and emissions trading. Emphasis on independent research papers. Syllabus and classes include writing technique.

Prerequisite: ECON 145E and ECON 15A and ECON 15B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 145L. Economics of Law. 4 Units.
Examination of several economic concepts which are useful in understanding legal rules: externalities, the assignment of property rights, and Coase's theorem. Examples are drawn from the fields of pollution control, no-fault insurance, medical malpractice, and product liability.

Prerequisite: (ECON 100A and ECON 100B) or ECON 105A. Prerequisite or corequisite: ECON 100B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 147A. Corporate Governance. 4 Units.
Studies topics in the internal organization of firms, including rent seeking, incentive contracts, principal-agent problems, internal labor markets, contests, and herd behavior.

Prerequisite: ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 147B. Economics of Strategy. 4 Units.
Uses of tools of economics, game theory in particular, to develop an understanding of business decision making. Deals with questions such as how the firm decides what kind of business to be in, how large should it be, and others.

Prerequisite: (ECON 100A and ECON 100B and ECON 100C) or ECON 105A.

Overlaps with MGMT 110, MGMT 168.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 148. Business Decisions. 4 Units.
Surveys normative and descriptive models of decision-making behavior, with an emphasis on organizational and policy contexts. Topics include rational choice theory, biases and heuristics, framing effects, and overconfidence. Management fads, panics, and herd behavior are also discussed.

Prerequisite: (ANTHRO 10A and ANTHRO 10B and ANTHRO 10C) or (SOCIOL 10A and SOCIOL 10B and SOCIOL 10C) or (SOC SCI 10A and SOC SCI 10B and SOC SCI 10C) or (MATH 2A and MATH 2B and (STATS 7 or MGMT 7)).

Same as SOCIOL 138.

Restriction: Sociology majors have first consideration for enrollment.

ECON 149. Special Topics in Economics of Public and Private Organizations. 4 Units.
Studies in selected areas of Economics of Public and Private Organizations. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 149W. Special Topics in Economics of Public and Private Organizations. 4 Units.
Studies in selected areas of Economics of Public and Private Organizations. Topics addressed vary each quarter.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 151A. Labor Economics and Human Resources I. 4 Units.
Labor demand, labor supply, human capital, personnel economics, and other topics.

Prerequisite: ECON 15A and ECON 15B and ECON 100A and ECON 100B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 151B. Labor Economics and Human Resources II. 4 Units.
Labor market discrimination, compensating wage differentials, immigration, and other topics.

Prerequisite: ECON 151A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 152A. Economic Anthropology. 4 Units.
Economic systems in comparative perspective: production, distribution, and consumption in market and non-market societies; agricultural development in the third world.

Prerequisite: One course in general science, anthropology, economics, geography, or sociology.

Same as ANTHRO 125A.

Restriction: Economics, Quantitative Economics, Business Economics, and Anthropology majors have first consideration for enrollment.

ECON 153W. Political Institutions, Legal Systems, and Economic Development. 4 Units.
Studies a variety of empirical papers analyzing how institutions affect economic development. The topics include cross-country studies of institutions as well as narrower topics such as corruption, regulation of entry, political connections, and pork barrel politics.

Prerequisite: ECON 15A and ECON 15B and ECON 100A and ECON 100B and ECON 100C and ECON 122A. Satisfactory completion of the lower-division writing requirement.

(Ib)

ECON 154. Voting and Political Manipulation. 4 Units.
Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as INTL ST 156A, SOC SCI 121T, POL SCI 151H.

Restriction: International Studies, Political Science, Social Science and Economics majors have first consideration for enrollment.

ECON 157. Economic Development. 4 Units.
Considers the process of economic development across the globe and why some countries are rich and others poor. Discusses the major problems facing developing countries, such as population growth, education, capital formation, environmental protection, and international trade.

Prerequisite: ECON 20A and ECON 20B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 158. Economics of Education. 4 Units.
Arms students with tools, concepts, and evidence that can be used to analyze complex policy questions in education, enabling students to arrive at their own reasoned judgments about how to improve education.

Prerequisite: ECON 15A and ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 158W. Economics of Education. 4 Units.
Arms students with tools, concepts, and evidence that can be used to analyze complex policy questions in education, enabling students to arrive at their own reasoned judgments about how to improve education.

Prerequisite: ECON 15A and ECON 100A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 159. Special Topics in Economics in Human Resources. 4 Units.
Studies in selected areas of Economics in Human Resources. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 161A. Money and Banking. 4 Units.
Basic elements of money and banking: institutional features and economics of financial markets and, in particular, the U.S. banking system; determinants of interest rates; the Federal Reserve and its role in money supply; effects of money on output and inflation.

Prerequisite: (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B). Prerequisite or corequisite: ECON 100C OR ECON 105C.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 161B. International Money. 4 Units.
Open economy macroeconomics and determination of exchange rates. Asset-market approach to the balance of payments. Internal and external balance in the economy. Macroeconomic policies under fixed and floating exchange rates. The international monetary system and institutions.

Prerequisite: ECON 100A and ECON 100B. Prerequisite or corequisite: ECON 100C.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 161D. Advanced Money and Banking. 4 Units.
Studies business cycles in the United States during the last century. The first portion of the course reviews the theoretical models employed to study economic fluctuations and empirical methods used to measure fluctuations.

Prerequisite: ECON 15A and ECON 15B and ((ECON 100A and ECON 100B and ECON 100C) OR (ECON 105A and ECON 105B and ECON 105C)).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 162. Poverty, Growth, and Development. 4 Units.
Examines India as a case study for each of the topics studied: growth experience of India along with its poverty eradication record and aspects of poverty and the polices that have been undertaken to tackle poverty.

Prerequisite: ECON 15A and ECON 15B and ECON 100A and ECON 100B and ECON 100C.

ECON 164. American Economic History from Colonization to the Present. 4 Units.
Examines how the American economy evolved from colonization to the post-war era. Topics include relations with foreign countries, the emergence of manufacturing and big business, railroads, slavery, war, the Great Depression, the rise of fiscal and monetary policies.

Prerequisite: ECON 20A and ECON 20B.

ECON 164A. The Industrial Revolution in Western Europe. 4 Units.
How do economists explain the process of economic development during the past three centuries? How has the process of industrialization affected living standards? In focusing on these questions, students will learn how to apply economic theory and quantitative methods.

Prerequisite: ((ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C)) and ECON 122A and ECON 122B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 164AW. The Industrial Revolution in Western Europe. 4 Units.
How do economists explain the process of economic development during the past three centuries? Has the process of industrialization affected living standards? Focusing on these questions, students will learn how to apply economic theory and quantitative methods.

Corequisite: ECON 100C.
Prerequisite: ECON 100C or ECON 105C. Prerequisite or corequisite: ECON 100C. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 165. Economics of International Business . 4 Units.
Students learn to understand and analyze the principal economic issues in the international business arena. Covers topics such as trade theory, foreign direct investment, foreign exchange market, and strategy of international business.

Prerequisite: ECON 100C.

ECON 167. International Trade and Commercial Policy. 4 Units.
Determination of trade flows and the relative prices. Gains from trade, the terms of trade, and income distribution. Imperfect competition and international trade. The effect of tariffs, export subsidies, and import quotas. The effects of free and restricted trade.

Prerequisite: ECON 100A or ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 169. Special Topics in Development Economics. 4 Units.
Studies in selected areas of Development Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 190. Senior Thesis. 4 Units.
Students work with faculty to complete their honors thesis.

Repeatability: May be taken for credit 3 times.

ECON 190BW. Economics Honors Colloquium II. 4 Units.
Colloquium required for honors students in Economics, Quantitative Economics, and Business Economics. Introduces students to independent research. Helps students plan a research program. Students complete their thesis.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement. Must be enrolled in the honors program in Economics.

(Ib)

ECON H190A. Economics Honors Colloquium I. 4 Units.
Colloquium required for honors students in economics, quantitative economics, and business economics. Introduces students to independent research. Helps students plan a research program. Prepares students for thesis writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement. Must be enrolled in the honors program in economics.

ECON 192. Tutoring in Economics. 2 Units.
Enrollment limited to participants in the Economics Peer Tutoring Program. No more than eight units earned in this course may be counted toward the 180 units required for graduation. Satisfies no degree requirement other than contribution to the 180-unit total.

Repeatability: May be taken for credit 4 times.

ECON 197. Field Study. 4 Units.
Not listed in Catalogue.

Repeatability: Unlimited as topics vary.

Restriction: Authorization required or Enrollment by add card only

ECON 198. Directed Group Study. 4 Units.
Not listed in Catalogue.

Repeatability: Unlimited as topics vary.

Restriction: Authorization required or Enrollment by add card only

ECON 199. Independent Study. 1-5 Units.
Independent research with Economics faculty.

Repeatability: May be repeated for credit unlimited times.

ECON 200A. Graduate Colloquium for Economics I. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors. Supplemented by class discussion of these presentations and other material on current research methodology.

Repeatability: May be repeated for credit unlimited times.

Restriction: Economics graduate students only.

ECON 200B. Graduate Colloquium for Economics II. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors. Supplemented by class discussion of these presentations and other material on current research methodology.

Prerequisite: ECON 200A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Economics graduate students only.

ECON 200C. Graduate Colloquium for Economics III. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors. Supplemented by class discussion of these presentations and other material on current research methodology.

Prerequisite: ECON 200B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Economics graduate students only.

ECON 202. Probability and Statistics. 4 Units.
Provides lectures on probability theory and the beginning of mathematical statistics (continued in ECON 220A-ECON 221A) necessary to prepare students for the required econometrics sequence. Topics include probability, distributions, mathematical expectation, sampling, and point estimation.

Restriction: Graduate students only.

ECON 203A. Mathematics for Economists. 4 Units.
Gives students the mathematical background required for graduate work in economics. Topics covered include multivariate calculus, differential equations, and linear algebra.

Restriction: Graduate students only.

ECON 205A. Research Writing in Economics. 4 Units.
For Economics graduate students who are writing their required research paper in an applied field. How to write an original paper in economics. Guidance for specific papers.

Restriction: Economics graduate students only.

ECON 206. How to Write a Paper. 2 Units.
A course on writing. Also discusses how to make an oral presentation, how to go about doing research, and how academic journals operate. Grade based on two written assignments in which student edits and revises a paper.

ECON 210A. Microeconomic Theory I. 4 Units.
Theoretical microeconomics. Emphasis on the meaning and empirical interpretation of theoretical models. Topics include theory of the firm, theory of the market, theory of the consumer, duality theory, application to econometrics, general equilibrium and welfare economics, uncertainty, game theory.

Restriction: Graduate students only.

ECON 210B. Microeconomic Theory II. 4 Units.
Theoretical microeconomics. Emphasis on the meaning and empirical interpretation of theoretical models. Topics include theory of the firm, theory of the market, theory of the consumer, duality theory, application to econometrics, general equilibrium and welfare economics, uncertainty, game theory.

Prerequisite: ECON 210A.

Restriction: Graduate students only.

ECON 210C. Microeconomic Theory III. 4 Units.
Theoretical microeconomics. Emphasis on the meaning and empirical interpretation of theoretical models. Topics include theory of the firm, theory of the market, theory of the consumer, duality theory, application to econometrics, general equilibrium and welfare economics, uncertainty, game theory.

Prerequisite: ECON 210B.

Restriction: Graduate students only.

ECON 210D. Macroeconomic Theory I. 4 Units.
Advanced macroeconomic theory including alternative macroeconomic models, microeconomic foundations of macroeconomics, investment and growth theory, inflation and unemployment, rational expectations and macroeconomic policy, wealth effects, crowding out and fiscal policy, money and interest, open economy models.

Restriction: Graduate students only.

ECON 210E. Macroeconomic Theory II. 4 Units.
Advanced macroeconomic theory including alternative macroeconomic models, microeconomic foundations of macroeconomics, investment and growth theory, inflation and unemployment, rational expectations and macroeconomic policy, wealth effects, crowding out and fiscal policy, money and interest, open economy models.

Corequisite: ECON 211L.
Prerequisite: ECON 210D.

Restriction: Graduate students only.

ECON 210F. Macroeconomic Theory III. 4 Units.
Advanced macroeconomic theory including alternative macroeconomic models, microeconomic foundations of macroeconomics, investment and growth theory, inflation and unemployment, rational expectations and macroeconomic policy, wealth effects, crowding out and fiscal policy, money and interest, open economy models.

Prerequisite: ECON 210E.

Restriction: Graduate students only.

ECON 211L. Macroeconomics Theory II Lab. 2 Units.
Overview of stochastic processes; introduction to dynamic programming; two equilibrium concepts; Ricardian equivalence; real business cycle model; complete versus incomplete markets; asset pricing and the equity premium puzzle.

Corequisite: ECON 210E.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

ECON 219. Special Topics in Economic Theory. 2-4 Units.
Studies in selected areas of Economic Theory. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 220A. Statistics & Econometrics I. 4 Units.
Covers probability mathematical statistics necessary to prepare students for econometric study and empirical work. Topics include probability theory, distributions, sampling, and classical point estimation. A likelihood perspective is emphasized.

Restriction: Grad students only or Consent of instructor to enroll

ECON 220B. Statistics & Econometrics II. 4 Units.
Begins with Bayesian point estimation. Then covers interval estimation and hypothesis testing from both classical and Bayesian perspectives, followed by a general discussion of prediction. Finally, all these techniques are applied to the standard linear regression model under ideal conditions, and Generalized Least Squares (GLS) is introduced.

Prerequisite: ECON 220A

Restriction: Prerequisite required and (Grad students only or Consent of instructor to enroll)

ECON 220C. Statistics & Econometrics III. 4 Units.
Begins by relaxing the ideal conditions of the standard regession model. Potential topics include kernel density estimation, instrucmental variables (IV), two stage least squares (2SLS), panel data models, and simulation-based Bayesian methods, including Gibbs sampling, the bootstrap, econometric time series, discrete choice and count models, sample selection, and duration models. Covers both Bayesian and classical asymptotic methods.

Prerequisite: ECON 220B and SOC SCI 213A

Restriction: Prerequisite required and Grad students only

ECON 221A. Statistics and Econometrics Laboratory I. 2 Units.
Discussion of problems in statistics and econometrics, and their relationships to statistical and econometrics theory. Instruction in the use of computers for applied econometric work.

Corequisite: ECON 220A.

ECON 221B. Statistics and Econometrics Laboratory II. 2 Units.
Discussion of problems in statistics and econometrics, and their relationships to statistical and econometrics theory. Instruction in the use of computers for applied econometric work.

Corequisite: ECON 220B.

ECON 221C. Statistics and Econometrics Laboratory III. 2 Units.
Discussion of problems in statistics and econometrics, and their relationships to statistical and econometrics theory. Instruction in the use of computers for applied econometric work.

Corequisite: ECON 220C.

ECON 222. Replication and Applied Economics Writing. 4 Units.
Before the course begins, students choose a published empirical economics article and obtain the necessary data to replicate it. Students will replicate and extend the economic analysis and write a paper describing their work.

Prerequisite: ECON 220A and ECON 220B and ECON 220C.

ECON 223A. Discrete Choice Econometrics. 4 Units.
Specification, estimation, and testing of discrete choice models, with emphasis on cross-sectional and panel data models and applications. Students use computer packages to apply models and techniques to real data.

Prerequisite: ECON 220A and ECON 220B and ECON 220C.

ECON 224A. Time Series Econometrics. 4 Units.
Econometric analysis of time series data. Moving average and autoregressive series, regression analysis, Box-Jenkins techniques, computational methods, and causality conditions.

Prerequisite: ECON 220A and ECON 220B and ECON 220C.

ECON 229. Special Topics in Social Dynamics Seminar. 4 Units.
Studies in selected areas of Social Dynamics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 231A. Institutions in Historical Perspective I. 4 Units.
Investigates economic and political institutions across the world and throughout history. Focuses on institutions such as property rights, political regimes, regulations, legal systems, corporate organization, and social norms.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 231B. Institutions in Historical Perspective II. 4 Units.
Investigates economic and political institutions across the world and throughout history. Focuses on institutions such as property rights, political regimes, regulations, legal systems, corporate organization, and social norms.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 232. Business Cycles in Historical Perspective. 4 Units.
Investigates business cycles in the United States and worldwide during the last two centuries. Topics include causes and consequences of business fluctuations, monetary and fiscal policy, models of fluctuations, and empirical macroeconomics.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 233. European Economic History. 4 Units.
Focuses on European economic history between 1500 and 1910. Examines the causes of the Industrial Revolution and globalization. Particular topics: productivity growth, transport improvements, technological change, capital markets, property rights, international trade.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 234. American Economic History. 4 Units.
Focuses on American economic history from colonization onwards. Topics include the development of legal systems, transport systems, financial markets, industrialization, migration, immigration, technological change, and the consequences of slavery.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 239. Special Topics in Financial Economics. 2-4 Units.
Studies in selected areas of Financial Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 241A. Industrial Organization I. 4 Units.
Analysis of the structure and economic performance of markets, and the impact of public policy and their efficiency and equity. Effects of information structure. Oligopoly, cartels, mergers, vertical integration, patents, innovation, antitrust, and regulation.

Prerequisite: ECON 100B and ECON 203A.

Restriction: Graduate students only.

ECON 241B. Industrial Organization II. 4 Units.
Analysis of the structure and economic performance of markets, and the impact of public policy and their efficiency and equity. Effects of information structure. Price flexibility and dispersion, auctions, search and industrial structure, intrafirm organization.

Prerequisite: ECON 241A and ECON 100B and ECON 203A.

Restriction: Graduate students only.

ECON 241C. Industrial Organization III. 4 Units.
Continuation of the graduate Industrial Organization (IO) sequence. Students are expected to have started a field paper in IO during the earlier quarters, and will finish a completed draft of it during this quarter.

Prerequisite: ECON 241B and ECON 100B and ECON 203A.

Restriction: Graduate students only.

ECON 243A. Game Theory. 4 Units.
A formal introduction to non-cooperative game theory. Topics include properties of Nash Equilibrium and equilibrium refinements, games with imperfect information, and games with incomplete information.

Prerequisite: ECON 210A and ECON 210B and ECON 210C.

Restriction: Graduate students only.

ECON 243B. Advanced Game Theory. 4 Units.
Provides advanced instruction in game theory. The topics covered will be (i) the theory of repeated games and (ii) evolutionary game theory. Applications include bargaining, collusion, reputation, social norms, and the evolution of preferences via natural selection and cultural transmission.

Prerequisite: ECON 243A.

Restriction: Graduate students only.

ECON 245. Empirical Methods in Applied Microeconomics. 4 Units.
Focuses on the empirical methods used in modern applied microeconomics. Teaches methods that can be applied to produce original research in applied fields using cross-sectional and panel data. Applications will be drawn heavily from labor, public, health and development economics.

ECON 249. Special Topics in Microeconomics. 2-4 Units.
Studies in selected areas of Microeconomics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

ECON 251A. Labor Economics I . 4 Units.
Analysis of the relationships between education and the labor market (human capital theory), between resources devoted to education and the return to education (the education production function) and between education and labor market inequality (the theory of skill-biased technical change).

Prerequisite: ECON 203A.

Restriction: Graduate students only.

ECON 251B. Labor Economics II. 4 Units.
Analysis of core topics in labor economics, with an emphasis on empirical methods. Topics may include minimum wages, discrimination, gender, aging and retirement, labor market networks, personnel economics, and employment policy.

Prerequisite: ECON 203A.

Restriction: Graduate students only.

ECON 251C. Labor Economics III . 4 Units.
Discussion of treatment effect/program evaluation in labor economics, emphasizing identification. Classical labor topics, including human capital, technology, wages, labor supply, and migration are discussed in the context of causal inference. A unified framework is used in analyzing identification strategies.

Prerequisite: ECON 203A.

Restriction: Graduate students only.

ECON 255. Microeconomics and Public Policy. 4 Units.
Introduces the fundamental principles of microeconomics that are required for applied policy analysis. Provides students with an intuitive understanding of the microeconomic approach, and familiarizes them with concepts used in applied public policy analysis.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 240.

Restriction: Graduate students only.

ECON 259. Special Topics in Labor Economics. 2-4 Units.
Studies in selected areas of Labor Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 260A. Monetary Economics I. 4 Units.
Focuses on the derivation and estimation of state-of-the-art Dynamic Stochastic General Equilibrium (DSGE) models, with particular emphasis on models useful for monetary policy.

ECON 260B. Monetary Economics II. 4 Units.
Surveys recent issues on monetary policy in uncertain environments. Examines settings where both the policy makers and the private sector are uncertain of future outcomes or the underlying economic structure.

ECON 261A. International Trade I. 4 Units.
Covers theoretical models, empirical methods, and policy issues in international trade. Following the conventional treatment of the Richardian model, the Heckscher-Ohlin model and the specific factors model, new trade models which incorporate scale economics and imperfect competition will be discussed.

Prerequisite: ECON 210A and ECON 210B.

ECON 261B. International Trade II. 4 Units.
Covers theoretical models, empirical methods, and policy issues in international trade. Following the conventional treatment of the Richardian model, the Heckscher-Ohlin model and the specific factors model, new trade models which incorporate scale economics and imperfect competition will be discussed.

Prerequisite: ECON 261A and ECON 210A and ECON 210B.

ECON 263A. Advanced Macroeconomics I. 4 Units.
Students build Dynamic Stochastic General Equilibrium (DSGE) macroeconomic models from microeconomic foundations. This approach emphasizes intertemporal optimization by firms and households and typically incorporates nominal rigidities such as sluggish price and/or wage adjustment.

ECON 263B. Advanced Macroeconomics II. 4 Units.
Extensively studies policy in dynamic models. Topics: rule versus discretionary-based policy and its implications for macroeconomic stability and multiple equilibria; the design of optimal monetary policy; economic policy with model uncertainty and when the economic model is unknown.

Prerequisite: ECON 263A.

ECON 269. Special Topics in Macroeconomics. 2-4 Units.
Studies in selected areas of Macroeconomics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 270A. Political Economy I. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Same as POL SCI 270A.

Restriction: Graduate students only.

ECON 270B. Political Economy II. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: POL SCI 270A.

Same as POL SCI 270B.

Restriction: Graduate students only.

ECON 270C. Political Economy III. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: POL SCI 270B.

Same as POL SCI 270C.

Restriction: Graduate students only.

ECON 272A. Public Economics I. 4 Units.
Covers welfare economics and the theory of optimal taxation. Also presents applications of the theory, including measurement of the distortionary cost of taxation and principles of environmental policy (instrument choice and the debate on the double dividend of environmental taxation).

Prerequisite: ECON 210A and ECON 210B and ECON 210C.

ECON 272B. Public Economics II. 4 Units.
Covers the theory of public goods and models of decentralized provision of such goods, including voluntary provision, voting, bureaucratic provision, and preference relevation mechanisms.

Prerequisite: ECON 210A and ECON 210B and ECON 210C.

ECON 272C. Public Economics III. 4 Units.
Covers two broad categories of government expenditure policies, redistribution programs and social insurance, from a theoretical and empirical perspective as well as the effects on individuals of the income tax system.

Prerequisite: ECON 210A and ECON 210B and ECON 210C.

ECON 279. Special Topics in Political Economy. 2-4 Units.
Studies in selected areas of Political Economy. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 281A. Urban Economics I. 4 Units.
Economic reasons for the existence of cities, analysis of urban spatial structure, urban sprawl, Third World urbanization, hedonic price analysis, housing tenure choice.

Prerequisite: ECON 210A.

ECON 281B. Urban Economics II. 4 Units.
Housing in the portfolio, land-use controls, rent control, homelessness, neighborhood effects, urban quality-of-life measurement, and subcenters.

Prerequisite: ECON 210A.

ECON 282A. Transportation Economics I. 4 Units.
Applies microeconomic concepts of demand, costs, pricing, investment, and project evaluation to analyze transportation activities. Empirical studies include travel demand using discrete models, and cost functions.

Restriction: Graduate students only.

ECON 282B. Transportation Economics II. 4 Units.
Policy analysis in presence of road transport externalities (such as environmental spill-overs), imperfect instruments, and other economic distortions such as imperfectly priced networks and imperfect competition. Connections of transportation economics with environmental economics, public finance, spatial economics and industrial organization.

Prerequisite: ECON 282A.

Restriction: Graduate students only.

ECON 285A. Colloquium for Transportation Science I. 2 Units.
Selected perspectives on transportation based on the study of human behavior. Organized by Interdisciplinary Program in Transportation Science. Research presentations by faculty, students, and visitors supplemented by class discussion.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECON 285B. Colloquium for Transportation Science II. 2 Units.
Selected perspectives on transportation based on the study of human behavior. Organized by Interdisciplinary Program in Transportation Science. Research presentations by faculty, students, and visitors supplemented by class discussion.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECON 285C. Colloquium for Transportation Science III. 2 Units.
Selected perspectives on transportation based on the study of human behavior. Organized by Interdisciplinary Program in Transportation Science. Research presentations by faculty, students, and visitors supplemented by class discussion.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECON 289. Special Topics in Urban and Transportation Economics. 2-4 Units.
Studies in selected areas of Urban and Transportation Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

ECON 290. Dissertation Research. 2-12 Units.
Dissertation research with Economics faculty.

Repeatability: May be repeated for credit unlimited times.

ECON 299. Independent Study. 2-4 Units.
Independent research with Economics faculty.

Repeatability: May be repeated for credit unlimited times.

International Studies Courses

INTL ST 11. Global Cultures and Society. 4 Units.
Offers a general overview of the rise of global interdependence in political, economic, demographic, and cultural terms. Considers what drove people from relative isolation into intensified intercourse with one another, and investigates the consequences of this shift.

Same as ANTHRO 41A.

Restriction: Anthropology and International Studies majors have first consideration for enrollment.

(III, VIII)

INTL ST 13. Global Economy. 4 Units.
Acquaints students with the fundamental patterns of the global economy. Emphasizes the historical roots and political implications of economic choices.

Same as ECON 13.

Restriction: International Studies, Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(III, VIII)

INTL ST 14. Introduction to International Relations. 4 Units.
Analysis of political relations between and among nations with emphasis on explanations of conflict and cooperation. The role of ideologies and their relation to international problems are also examined. Course may be offered online.

Same as POL SCI 41A.

Restriction: International Studies and Political Science majors have first consideration for enrollment.

(III, VIII)

INTL ST 105A. Game Theory and Politics I. 4 Units.
Introduction to game theory and a survey of its political applications. Examples of topics covered include voting in small committees, legislatures, and mass elections; interest group activities and environmental issues; institutional design, and the evolution of cooperative behavior.

Same as POL SCI 130A, SOC SCI 103A, SOCIOL 134.

Restriction: Social Policy and Public Service, Sociology, Political Science, and International Studies majors have first consideration for enrollment.

INTL ST 105B. Game Theory and Politics II. 4 Units.
More advanced game theory and its political applications, beginning where Game Theory and Politics I ends. Examples of topics covered include revolutions; arms race; spatial models of party competition; political manipulation; political coalitions and their power.

Prerequisite: POL SCI 130A or ECON 116A.

Same as POL SCI 130B, SOC SCI 103B.

Restriction: Social Policy and Public Service, International Studies, and Political Science majors have first consideration for enrollment.

INTL ST 111B. Coffee and Capitalism. 4 Units.
History of consumption and production of coffee over the centuries, and coffee's cultural, economic, social, political consequences. Coffee's social life as a drug, symbol of hospitality, religious rite, sociability and bourgeois lifestyle, commodity, source of livelihoods, imperial revenues, corporate profits.

Same as HISTORY 163.

INTL ST 111C. Global Economics and Security. 4 Units.
Analyzes U.S. economic strategy, the impact of U.S. foreign policy on economic strategy, the rise and the challenge of future Great Powers, and focuses on theories of growth, hegemonic stability, and the rise of interdependence in the economic field.

INTL ST 112A. International Business. 4 Units.
Introduction to conducting business in the international arena, decision making in the organization, and globalization of markets and production. Topics covered range from tax and finance to ethics, marketing, and more. Continuing corporate regulatory scandals discussed.

Same as SOC SCI 115D.

INTL ST 114A. International Political Economy. 4 Units.
Examination of problems in global political-economic relations through competing conceptual lenses or grand theories: mercantilism, liberalism, and Marxism. Surveys North-North and North-South issues relating power and wealth.

Same as POL SCI 141B.

(VIII)

INTL ST 114D. Political Economy of Japan. 4 Units.
Surveys postwar developments in the politics and political economy of Japan. Topics include the political and institutional context of policy making; pressures for change which Japan's political economy has faced in the last decade; Japan's past and present foreign policies.

Same as POL SCI 155F.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 117A. Transnational Migration. 4 Units.
Examines the movement of people across national borders, governmentality and the role of state practices to control populations, and issues of citizenship, belonging, and identity. Examples are drawn from the United States, Europe, Latin America, Asia, and Africa.

Same as CHC/LAT 161, ANTHRO 125X.

(VIII)

INTL ST 117B. Migration Destinations. 4 Units.
Examines the migration patterns to the three largest nations that receive immigrants (i.e., permanent settlers): Australia, Canada, and the United States.

Same as ASIANAM 171A, SOCIOL 175D.

INTL ST 121. Social Ecology of Peace. 4 Units.
Examination of differing definitions of the problem of achieving peace and the special problems of seeking peace in the nuclear age.

Same as SOCECOL E113.

INTL ST 122. Nuclear Environments. 4 Units.
Understanding the impact of the nuclear age on the environment and human health through interrelated developments of nuclear power and nuclear weapons. The early years of weapon development, catastrophic environmental pollution, perils of nuclear power in the U.S. and Russia.

Same as SOCECOL E127, PUBHLTH 168.

INTL ST 124A. Introduction to the Comparative Study of Legal Cultures. 4 Units.
Traces the anthropological and comparative cultural study of law from the nineteenth century to the present; briefly surveys the diversity of recorded legal cultures and critically examines key concepts which have been used to describe and classify them.

Same as CRM/LAW C102.

Restriction: Criminology, Law and Society, Social Ecology, and International Studies majors have first consideration for enrollment.

INTL ST 124B. New Democracies. 4 Units.
Examines what democracy is; considers competing theories about its causes; explores multiple democratic institutions; discusses several types of democracy; and analyzes various aspects of democratic quality and stability, focusing on Eastern Europe, Latin America, and sub-Saharan Africa.

Same as POL SCI 155A.

INTL ST 130. Transnational Gangs. 4 Units.
Examines the internationalization of U.S. domestic street gangs. The relationship between California gangs Mara Salvatrucha and 18th Street and Mexico/Central American gangs is assessed. Specified topics include: mobilization, migration, territorialism, culture, organization, and use of technology. Course may be offered online.

Prerequisite: SOC SCI 66.

Same as SOC SCI 120.
Overlaps with SOC SCI XI120, INTL ST XI130.

INTL ST 131A. Just War Revisited. 4 Units.
Examines the evolution of the doctrine of the just war across the history of Western political thought, the importance of changes in the doctrine and whether it applies today; examines international relations case studies to determine today's relevancy.

Same as POL SCI 135B.

INTL ST 135. California and Global Economy. 4 Units.
Presents the nature of the State's economy and the current and projected role of California in the world economy.

Same as SOC SCI 115E.

INTL ST 140A. Approaches to International Relations. 4 Units.
Reviews theoretical and methodological approaches to the study of international relations using contending perspectives to analyze power and influence, capabilities, interdependence, reciprocity, international regimes, anarchy, cooperation, imperialism, and hegemony.

Same as POL SCI 144A.

Restriction: Upper-division students only. Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 141A. Intelligence in International Politics. 4 Units.
Intelligence agencies, activities, and functions—their impact on international politics; how governments and societies seek to control intelligence agencies and activities; and how intelligence agencies work—their techniques, resources, technology, problems, successes, and failures.

Same as POL SCI 143F.

Restriction: Political Science and International Studies majors have first consideration for enrollment.

INTL ST 141B. Homeland Security . 4 Units.
Examines the 9/11 origins of the concept of homeland security; assess the evolution, structure, and operations of the Department of Homeland Security; critically examines the evolution of threat assessment to the U.S. and the utilization of risk management methodologies.

Same as POL SCI 143G.

INTL ST 142A. U.S. Foreign Policy I: Globalism and Cold War. 4 Units.
Looks at changing international perspectives, policy responses, and military strategies of presidential administrations from Truman to Reagan. In assessing the motives and objectives of U.S. foreign policy leaders during the “Cold War” era, the concept of “national interest” is examined.

Same as POL SCI 142D.

Restriction: International Studies and Political Science majors have first consideration for enrollment.

INTL ST 142B. U.S. Foreign Policy II: Cold War Decline & After. 4 Units.
Deals with U.S. foreign policy from the post-Vietnam War era through the collapse of the Cold War and into the emergence of the post-Cold War era, roughly from 1972 to the present.

Same as POL SCI 142E.

Restriction: Political Science majors have first consideration for enrollment.

INTL ST 142C. U.S. Foreign Policy III: National Security Decision-Making. 4 Units.
Concept of "national security" from 1947-1990s is reviewed. Organizational and psychological factors that influence decision-making, the dangers of "groupthink," and the issue of accountability are analyzed. National security agenda (military, economic, environmental, and social) for the 1990s is discussed.

Same as POL SCI 142F.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 142D. The International Relations of East Asia. 4 Units.
Surveys various aspects of relations between the nations of East Asia. Topics include the historical development of the region; current political and security relations, including the impact of the American military presence.

Same as POL SCI 142B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 142E. U.S. Coercive Diplomacy. 4 Units.
Examines the theory of compellence and the U.S. practice of coercive diplomacy--the power to change behavior of other governments. Specific case examples: the Cuban missile crisis, bombing of North Vietnam, the Nicaraguan Contras, Desert Shield/Desert Storm, and Libya.

Same as POL SCI 142G.

Restriction: Upper-division students only. Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 142F. Human Rights and Foreign Policy. 4 Units.
Analyzes theories, patterns, and cases of human rights foreign policy. How do countries pursue the values and standards of human rights in their foreign relations. How does the U.S. fit into worldwide trends? Examines historical and contemporary cases.

Same as POL SCI 142H.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 142G. U.S. Foreign Policy Toward Asia. 4 Units.
U.S. policy toward the countries of East Asia: bilateral and regional security relationships, U.S. economic relations with the major Asian countries, the development of regional institutions, and human rights.

Same as POL SCI 141E.

INTL ST 143A. Vietnam War. 4 Units.
Examines social structures and social changes in Vietnamese and U.S. societies through the study of the Vietnam War.

Same as SOCIOL 170A.

INTL ST 144A. Comparative Politics: Four Nations, Three Continents. 4 Units.
Studies four countries in a comparative fashion: their respective political histories and cultural traditions; actual differences among their superficially similar party, parliamentary, and executive institutions; contemporary economic policy. The countries represent three continents and varying levels of economic development.

Same as POL SCI 154C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 145A. International Law. 4 Units.
Examination of the origin, changing structure, application of international law, and the role of legal norms in regulating the behavior of states and maintaining international order.

Prerequisite: POL SCI 71A.

Same as POL SCI 172A.

(VIII)

INTL ST 145C. Constitution and Rights. 4 Units.
How are constitutions crafted, maintained, and changed? Does constitutionalism support or undermine democracy? What difference do rights and constitutional courts make? Explores these questions through a comparative examination of the theory and practice of constitutionalism in developing democracies.

Prerequisite: POL SCI 71A.

Same as POL SCI 172C.

INTL ST 145D. Courts in New Democracies . 4 Units.
Examines the conceptual, theoretical, and empirical foundations of the study of courts and politics in new democracies, introducing students to a variety of contemporary debates about how political dynamics shape courts, and how courts shape politics.

Prerequisite: POL SCI 71A.

Same as POL SCI 172D.

INTL ST 151B. Religion and World Politics. 4 Units.
Examines the relationship between religion and world politics historically and today, focusing on connections with peace/war, democracy, human rights, secularism(s), and globalization. Covers major debates, scholarship, concepts, and theories through class exercises, exams, and essays.

Prerequisite: POL SCI 41A or INTL ST 11 or INTL ST 12 or REL STD 5A or REL STD 5B or REL STD 5C.

Same as POL SCI 146B, REL STD 115.

INTL ST 152A. Non-Government Organization (NGO) Fundamentals. 4 Units.
Introduction to non-governmental organizations, including their role in U.S. society and the international community. Explores varying definitions of NGOs and the characteristics held in common by all NGOs.

Same as SOC SCI 152A.

INTL ST 153B. Cross-Cultural Studies in Gender. 4 Units.
Familiarizes students with the diversity of women's experiences around the world. Gender roles and relations are examined within cultural and historical contexts. A central concern is how class, race, and global inequalities interact with women's status.

Prerequisite: ANTHRO 2A or ANTHRO 2B.

Same as ANTHRO 121D.

INTL ST 153C. Urban Anthropology. 4 Units.
Cultural roles of urban centers and processes of urbanization in comparative perspective, focusing on both nonwestern, nonindustrial societies of past and present; the relationship between modern urban centers and Third World peoples. Migration, urban poverty, in Africa, Asia, Latin America.

Same as ANTHRO 121J.

INTL ST 153D. Colonialism and Gender. 4 Units.
An anthropological enquiry into the ways colonial relations of power have been structured and gendered throughout the world, and to what effect. Examines the social locations of men and women in the everyday exercise of colonial and imperial power.

Same as ANTHRO 136G.

Restriction: Anthropology majors have first consideration for enrollment.

INTL ST 153E. Nationalism and Ethnicity in the Contemporary World. 4 Units.
An exploration of the concepts of identity, culture, ethnicity, race, and nation through ethnographic cases, with a view to asking larger questions: how do people create nativeness and foreignness? How does "culture" get worked into contemporary racisms and nationalisms.

Same as ANTHRO 136A.

(VIII)

INTL ST 154. Ethics and Justice in International Affairs. 4 Units.
Analyzes choices regarding the use of force, resolving conflict, and promoting human rights and social justice. Special attention is given to the American experience as a principal case study of ethics and statecraft.

Restriction: Upper-division students only. International Studies majors have first consideration for enrollment.

INTL ST 154B. Human Rights. 4 Units.
Examines the causes and consequences of human rights violations with a focus on Latin America. What are human rights? When and where are they violated? What political mechanisms are available to deal with human rights problems? How effective are they.

Same as POL SCI 153E.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 154D. Ethics and International Relations. 4 Units.
Introduces students to the dynamic field of ethics and international relations. A variety of traditional and emerging perspectives are examined, skeptical views are discussed in detail, and arguments are illustrated with current cases.

Same as PP&D 140, POL SCI 146A.

INTL ST 154W. Ethics and Justice in International Affairs. 4 Units.
Analyzes choices regarding the use of force, resolving conflict, and promoting human rights and social justice. Special attention is given to the American experience as a principal case study of ethics and statecraft.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. International Studies majors have first consideration for enrollment.

(Ib)

INTL ST 155A. International Journalism. 4 Units.
Studies and critically analyzes how the media covers international issues that have reshaped. American foreign coverage and the implications for Americans and U.S. foreign policy. Focuses on international reporting as a way of developing fundamental skills of journalism.

Same as SOC SCI 184F.

INTL ST 155BW. Media Writing. 4 Units.
Designed to teach reporting and news writing basics. Students learn how to gather and organize information, ask effective questions, develop story ideas, research facts, and write stories on deadline. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOC SCI 184GW.
Overlaps with INTL ST XI155B, SOC SCI XI184G.

Restriction: International Studies majors have first consideration for enrollment.

(Ib)

INTL ST 156A. Voting and Political Manipulation. 4 Units.
Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as POL SCI 151H, SOC SCI 121T, ECON 154.

Restriction: International Studies, Political Science, Social Science and Economics majors have first consideration for enrollment.

INTL ST 157A. Twenty-First Century Africa. 4 Units.
Comparative studies of the cultures and societies of Sub-Saharan Africa, with emphasis on critical study of colonialism and postcoloniality, social transformation, and the politics of identity.

Prerequisite: ANTHRO 2A.

Same as ANTHRO 164A.

Restriction: Anthropology majors have first consideration for enrollment.

INTL ST 158A. Modern South Asian Religions. 4 Units.
Nineteenth- and twentieth-century developments in Hinduism, Islam, and Sikhism are covered, with emphasis on changing forms as well as contents of religious movements and the state.

Same as ANTHRO 135I.

(VIII)

INTL ST 158B. Peoples of the Pacific. 4 Units.
The cultural history and recent developments among the Pacific peoples of Polynesia, Micronesia, Melanesia, New Guinea, and Australia.

Same as ANTHRO 163A.

(VIII)

INTL ST 158D. China in the Global Age. 4 Units.
Chinese society from 1949 to present. Social change in the context of political control and ideological considerations. Focus on the power structure, political decision processes, and ideological legitimation, and interplay with the Chinese community and its culture.

Same as SOCIOL 175B.

INTL ST 161A. Political Islam. 4 Units.
Political Islamd is a diverse phenomenon. While noticeable barriers exist to "Islamist democracy," it is the Islamists who will define the political future of much of the Muslim world. Reviews the experience of Saudi Arabia, Egypt, Pakistan, Turkey, and Indonesia.

Same as SOC SCI 188K.

INTL ST 162. Afghanistan. 4 Units.
Provides an examination of Afghanistan's traditional social organization, economy, political organization, and relationship among ethnic groups as a basis for discussing the consequences of domestic political turmoil and foreign interventions over the last 20 years. Current situation and future addressed.

Same as SOC SCI 188I, POL SCI 158C.

INTL ST 162B. Peoples and Cultures of Post-Soviet Eurasia. 4 Units.
Examines the cultures and political conflicts of the more than 130 indigenous ethnic groups in the European and Asian territories of the former U.S.S.R. Emphasis is on the theoretical issues of ethnicity, nationalism, and conflict management.

Same as POL SCI 154F, ANTHRO 164P.

(VIII)

INTL ST 165. Introduction to Contemporary Middle East Politics. 4 Units.
An overview of basic issues that shape the politics of the Middle East and North Africa. Themes include implication of the colonization era, nation-state formation, inter-Arab relations, nationalism, Arab-Israel conflict, Islamic resurgence, and more.

Same as SOC SCI 188A, POL SCI 158D.

INTL ST 166. Psychology of the Middle East Conflict. 4 Units.
Explores how emotions guide actions; political movements and social identity factors in ethnic, religious, or other group conflicts; psycho-biographies of political leaders and effects on foreign policy making; decisions to go to war; psychological dimensions of conflict and conflict resolution.

Same as SOC SCI 188M.

INTL ST 168. Iran: Past and Present. 4 Units.
Pre-revolutionary Iran; and Iran since the revolution. History, oil and politics: domestic and international.

Same as SOC SCI 188D.

INTL ST 170. Israel and the World: An Introduction. 4 Units.
Examines the founding of Israel, its relationship with the Arab world, the role of the international community, and the challenges it faces today.

Same as SOC SCI 188E.

INTL ST 174. Middle East Narratives. 4 Units.
Explores various narratives of peoples living in the Middle East: Bedouins, Jews, Muslims, Christians, Druze, Baha'i; looks at how their identities were formed and altered over time through empire, religion, exodus, war, democracy, diasporas; focus is philosophical and historical.

Same as POL SCI 136D.

INTL ST 175A. U.S. War on Terrorism. 4 Units.
Analyzes the United States war on terrorism by focusing on terrorism, the U.S. wars in Afghanistan and Iraq, and changes in police powers through the Patriot Act, as well as the political leadership which directs the war.

Same as SOCIOL 170B.

INTL ST 176A. African Politics. 4 Units.
An overview of African politics in comparative perspective. Central themes include the analysis of state-nation building in Africa, Africa's economy, and its civil society as this relates to implications for development prospects on the continent.

INTL ST 176B. East Asian Politics. 4 Units.
Explores the recent history and political systems of China, Japan, and Korea, comparing the three countries with each other and with occasional reference to the United States, British, and French systems.

Same as POL SCI 151A.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176C. Introduction to Chinese Politics. 4 Units.
Background to the Chinese revolution, rise of the communist party; and institutions, ideology, and structure of Communist party rule from 1949-present.

Same as POL SCI 151B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176D. Chinese Politics: Policy, Leadership, and Change. 4 Units.
Examines major policies from 1949 to the present, and considers the changing role of the Communist Party and its shifting treatment of various social groups; the era of Mao Zedong, reforms under Deng, and post-Deng politics.

Same as POL SCI 151C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176G. German Politics and Society. 4 Units.
Concentrates on twentieth-century German politics and society, focusing on the contemporary political system of democratic West Germany. Study of the historical legacies of Weimar and the Nazi period, the postwar division between the two states and their reunification.

Same as POL SCI 152C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176I. West European Politics. 4 Units.
Explores four main themes: (1) thinking scientifically about politics; (2) understanding the linkages between different political structures and spheres of activity; (3) evaluating some theories about politics; (4) learning about three countries: Britain, France, and Germany.

Same as POL SCI 152F.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176K. Latin American Politics. 4 Units.
Introduces the main concepts and theoretical approaches underlying the study of Latin American politics, examines recent political dynamics, and explores the challenges the region faces in the twenty-first century and how countries will attempt to address them.

Same as POL SCI 153A, CHC/LAT 151A.

Restriction: Political Science majors, Chicano/Latino Studies majors, and International Studies majors have first consideration for enrollment.

INTL ST 176L. Canadian Politics. 4 Units.
Addresses the basic structures and processes of contemporary Canadian government and politics. Additional topics may include regionalism, federalism, western alienation and oil, Canadian solutions to social welfare policy questions, developments in Quebec, and other issues associated with French-English relations.

Same as POL SCI 153B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 177B. Perspectives on the U.S. - Mexican Border. 4 Units.
Economic aspects of the historical development of the United States-Mexican border. The current economic situation in the Southwest and border areas as it affects both Mexico and the Latino/Chicano population is also examined.

Same as SOC SCI 173I, CHC/LAT 160.

(VII)

INTL ST 177C. Revolution in Latin America. 4 Units.
Presents a comparative analysis of the causes, development, and consequences of selected revolutionary movements, focusing on outbreaks in Mexico, Bolivia, Cuba, Chile, Nicaragua, and Grenada. Explores topics of state formation, economic nationalism, social justice, ethnicity, and role of international affairs.

Same as CHC/LAT 151B, HISTORY 166D, SOC SCI 173N.

INTL ST 177D. U.S. Intervention in Latin America. 4 Units.
Explores political, economic, social, and cultural ties that bind Latin America to the United States. Focuses on U.S. intervention and Latin American response from early nineteenth century to present day. Case studies include Mexico, Guatemala, Cuba, Chile, and Central America.

Same as HISTORY 166, SOC SCI 123A, CHC/LAT 150.

INTL ST 177E. Cuban Society and Revolution. 4 Units.
Explores the causes, development, and legacy of the 1959 Revolution. Themes include economic dependency, democracy, race, gender, culture, and the always volatile relations between Cuba and the United States.

Same as POL SCI 153G, HISTORY 166C, CHC/LAT 157.

INTL ST 177F. Introduction to Cuba: History, Culture, and Society. 4 Units.
Introduction to Cuban history, culture, and society using social science texts, visual and musical materials. Examines major historical moments including the historical relationship between the United States and explores evolution of Cuban music from the earliest times to present.

Same as CHC/LAT 130, SOC SCI 173Q.

(VIII)

INTL ST 177G. Revolution and Reaction in Cold War Latin America. 4 Units.
Explores Latin American experiences of revolutionary change and military dictatorship during the Cold War (1945-1990). Pays particular attention to the lives of women, peasants, workers, and the urban middle classes. Case studies include Guatemala, Cuba, Chile, Argentina, Nicaragua, and Mexico.

Same as HISTORY 166B.

INTL ST 177H. Gender, Race, and Nation in Latin America. 4 Units.
Addresses the importance of gender and race to nation-making in Latin America during the 19th and 20th centuries (1810-1945). Considers how hierarchies between men and women shaped ideas about family, the state, and modernity.

Same as HISTORY 166A, WOMN ST 172.

INTL ST 177I. Ancient Civilization of Mexico and the Southwest. 4 Units.
The prehistory and cultural evolution of the civilization which originated in Mexico, including the Olmecs, Aztecs, Toltecs, Maya, and Zapotec, as well as the Pueblos of the Southwestern U.S. Topics include the origins of food production and of the state.

Same as ANTHRO 141A.

INTL ST 177J. Peoples and Cultures of Latin America. 4 Units.
Surveys the prehistory of Latin America and its indigenous cultures, emphasizing the impact of colonial rule, capitalism, and twentieth-century transformations. Emphasis on communities from several countries. In some years, emphasis on comparisons between the Latin American and Caribbean experiences.

Same as ANTHRO 162A.

(VIII)

INTL ST 178A. Immigration Politics in Western Europe. 4 Units.
Examines the politics of immigration in Western Europe. Considers historical, economic, political, and social dimensions of immigration as well as the nature of ensuing conflict. Students investigate a variety of immigrant-related policies, including asylum, citizenship, and integration.

Same as POL SCI 141D.

INTL ST 179. Regional Topics in International Studies. 4 Units.
Studies in selected areas of international studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

INTL ST H180. International Studies Honors Research Seminar. 4 Units.
Assists students to prepare a thesis prospectus for the Honors Program in International Studies. Students choose a topic, learn writing and research methods, write a prospectus and orally present and defend it, and conduct a literature review.

Restriction: International Studies Honors Program students only. International Studies majors have first consideration for enrollment.

INTL ST 183A. International Studies Forum. 2 Units.
A faculty-student forum featuring lecturers from a variety of institutions with discussion issues related to international studies.

Repeatability: May be taken for credit 4 times.

Same as SOC SCI 183A, SOCECOL 183A, HUMAN 183A.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

INTL ST 183B. Seminar in Mediation. 4 Units.
Student develop mediation skills and refine knowledge in the practice and theory of conflict resolution. Students who complete this course may serve as mediators in the Campus Mediation Program. Course is a prerequisite to completing Indep Study as an intern.

Same as HUMAN 183B, SOC SCI 183B, SOCECOL 183B.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

INTL ST 183E. Conflict Resolution in Cross-Cultural Perspective. 4 Units.
Examines theories of conflict management. Analyzes how conflict is mitigated in diverse cultures: at the interpersonal level, between groups, and on the international scale. Students discuss readings, hear from conflict management practitioners, and simulate negotiations.

Same as ANTHRO 136D, SOC SCI 183E, POL SCI 154G.

(VIII)

INTL ST 189. Special Topics in International Studies. 2-4 Units.
Studies in selected areas of international studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

INTL ST 190. Senior Thesis. 4 Units.
Students work with faculty to complete their honors thesis.

Repeatability: May be taken for credit 2 times.

INTL ST 197. Internship. 2-4 Units.
Provides an opportunity to apply knowledge and skills to an internship experience in the non-profit sector. Students gain new skills outside the classroom environment by participating in an off-campus, supervised internship for a total of 50 or 100 hours.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

INTL ST 199. Individual Study. 2-4 Units.
Students participate in planned research and study under written contract with a supervising UCI instructor. Students may enroll for only one individual study course each quarter.

Repeatability: Unlimited as topics vary.

Linguistics Courses

LINGUIS 1. Languages of the World. 4 Units.
The world has over 6,000 languages, with an exuberant variety of sounds, words, grammars. Introduction to a representative(about eight), drawn from every continent. Students not expected to learn these languages, but rather to explore and study their structure and complexity.

(VIII)

LINGUIS 2. Discovering Language. 4 Units.
Explores language's pervasiveness and diversity; demonstrates ways linguistics illuminates language's crucial--albeit hidden--societal role. Issues: self- and group-identification, language death, language in legal and educational settings. Illustrations: spoken and signed languages, varieties of English, Native American languages.

(VII)

LINGUIS 3. Introduction to Linguistics. 4 Units.
Emphasis on the notion that language is a remarkable achievement of the human mind. Current insights into the nature of language. Survey of various subfields of linguistics. Introduction to linguistic analysis.

(III, Vb)

LINGUIS 10. Introduction to Phonology. 4 Units.
Basic concepts in phonetic description and phonological analysis.

Prerequisite: LINGUIS 3.

(III, Vb)

LINGUIS 20. Introduction to Syntax. 4 Units.
Basic concepts in syntactic description and grammatical analysis.

Prerequisite: LINGUIS 3.

(III, Vb)

LINGUIS 51. Acquisition of Language. 4 Units.
What children say, what they mean, and what they understand. Theories about the learning of language by one-, two-, and three-year olds. Comparison of kinds of data on which these theories are based.

Same as PSYCH 56L.

(III)

LINGUIS 68. Introduction to Language and Culture. 4 Units.
Explores what the study of language can reveal about ourselves as bearers of culture. After introducing some basic concepts, examines how cultural knowledge is linguistically organized and how language might shape our perception of the world.

Same as ANTHRO 2D.

(III)

LINGUIS 99. Special Topics in Linguistics. 4 Units.
Special Topics at lower-division level.

Repeatability: Unlimited as topics vary.

LINGUIS 100. Grammatical Theory. 4 Units.
Has both a phonology and a syntax component, and forms and bridge between lower-division course offerings and more advanced courses in phonology, syntax, and morphology. Emphasis on development of analytical skills, and evaluation of alternative proposals.

Prerequisite: LINGUIS 10 and LINGUIS 20.

LINGUIS 102. Formal Languages and Automata. 4 Units.
Formal aspects of describing and recognizing languages by grammars and automata. Parsing regular and context-free languages. Ambiguity, nondeterminism. Elements of computability; Turning machines, random access machines, undecidable problems, NP-completeness.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and MATH 2A and MATH 2B and I&C SCI 6B and I&C SCI 6D. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

Same as COMPSCI 162.

LINGUIS 107M. Computational Methods for Language Research. 4 Units.
Focuses on computational methods useful for language research. Students become familiar with software and programming languages used for extracting information from electronic datasets and for creating basic simulations of linguistic cognition. No prior programming experience assumed.

Prerequisite: PSYCH 155 or LINGUIS 155 or PSYCH 156A or LINGUIS 150.

Same as PSYCH 157M.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 247M.

LINGUIS 109. Special Topics in Computational Linguistics. 4 Units.
Topics in Computational Linguistics.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 111. Intermediate Phonology. 4 Units.
Fundamentals of phonological theory. Intensive practice in phonological analysis.

Prerequisite: LINGUIS 100.

Concurrent with LINGUIS 211.

LINGUIS 112. Advanced Phonolgy. 4 Units.
Overview of recent developments in phonological theory.

Prerequisite: LINGUIS 111.

Concurrent with LINGUIS 212.

LINGUIS 119. Special Topics in Phonetics/Phonology. 4 Units.
Topics in Phonetics/Phonology. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 121. Intermediate Syntax. 4 Units.
Examines various phenomena within a generative theory of syntax, focusing on the nature of syntactic rules, representations, and constraints. Introduces methods of experimental syntax, providing students hands-on opportunity to recognize the connection(s) between theory and experiential results.

Prerequisite: LINGUIS 20.

LINGUIS 124. Current Topics in Syntactic Theory. 4 Units.
Research seminar in syntax. Intensive study of a small number of well-defined topics which have had significant impact on the development of syntactic theory. May be repeated for credit as topic varies.

Repeatability: May be repeated for credit unlimited times.

Concurrent with LINGUIS 224.

LINGUIS 129. Special Topics in Syntax. 4 Units.
Topics in Syntax. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 139. Special Topics in Morphology. 4 Units.
Topics in Morphology. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 141. Topics in Philosophy of Language. 4 Units.
Selected topics in the philosophy of language, e.g., the nature of meaning, mechanisms of reference, speech acts.

Repeatability: Unlimited as topics vary.

Same as LPS 145, PHILOS 145.

LINGUIS 149. Special Topics in Semantics. 4 Units.
Topics in Semantics. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 150. Acquisition of Language II. 4 Units.
Focuses on native language learning, exploring the way in which infants and very young children unconsciously uncover the rich systematic knowledge of their native language. Examines both experimental and computational studies that quantitatively investigate the "how" of language acquisition.

Prerequisite: Recommended: PSYCH 56L or LINGUIS 51.

Same as PSYCH 156A.

Restriction: Psychology majors have first consideration for enrollment.

LINGUIS 155. Psychology of Language. 4 Units.
Examines language using the tools of experimental psychology. From sounds to words to spoken and written sentences, explores how language is used in real time, and how its use reveals how it is represented in the mind.

Same as PSYCH 150.

Restriction: Psychology majors have first consideration for enrollment.

LINGUIS 158. Language and the Brain . 4 Units.
Research analysis on biological bases of human linguistic capacity. Development, focusing on hemispheric specialization, plasticity; localization of specific linguistic functions in adults, with emphasis on study of aphasias; relation of linguistic capacity to general cognitive capacity, considering research on retardation.

Prerequisite: BIO SCI 35 or BIO SCI N110.

Same as BIO SCI N160, PSYCH 161.

Restriction: Psychology and Biology majors have first consideration for enrollment.

LINGUIS 159. Special Topics in Psycholinguistics. 4 Units.
Topics in Psycholinguistics. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 163B. The Structure of English. 4 Units.
An examination of American English phonology, morphology, and syntax. Useful for prospective teachers of English in elementary and secondary schools and for teachers of English as a second language.

Prerequisite: LINGUIS 3.

LINGUIS 164A. Topics in Romance Languages. 4 Units.
Topics in Romance Languages. May be repeated as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 164B. French Phonetics. 4 Units.
Study of the sound structure of French. Introduction to elements of general phonetics, contrastive (French/English) phonetics, and French phonetics and phonology. Designed to help students improve their pronunciation. Also serves as a preparatory course for language teaching.

Prerequisite: FRENCH 1C.

LINGUIS 169. Special Topics in Language Studies. 4 Units.
Topics in Language Studies. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 172. History of English. 4 Units.
External (historical and social) and internal (linguistic) changes which have affected the English language from its Germanic roots to the present day.

Prerequisite: LINGUIS 3.

LINGUIS 175. Language Origins: Evolution, Genetics, and the Brain. 4 Units.
Examines how human language(s) may have originated. Studies pertinent techniques (reconstruction) and addresses related questions, including Is our language faculty inborn (i.e., genetically encoded)? Can brain imaging and population genetics research help to unlock this mystery of human evolution?.

Same as HISTORY 135G, ANTHRO 152A, GLBLCLT 105.

LINGUIS 179. Special Topics in Historical Linguistics. 4 Units.
Topics in Historical Linguistics. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 189. Special Topics in Cognitive Semiotics. 4 Units.
Topics in Cognitive Semiotics. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 198. Directed Group Study. 4 Units.
Directed study with Linguistics faculty. May be repeated for credit as topic varies.

Repeatability: Unlimited as topics vary.

LINGUIS 199. Independent Study. 4 Units.
Independent research with Linguistics faculty. May be repeated for credit as topic varies. Students may enroll for only one 199 each quarter.

Repeatability: May be repeated for credit unlimited times.

Logic and Philosophy of Science Courses

LPS 29. Critical Reasoning. 4 Units.
Introduction to analysis and reasoning. The concepts of argument, premise, and conclusion, validity and invalidity, consistency and inconsistency. Identifying and assessing premises and inferences. Deductive versus inductive reasoning, and introduction to the probability calculus. Evaluating definitions. Informal fallacies.

Same as PHILOS 29.

(II, Vb)

LPS 30. Introduction to Symbolic Logic. 4 Units.
An introduction to the symbolism and methods of the logic of statements, including evaluation of arguments by truth tables, the techniques of natural deduction and semantic tableaux.

Same as PHILOS 30.

(Vb)

LPS 31. Introduction to Inductive Logic. 4 Units.
Philosophical questions concerning the foundations of scientific inference, e.g., the traditional problem of induction, the Goodman paradox, the concept of cause, Mill's method of inductive reasoning, probability calculus, different interpretations of probability, and their interaction in inductive reasoning.

Same as PHILOS 31.

(II, Va)

LPS 40. The Nature of Scientific Inquiry. 4 Units.
Investigates the nature, scope, and status of scientific knowledge and the methods used to acquire it. Uses concrete historical examples from a variety of scientific fields to identify distinctive features of the scientific enterprise and explore their significance.

(II)

LPS 60. The Making of Modern Science. 4 Units.
Surveys the history of science and mathematics since the Scientific Revolution, examining central developments both chronologically and thematically, as well as investigating their significance for contemporary philosophical debates about the role and status of current scientific theories.

Same as HISTORY 60.

(IV)

LPS H80. Scientific Realism and Instrumentalism. 4 Units.
Explores competing views of the character and status of theoretical knowledge in science, including challenges to and defenses of the view that contemporary scientific theories offer straightforwardly accurate descriptions of how things stand in otherwise inaccessible domains of nature.

(II)

LPS 100W. Writing Philosophy. 4 Units.
Discussion of those aspects of writing of special importance in philosophy, e.g., philosophical terminology, techniques for evaluating arguments, philosophical definitions and theories. At least 4,000 words of assigned composition based on philosophical readings.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PHILOS 100W.

Restriction: Upper-division students only.

(Ib)

LPS 102. Introduction to the Theory of Knowledge. 4 Units.
A study of one or more of the basic issues in epistemology, e.g., the role of perception in the acquisition of knowledge, the nature of evidence, the distinction between belief and knowledge, and the nature of truth and certainty.

Same as PHILOS 102.

LPS 104. Introduction to Logic. 4 Units.
Introduction to sentence logic, including truth tables and natural deduction; and to predicate logic, including semantics and natural deduction.

Same as PHILOS 104.

LPS 105A. Elementary Set Theory. 4 Units.
An introduction to the basic working vocabulary of mathematical reasoning. Topics include: sets, Boolean operations, ordered n-tuples, relations, functions, ordinal and cardinal numbers.

Same as PHILOS 105A.

LPS 105B. Metalogic. 4 Units.
Introduction to formal syntax (proof theory) and semantics (model theory) for first-order logic, including the deduction, completeness, compactness, and Löewenheim-Skolem theorems.

Prerequisite: PHILOS 105A.

Same as PHILOS 105B.
Overlaps with MATH 150.

LPS 105C. Undecidability and Incompleteness. 4 Units.
Introduction to the formal theory of effective processes, including recursive functions, Turing machines, Church's thesis, and proofs of Göedel's incompleteness theorem for arithmetic, and Church's undecidability theorem for first-order logic.

Prerequisite: PHILOS 105B.

Same as PHILOS 105C.
Overlaps with MATH 152.

LPS 106. Topics in Logic . 4 Units.
Selected topics in mathematical or philosophical logic.

Prerequisite: LPS 105B or PHILOS 105B.

Repeatability: Unlimited as topics vary.

Same as PHILOS 106.

LPS 108. Topics in Induction, Probability, and Decision Theory. 4 Units.
Selected topics in induction, probability, and decision theory.

Repeatability: Unlimited as topics vary.

Same as PHILOS 108.

LPS 113. Topics in Modern Philosophy. 4 Units.
Focuses on the works of central philosophical figures of modern Philosophy (e.g., Descartes, Leibniz, Hobbes, Locke, Hume, Kant) or on the treatment of one or more central philosophical problems by a number of these figures.

Repeatability: Unlimited as topics vary.

Same as PHILOS 113.

LPS 115. Topics in History of Analytic Philosophy. 4 Units.
Review of central theories or figures in the history of analytic philosophy. Emphasis on writings of Frege, Russell, Schlick, Carnap, and Quine. Topics include the nature of meaning and truth, the synthetic/analytic distinction, and scientific knowledge.

Repeatability: Unlimited as topics vary.

Same as PHILOS 115.

LPS 120. Topics in Metaphysics. 4 Units.
Examines central philosophical questions concerning our own fundamental nature and that of the world around us (e.g., causation and necessity, determination, free will, personal identity, the mind-body problem).

Repeatability: Unlimited as topics vary.

Same as PHILOS 120.

LPS 121. Topics in the Theory of Knowledge . 4 Units.
One or more topics in the theory of knowledge, e.g., the nature of rational justification, of perceptual knowledge, of a priori knowledge.

Repeatability: Unlimited as topics vary.

Same as PHILOS 121.

LPS H125. What Is Time? . 4 Units.
Engages the question "what is time?" by drawing on physics, philosophy, fiction, film, and psychology. The course is organized around understanding and addressing the tension between time as represented in physics and our immediate temporal experience.

Restriction: Campuswide Honors Program students only.

LPS 140. Topics in Philosophy of Science. 4 Units.
Selected topics in contemporary philosophy of science, e.g., the status of theoretical entities, the confirmation of theories, the nature of scientific explanation.

Repeatability: Unlimited as topics vary.

Same as PHILOS 140.

LPS 140B. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.

Same as REL STD 112B, PSYCH 172S, SOC SCI 130B.

LPS 141A. Topics in Philosophy of Physics. 4 Units.
Selected topics in the philosophy of physics, e.g., the interpretation of quantum mechanics, the nature of spacetime, the problem of quantum field theories.

Repeatability: Unlimited as topics vary.

Same as PHILOS 141A.

LPS 141B. Geometry and Spacetime. 4 Units.
An examination of the foundations of the special theory of relativity, with emphasis on the geometry of Minkowski spacetime, and its relation to both Euclidean and non-Euclidean (hyperbolic) plane geometries.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

Same as PHILOS 141B.

LPS 141C. Philosophy of Quantum Mechanics. 4 Units.
An examination of the standard von Neumann-Dirac formulation of quantum mechanics. The quantum measurement problem is discussed along with several proposed solutions, including GRW, many-worlds, man-minds, and Bohm's theory.

Same as PHILOS 141C.

LPS 141D. Probability and Determinism. 4 Units.
An examination of a cluster of interrelated issues concerning probability, determinism, logic, and the foundations of quantum mechanics.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

Same as PHILOS 141D.

LPS H141. Honors Philosophy of Quantum Mechanics. 4 Units.
An examination of the standard von Neumann-Dirac formulation of quantum mechanics. The quantum measurement problem is discussed along with several proposed solutions, including GRW, many-worlds, man-minds, and Bohm's theory.

Overlaps with LPS 141C.

Restriction: Campuswide Honors Program students only.

LPS 142. Writing/Philosophy of Biology. 4 Units.
Philosophy of biology, e.g., scientific method in biology, the structure of evolutionary theory, teleology, ethics, and evolution. Course work includes one 4,000-word and four 1,000-word papers.

LPS 142W. Writing/Philosophy of Biology. 4 Units.
Philosophy of biology, e.g., scientific method in biology, the structure of evolutionary theory, teleology, ethics, and evolution. Course work includes one 4,000-word and four 1,000-word papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PHILOS 142W, BIO SCI E142W.

Restriction: Juniors only.

(Ib)

LPS 143. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as PHILOS 143, PSYCH 123P.

Restriction: Psychology and Philosophy majors have first consideration for enrollment.

LPS 144. Topics in Philosophy of Social Science. 4 Units.
Selected topics in the philosophy of the social sciences, e.g., is their goal to understand behavior or to predict and control it?; are they normative and the natural sciences not?; do they incorporate philosophical doctrines about language and mind?.

Repeatability: Unlimited as topics vary.

Same as PHILOS 144.

LPS 145. Topics in Philosophy of Language. 4 Units.
Selected topics in the philosophy of language, e.g., the nature of meaning, mechanisms of reference, speech acts.

Repeatability: Unlimited as topics vary.

Same as PHILOS 145, LINGUIS 141.

LPS 146. Topics in Philosophy of Logic. 4 Units.
Selected topics in the philosophy of logic, e.g., the nature of logical truth and our knowledge of it, the status of propositions, definite descriptions, and existential presuppositions.

Repeatability: Unlimited as topics vary.

Same as PHILOS 146.

LPS 147. Topics in Philosophy of Mathematics. 4 Units.
Selected historical and contemporary topics in the philosophy of mathematics, e.g., mathematical truth and ontology, mathematical knowledge, the nature and role of proof, the workings of mathematics in application.

Repeatability: Unlimited as topics vary.

Same as PHILOS 147.

LPS 199. Independent Study. 1-4 Units.
Independent research with Logic and Philosophy of Science faculty.

Repeatability: May be taken for credit for 12 units.

LPS 200. Topics in Logic and Philosophy of Science. 4 Units.
Studies in selected areas of Logic and Philosophy of Science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

LPS 205A. Set Theory. 4 Units.
The basic working vocabulary of mathematical reasoning. Topics include: sets, Boolean operations, ordered n-tuples, relations, functions, ordinal and cardinal numbers.

Same as PHILOS 205A.

LPS 205B. Metalogic. 4 Units.
Formal syntax (proof theory) and semantics (model theory) for first-order logic, including the deduction, completeness, compactness, and Loewenheim-Skolem theorems.

Prerequisite: PHILOS 205A or LPS 205A.

Same as PHILOS 205B.

LPS 205C. Undecidability and Incompleteness. 4 Units.
Formal theory of effective processes, including recursive function, Turing machines, Church's thesis, and proofs of Goedel's incompleteness theorem for arithmetics, and Church's undecidability for first-order logic.

Prerequisite: PHILOS 205B or LPS 205B.

Same as PHILOS 205C.

LPS 206. Topics in Logic . 4 Units.
Studies in selected areas of logic. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 206.

LPS 213. Topics in Modern Philosophy. 4 Units.
Studies in selected areas of modern philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 213.

LPS 215. Topics in Analytic Philosophy. 4 Units.
Studies in selected areas of analytic philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 215.

LPS 220. Topics in Metaphysics. 4 Units.
Studies in selected areas of metaphysics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 220.

LPS 221. Topics in Epistemology. 4 Units.
Studies in selected areas of epistemology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 221.

LPS 232. Topics in Political and Social Philosophy. 4 Units.
Studies in selected areas of political and social philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 232.

LPS 240. Topics in Philosophy of Science. 4 Units.
Studies in selected areas of philosophy of science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 240.

LPS 241. Topics in Philosophy of Physics. 4 Units.
Studies in selected areas of philosophy of physics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 241.

LPS 242. Topics in Philosophy of Biology. 4 Units.
Studies in selected areas of philosophy of biology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 242.

LPS 243. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as PHILOS 243, PSYCH 231P.

LPS 244. Topics in Philosophy of Social Science. 4 Units.
Studies in selected areas of philosophy and social science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 244.

LPS 245. Topics in Philosophy of Language. 4 Units.
Studies in selected areas of philosophy of language. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 245.

LPS 246. Topics in Philosophy of Logic. 4 Units.
Studies in selected areas of philosophy of logic. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 246.

LPS 247. Topics in Philosophy of Mathematics. 4 Units.
Studies in selected areas of philosophy of mathematics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 247.

LPS 289. Logic and Philosophy of Science Workshop. 1-4 Units.
A two- or three-quarter-long workshop on selected topics in logic and philosophy of science.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

LPS 298. Independent Study. 4-12 Units.
Independent research with Logic and Philosophy of Science Faculty.

Repeatability: May be taken for credit for 12 units.

LPS 299. Directed Research. 1-12 Units.
Directed study with Logic and Philosophy of Science Faculty.

Repeatability: May be repeated for credit unlimited times.

LPS 399. University Teaching. 4-12 Units.
Required of and limited to Teaching Assistants.

Repeatability: May be taken for credit for 12 units.

Political Science Courses

POL SCI 6A. Introduction to Political Science: Political Analysis. 4 Units.
Presents various modes of understanding politics. Emphasis on basic approaches to political analysis, their uses in constructing theories, and their application to particular national political systems.

(III, VIII)

POL SCI 6B. Introduction to Political Science: Macropolitics. 4 Units.
An overview of macro-political inquiry, emphasizing the various determinants of political life in a political community. We also explore the origins and challenges of democratic governance focusing on the tension between liberty and equality in a democratizing nation.

(III)

POL SCI 6C. Introduction to Political Science: Micropolitics. 4 Units.
Introduction to political behavior of individuals and groups within national systems. Three questions addressed: How do individuals come to understand the political world? How do individuals behave within this world? How do groups and individuals engage in the political process.

(III)

POL SCI 10A. Probability and Statistics in Political Science I. 4 Units.
Introduction to the variety of statistical applications in the social sciences. Descriptive statistics. Measures of central tendency and dispersion. Percentile ranks. Standardization and normal approximation. Basic probability theory focuses on application to statistical inference and binomial distribution. Laboratory required.

Prerequisite: SOC SCI 3A.

Overlaps with ANTHRO 10A, ECON 15A, PSYCH 10A, SOCECOL 13, SOC SCI 9A, SOCIOL 10A.

Restriction: Lower-division students only.

(Va)

POL SCI 10B. Probability and Statistics in Political Science II. 4 Units.
Introduction to statistical inference, sampling distribution, standard error. Hypothesis tests for proportions and means. Inferential techniques for nominal variables including chi-square, study measures of strengths, significance of relationships between variables, assumptions, data requirements, and types of error in significance tests.

Prerequisite: POL SCI 10A.

Overlaps with ANTHRO 10B, ECON 15B, PSYCH 10B, SOCECOL 13, SOC SCI 9B, SOC SCI 10B.

(Va)

POL SCI 10C. Probability and Statistics in Political Science III. 4 Units.
Focus on correlation, regression, and control for effects of variables. One-way and two-way factorial analysis of variance. A priori and a posteriori comparisons. Introduction to repeated measures design and non-parametric statistics. Discusses use of statistics in newspapers and popular magazines.

Prerequisite: POL SCI 10B.

Overlaps with ANTHRO 10C, PSYCH 10C, SOCECOL 13, SOC SCI 9C, SOC SCI 10C, SOCIOL 10C.

(Vb)

POL SCI 21A. Introduction to American Government. 4 Units.
Introduction to American political processes and institutions. Topics include elections, political participation, parties, interest groups, the Presidency, Congress, the bureaucracy, and the judiciary. Course may be offered online.

(III)

POL SCI 29. Special Topics in American Politics. 4 Units.
Studies in selected areas of American politics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 31A. Introduction to Political Theory. 4 Units.
Types of questions: What is politics? What are the theoretical and philosophical bases for different types of political arrangements? How do these perspectives get translated into reality? Among others, the works of Rousseau, Locke, Mill, and Marx are read.

(III)

POL SCI 39. Lower-Division Special Topics in Political Theory. 4 Units.
Studies in selected areas of political theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 41A. Introduction to International Relations. 4 Units.
Analysis of political relations between and among nations with emphasis on explanations of conflict and cooperation. The role of ideologies and their relation to international problems are also examined. Course may be offered online.

Same as INTL ST 14.

Restriction: International Studies and Political Science majors have first consideration for enrollment.

(III, VIII)

POL SCI 43D. Global Security and Cooperation. 4 Units.
Examination of global conflict and cooperation since World War II, and future prospects. The Cold War, nuclear arms race, regional conflicts, arms proliferation and control, deterrence theory, psychology of conflict, governmental and nongovernmental efforts to promote global peace and cooperation.

(VIII)

POL SCI 44A. Global Issues and Institutions. 4 Units.
Surveys recent developments in the nature of global interdependence. Examines the major political, economic, and military conflicts of this century and recent problems of population growth, environmental decay, ethnic/national antagonism and violence, and post-Cold War politics.

(III, VIII)

POL SCI 49. Lower-Division Special Topics in International Relations. 4 Units.
Studies in selected areas of international relations. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 51A. Introduction to Politics Around the World. 4 Units.
Introduces comparative politics. Compares political systems in a variety of countries. Includes elections, parties, parliaments, presidents, protest movements, and other aspects of national politics. Addresses how to make meaningful comparisons across countries.

(III, VIII)

POL SCI 61A. Introduction to Race and Ethnicity in Political Science. 4 Units.
Examines major theories that attempt to explain the roles of race and ethnicity in U.S. politics. Course may be offered online.

Same as CHC/LAT 64.

(III, VII)

POL SCI 69. Lower Division Special Topics in Minority Politics. 4 Units.
Studies in selected areas of minority politics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 71A. Introduction to Law. 4 Units.
An introduction to the study of judicial politics. Questions include: what is law?; what is a court?; who are the judges? Analysis of a wide range of judicial decisions illustrates the political importance of courts in the U.S. and elsewhere.

(III)

POL SCI 79. Lower-Division Special Topics in Law. 4 Units.
Studies in selected areas of law. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 120. Public Opinion. 4 Units.
Theories concerning sources of public opinion, processes by which it is altered, organization of citizens' belief systems, and role of public opinion in government policy. Students analyze survey data as a research project.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 120W. Public Opinion. 4 Units.
Theories concerning sources of public opinion, processes by which it is altered, organization of citizens' belief systems, and role of public opinion in government policy. Students analyze survey data as a research project.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 121A. The American Presidency. 4 Units.
Presents a comprehensive survey of the American presidency and considers the question of political power.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 121C. U.S. Elections and Voting Behavior. 4 Units.
Examines how voters evaluate political parties, candidates, and issues in electoral campaigns to reach their decisions. Numerous controversies concerning the degree of issue voting, sophistication of candidate evaluations, and the decline of political parties are discussed.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 121E. Public Policy Analysis. 4 Units.
Examines different approaches to the analysis of public policy, what constitutes good policy, the role of government, and citizen participation in policy-making. Suggests a policy-design perspective which builds upon other frameworks but concentrates on goals, implementation structures, tools, and rationales.

Prerequisite: SOCECOL E8 and (PP&D 4 or PP&D 166).

Same as PP&D 169.

Restriction: Urban Studies, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

POL SCI 121F. Presidents Since World War II. 4 Units.
Reviews the actions and character of presidents from Harry Truman through Bill Clinton. Each week a different president is examined from a variety of perspectives. Students are expected to write a substantial original research paper.

Prerequisite: POL SCI 21A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 122A. American Metropolitan Politics. 4 Units.
Explores the politics of urban and suburban America, including the policy making process; the exercise of political power; local politics, federalism and the problems of metropolitanism; and major policy problems facing urban areas.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 122B. California Politics. 4 Units.
Examines the structure and function of California government, traces historical development of political power, with constantly changing casts of power-brokers and seekers. Explores California exceptionalism and the roles played by the electorate, legislature, executive, and organized interests in policy making.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 122BW. California Politics. 4 Units.
Examines the structure and function of California government, traces historical development of political power, with constantly changing casts of power-brokers and seekers. Explores California exceptionalism and the roles played by the electorate, legislature, executive, and organized interests in policy making.

Prerequisite: Satisfactory completion of the Lower-Division writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 122C. The American Electorate. 4 Units.
Provides an overview of how polls are conducted, and how they can be manipulated by question wording, sampling techniques, interviewing procedures, and context. Public attitudes toward Congress are examined. Students analyze survey data on their own as a research project.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 123A. Parties and Political Organizations. 4 Units.
A consideration of the role that parties and other political organizations play in the American political process. Also looks at the development and significance of PACs, interest groups, and social movements as vehicles for democratic participation.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 124A. The Politics of Protest. 4 Units.
Examines the Civil Rights, Black Power, and women's movements in relationship to the Asian American movement. Uses social movement theories to illuminate the cases, and the cases to critique and revise the theories.

Same as ASIANAM 144.

(VII)

POL SCI 124B. Latinos in U.S. Politics. 4 Units.
Comparing the political issues facing Latino groups by examining their migration histories, voting behavior, nonelectoral participation, and policy issues. Latino issues are examined on the national, state, and local levels, including formal representation, immigration, affirmative action, and language policy.

Same as CHC/LAT 151.

(VII)

POL SCI 124C. Comparative Minority Politics. 4 Units.
Examines the political experiences of Blacks, Latinos, and Asian Americans in the United States from roughly 1950 to the present. Focuses on how each group has pursued political empowerment via both conventional political channels and social movements.

Same as AFAM 151, CHC/LAT 147, ASIANAM 132.

POL SCI 124E. African American Politics. 4 Units.
Examines politics of African Americans in order to gain a broader perspective of the American political process. Major developments in African American politics (including the civil rights movement, Black presidential bids), continuing problem of racism, responsiveness of key governing institutions.

Same as AFAM 152.

POL SCI 125A. The United States Congress. 4 Units.
Does the Congress do a good job of representing the American citizenry? Is it the most appropriate mechanism for the creation, resolution, and implementation of public policy.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 125AW. The United States Congress. 4 Units.
Does the Congress do a good job of representing the American citizenry? Is it the most appropriate mechanism for the creation, resolution, and implementation of public policy.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 125B. Congress:The New Institutionalist Approach. 4 Units.
Study of the U.S. Congress emphasizing how rules and institutions (filibuster, veto, the committee system, party caucuses) structure how the Congressional game is played. Combines theoretical study of procedures with the practical study of actual bills.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 126C. U.S. Immigration Policy. 4 Units.
Examines selected immigration policy debates since the nineteenth century, rationale and consequences of immigration law since 1965, problems of administration, implementation and enforcement, impact of immigration policy on foreign relations, and contemporary debate regarding the future of U.S. policy.

Same as CHC/LAT 163.

(VII)

POL SCI 126D. Urban Politics and Policy. 4 Units.
Examines economic limits of cities and welfare policy. Addresses such issues as why are the poor concentrated in the central cities? Which anti-poverty programs will work best in cities? Which level of government can best combat poverty in the U.S.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 126F. Politics of Animal Rights. 4 Units.
Examines animal rights/welfare movement's efforts to transform moral, practical, and legal standing of nonhuman animals in contemporary U.S. Explores intersection of racism, sexism, and speciesism informed by theories of race and ethnicity, including Asian American Studies.

Same as ASIANAM 168.

Restriction: Political Science majors and Asian American Studies majors have first consideration for enrollment.

POL SCI 129. Special Topics in American Politics and Society. 4 Units.
Studies in selected areas of American politics and society. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 130A. Game Theory and Politics I. 4 Units.
Introduction to game theory and a survey of its political applications. Examples of topics covered include voting in small committees, legislatures, and mass elections; interest group activities and environmental issues; institutional design, and the evolution of cooperative behavior.

Same as INTL ST 105A, SOC SCI 103A, SOCIOL 134.

Restriction: Social Policy and Public Service, Sociology, Political Science, and International Studies majors have first consideration for enrollment.

POL SCI 130B. Game Theory and Politics II. 4 Units.
More advanced game theory and its political applications, beginning where Game Theory and Politics I ends. Examples of topics covered include revolutions; arms race; spatial models of party competition; political manipulation; political coalitions and their power.

Prerequisite: POL SCI 130A or ECON 116A.

Same as INTL ST 105B, SOC SCI 103B.

Restriction: Social Policy and Public Service, International Studies, and Political Science majors have first consideration for enrollment.

POL SCI 131C. Modern Political Theory. 4 Units.
Examines major thinkers and intellectual movements in the political thought of the 17th and 18th centuries.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 131F. Twentieth Century Political Theory. 4 Units.
Examines major thinkers and intellectual movements in the political thought of the 20th Century.

Prerequisite: POL SCI 31A.

POL SCI 134F. Social and Political Theory. 4 Units.
Focus is on recent major work in social and political theory. An in-depth analysis of a relatively small body of writing. Authors discussed include Jurgen Habermas, Anthony Giddens, and Richard Rorty.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 134J. Sexism and Power. 4 Units.
Sexism seen as a socially constructed power which creates and maintains gender differences as relations and practices of structured inequalities. Males and females are objects constructed in a powered language dominated and controlled by males to their positional/distributional advantage.

Same as SOCIOL 168.

Restriction: Upper-division students only. Sociology and Political Science majors have first consideration for enrollment.

POL SCI 134JW. Sexism and Power. 4 Units.
Sexism seen as a socially constructed power which creates and maintains gender differences as relations and practices of structured inequalities. Males and females are objects constructed in a powered language dominated and controlled by males to their positional/distributional advantage.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOCIOL 168W.

Restriction: Upper-division students only. Sociology and Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 135A. Origins of Liberalism. 4 Units.
Examines the ideals, social forces, and historical events that gave rise to liberal political theory. Topics include patriarchal authority, the divine right of kings, religious toleration, slavery, colonialism, political economy, the evolution of law, and tensions between liberty and equality.

Prerequisite: POL SCI 31A

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 135B. Just War Revisited. 4 Units.
Examines the evolution of the doctrine of the just war across the history of Western political thought, the importance of changes in the doctrine and whether it applies today; examines international relations case studies to determine today's relevancy.

Same as INTL ST 131A.

POL SCI 136A. Logical Models in Social Sciences. 4 Units.
Science asks two questions. "How things are?" leads to measurement and statistical analysis. But we see only what we look for. "How things should be, on logical grounds?" leads to quantitative logical models which tell us what to look for.

Same as SOCIOL 112.

POL SCI 136B. Cannibals and Conquistadores: The Philosophy of the Other. 4 Units.
Examines critically the notion of the "other" by looking at the philosophical challenges difference poses in the context of the European discovery of the New World. Seeks to understand the naissance of the concept of human rights and tolerance.

POL SCI 136D. Middle East Narratives. 4 Units.
Explores various narratives of peoples living in the Middle East: Bedouins, Jews, Muslims, Christians, Druze, Baha'i; looks at how their identities were formed and altered over time through empire, religion, exodus, war, democracy, diasporas; focus is philosophical and historical.

Same as INTL ST 174.

POL SCI 137B. Types of Political Representation. 4 Units.
Political representation plays an important role in democratic systems, but is elusive once examined closely. Students delve into the concept and relate different views to political life. Half of the course is spent on writing instruction.

Restriction: Recommended: Upper-Division students. Political Science majors have first consideration for enrollment.

POL SCI 137BW. Types of Political Representation. 4 Units.
Political representation plays an important role in democratic systems, but is elusive once examined closely. Students delve into the concept and relate different views to political life. Half of the course is spent on writing instruction.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Recommended: Upper-Division students. Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 137C. Political Psychology. 4 Units.
Examines how psychological theory and research may be used to better understand political thought and behavior. Drawing on theories of learning, cognition, and personality, discusses the formation of political attitudes, the process of political decision-making, the nature of political leadership.

Same as PSYCH 176A.

Restriction: Psychology and Political Science majors have first consideration for enrollment.

POL SCI 138A. The Moral of the Story: Introductory Seminar in Ethics. 4 Units.
Introduces major theories and classic texts in ethics, from Plato and Aristotelian virtue ethics to utilitarianism and Kant and contemporary moral psychology.

POL SCI 138C. Ethics of Difference. 4 Units.
Examines differences traditionally judged politically salient—race, ethnicity, religion, gender. Personal interviews with an elderly person encourage students to understand the social construction of difference and to reexamine their own attitudes by putting themselves in the place of another.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 138CW. Ethics of Difference. 4 Units.
Examines differences traditionally judged politically salient—race, ethnicity, religion, gender. Personal interviews with an elderly person encourage students to understand the social construction of difference and to reexamine their own attitudes by putting themselves in the place of another.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 139. Special Topics in Political Theory and Methods. 4 Units.
Studies in selected areas of political theory and methods. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 141B. International Political Economy. 4 Units.
Examination of problems in global political-economic relations through competing conceptual lenses or grand theories: mercantilism, liberalism, and Marxism. Surveys North-North and North-South issues relating power and wealth.

Same as INTL ST 114A.

(VIII)

POL SCI 141C. International Political Economy of East Asia. 4 Units.
Integration of theoretical perspectives in international political economy with the study of economic development in East Asia, with special emphasis on regional integration.

(VIII)

POL SCI 141D. Immigration Politics in Western Europe. 4 Units.
Examines the politics of immigration in Western Europe. Considers historical, economic, political, and social dimensions of immigration as well as the nature of ensuing conflict. Students investigate a variety of immigrant-related policies, including asylum, citizenship, and integration.

Same as INTL ST 178A.

POL SCI 141E. U.S. Foreign Policy Toward Asia. 4 Units.
U.S. policy toward the countries of East Asia: bilateral and regional security relationships, U.S. economic relations with the major Asian countries, the development of regional institutions, and human rights.

Same as INTL ST 142G.

POL SCI 142B. The International Relations of East Asia. 4 Units.
Surveys various aspects of relations between the nations of East Asia. Topics include the historical development of the region; current political and security relations, including the impact of the American military presence.

Same as INTL ST 142D.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 142D. U.S. Foreign Policy I: Globalism and Cold War. 4 Units.
Looks at changing international perspectives, policy responses, and military strategies of presidential administrations from Truman to Reagan. In assessing the motives and objectives of U.S. foreign policy leaders during the “Cold War” era, the concept of “national interest” is examined.

Same as INTL ST 142A.

Restriction: International Studies and Political Science majors have first consideration for enrollment.

POL SCI 142E. U.S. Foreign Policy II: Cold War Decline & After. 4 Units.
Deals with U.S. foreign policy from the post-Vietnam War era through the collapse of the Cold War and into the emergence of the post-Cold War era, roughly from 1972 to the present.

Same as INTL ST 142B.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 142F. U.S. Foreign Policy III: National Security Decision-Making. 4 Units.
Concept of "national security" from 1947-1990s is reviewed. Organizational and psychological factors that influence decision-making, the dangers of "groupthink," and the issue of accountability are analyzed. National security agenda (military, economic, environmental, and social) for the 1990s is discussed.

Same as INTL ST 142C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 142G. U.S. Coercive Diplomacy. 4 Units.
Examines the theory of compellence and the U.S. practice of coercive diplomacy--the power to change behavior of other governments. Specific case examples: the Cuban missile crisis, bombing of North Vietnam, the Nicaraguan Contras, Desert Shield/Desert Storm, and Libya.

Same as INTL ST 142E.

Restriction: Upper-division students only. Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 142H. Human Rights and Foreign Policy. 4 Units.
Analyzes theories, patterns, and cases of human rights foreign policy. How do countries pursue the values and standards of human rights in their foreign relations. How does the U.S. fit into worldwide trends? Examines historical and contemporary cases.

Same as INTL ST 142F.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 143F. Intelligence in International Politics. 4 Units.
Intelligence agencies, activities, and functions—their impact on international politics; how governments and societies seek to control intelligence agencies and activities; and how intelligence agencies work—their techniques, resources, technology, problems, successes, and failures.

Same as INTL ST 141A.

Restriction: Political Science and International Studies majors have first consideration for enrollment.

POL SCI 143G. Homeland Security . 4 Units.
Examines the 9/11 origins of the concept of homeland security; assess the evolution, structure, and operations of the Department of Homeland Security; critically examines the evolution of threat assessment to the U.S. and the utilization of risk management methodologies.

Same as INTL ST 141B.

POL SCI 144A. Approaches to International Relations. 4 Units.
Reviews theoretical and methodological approaches to the study of international relations using contending perspectives to analyze power and influence, capabilities, interdependence, reciprocity, international regimes, anarchy, cooperation, imperialism, and hegemony.

Same as INTL ST 140A.

Restriction: Upper-division students only. Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 145A. Ethics in an Age of Terror and Genocide. 4 Units.
Original sources document personal impact of wars on genocides, from World War II to the Bosnian and Rwandan genocides and current wars in Iraq and Afghanistan. Students train for and conduct personal interviews with someone who lived through a war.

POL SCI 146A. Ethics and International Relations. 4 Units.
Introduces students to the dynamic field of ethics and international relations. A variety of traditional and emerging perspectives are examined, skeptical views are discussed in detail, and arguments are illustrated with current cases.

Same as PP&D 140, INTL ST 154D.

POL SCI 146B. Religion and World Politics. 4 Units.
Examines the relationship between religion and world politics historically and today, focusing on connections with peace/war, democracy, human rights, secularism(s), and globalization. Covers major debates, scholarship, concepts, and theories through class exercises, exams, and essays.

Prerequisite: POL SCI 41A or INTL ST 11 or INTL ST 12 or REL STD 5A or REL STD 5B or REL STD 5C.

Same as REL STD 115, INTL ST 151B.

POL SCI 149. Special Topics in International Relations. 4 Units.
Studies in selected areas of international relations. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 150A. Seminar on Regime Change in East Asia. 4 Units.
Examines nine factors relevant to regime change, studying one factor each week in class. Students write four short (two-page) analytic papers, and one eight-ten-page research paper on one country.

Prerequisite: POL SCI 6A and POL SCI 6B and POL SCI 6C.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 150AW. Seminar on Regime Change in East Asia. 4 Units.
Examines nine factors relevant to regime change, studying one factor each week in class. Students write four short (two-page) analytic papers, and one eight-ten-page research paper on one country.

Prerequisite: POL SCI 6A and POL SCI 6B and POL SCI 6C. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 151A. East Asian Politics. 4 Units.
Explores the recent history and political systems of China, Japan, and Korea, comparing the three countries with each other and with occasional reference to the United States, British, and French systems.

Same as INTL ST 176B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 151B. Introduction to Chinese Politics. 4 Units.
Background to the Chinese revolution, rise of the communist party; and institutions, ideology, and structure of Communist party rule from 1949-present.

Same as INTL ST 176C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 151C. Chinese Politics: Policy, Leadership, and Change. 4 Units.
Examines major policies from 1949 to the present, and considers the changing role of the Communist Party and its shifting treatment of various social groups; the era of Mao Zedong, reforms under Deng, and post-Deng politics.

Same as INTL ST 176D.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 151E. Are Chinese Politics Changing?. 4 Units.
There's been speculation about whether the Chinese political system is fundamentally changing. This upper-division writing seminar reviews new books on this topic and considers the question from a range of angles. Four two-page papers and one 8–10-page paper required.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 151EW. Are Chinese Politics Changing?. 4 Units.
There's been speculation about whether the Chinese political system is fundamentally changing. This upper-division writing seminar reviews new books on this topic and considers the question from a range of angles. Four two-page papers and one 8–10-page paper required.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 151F. Korean Politics and Society. 4 Units.
Examination of contemporary political/social structures and process of Korea (South and North). Historical and cultural influences on current political systems and policies. Also included are economic development, national security, unification issues, and foreign relations.

POL SCI 151G. Electoral Systems. 4 Units.
Worldwide overview of electoral laws by which votes are converted into assembly seats. Systematic analysis of these laws and their effect on political process/stability. Single-, two-, and multi-party systems. Proportional representation versus plurality rule. Majoritarian and consensus patterns of government.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 151H. Voting and Political Manipulation. 4 Units.
Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as INTL ST 156A, SOC SCI 121T, ECON 154.

Restriction: International Studies, Political Science, Social Science and Economics majors have first consideration for enrollment.

POL SCI 152C. German Politics and Society. 4 Units.
Concentrates on twentieth-century German politics and society, focusing on the contemporary political system of democratic West Germany. Study of the historical legacies of Weimar and the Nazi period, the postwar division between the two states and their reunification.

Same as INTL ST 176G.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 152F. West European Politics. 4 Units.
Explores four main themes: (1) thinking scientifically about politics; (2) understanding the linkages between different political structures and spheres of activity; (3) evaluating some theories about politics; (4) learning about three countries: Britain, France, and Germany.

Same as INTL ST 176I.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 152G. European Politics. 4 Units.
An introduction to the politics of Europe including the smaller countries and the former Warsaw Pact. Includes case study of three or four countries, as well as contemporary issues such as globalization, immigration, population decline, and European integration.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 153A. Latin American Politics. 4 Units.
Introduces the main concepts and theoretical approaches underlying the study of Latin American politics, examines recent political dynamics, and explores the challenges the region faces in the twenty-first century and how countries will attempt to address them.

Same as INTL ST 176K, CHC/LAT 151A.

Restriction: Political Science majors, Chicano/Latino Studies majors, and International Studies majors have first consideration for enrollment.

POL SCI 153B. Canadian Politics. 4 Units.
Addresses the basic structures and processes of contemporary Canadian government and politics. Additional topics may include regionalism, federalism, western alienation and oil, Canadian solutions to social welfare policy questions, developments in Quebec, and other issues associated with French-English relations.

Same as INTL ST 176L.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 153E. Human Rights. 4 Units.
Examines the causes and consequences of human rights violations with a focus on Latin America. What are human rights? When and where are they violated? What political mechanisms are available to deal with human rights problems? How effective are they.

Same as INTL ST 154B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 153G. Cuban Society and Revolution. 4 Units.
Explores the causes, development, and legacy of the 1959 Revolution. Themes include economic dependency, democracy, race, gender, culture, and the always volatile relations between Cuba and the United States.

Same as INTL ST 177E, HISTORY 166C, CHC/LAT 157.

POL SCI 154C. Comparative Politics: Four Nations, Three Continents. 4 Units.
Studies four countries in a comparative fashion: their respective political histories and cultural traditions; actual differences among their superficially similar party, parliamentary, and executive institutions; contemporary economic policy. The countries represent three continents and varying levels of economic development.

Same as INTL ST 144A.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 154F. Peoples and Cultures of Post-Soviet Eurasia. 4 Units.
Examines the cultures and political conflicts of the more than 130 indigenous ethnic groups in the European and Asian territories of the former U.S.S.R. Emphasis is on the theoretical issues of ethnicity, nationalism, and conflict management.

Same as INTL ST 162B, ANTHRO 164P.

(VIII)

POL SCI 154G. Conflict Resolution in Cross-Cultural Perspective. 4 Units.
Examines theories of conflict management. Analyzes how conflict is mitigated in diverse cultures: at the interpersonal level, between groups, and on the international scale. Students discuss readings, hear from conflict management practitioners, and simulate negotiations.

Same as ANTHRO 136D, SOC SCI 183E, INTL ST 183E.

(VIII)

POL SCI 155A. New Democracies. 4 Units.
Examines what democracy is; considers competing theories about its causes; explores multiple democratic institutions; discusses several types of democracy; and analyzes various aspects of democratic quality and stability, focusing on Eastern Europe, Latin America, and sub-Saharan Africa.

Same as INTL ST 124B.

POL SCI 155C. Organizations. 4 Units.
How bureaucracies, formal organizations, and voluntary associations work, how/why they grow, and where they are going. History and structure of organizational rationality; dynamics of organized groups; behavior in organizations; limits of bureaucratization and attempts to overcome these limits through decentralization.

Same as SOCIOL 141.

Restriction: Sociology and Political Science majors have first consideration for enrollment.

POL SCI 155F. Political Economy of Japan. 4 Units.
Surveys postwar developments in the politics and political economy of Japan. Topics include the political and institutional context of policy making; pressures for change which Japan's political economy has faced in the last decade; Japan's past and present foreign policies.

Same as INTL ST 114D.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 156A. Political Participation. 4 Units.
The ways in which people in various political systems take part in politics, especially in activities directed toward affecting outcomes. Who is active, what they do, why they do it, and what difference it makes.

POL SCI 156B. Participation and Representation. 4 Units.
Examines the concepts "political participation" and "political representation" and the interconnection between these concepts. Addresses both the theoretical issues and debates raised by these concepts and considers how they are studied empirically.

Restriction: Upper-division students only. Political Science majors have first consideration for enrollment.

POL SCI 156C. Citizen Politics. 4 Units.
Study of the role of public opinion in the political process. Reviews some key research approaches and findings on which our current understanding of public opinion is based. Provides an opportunity to conduct research and to analyze public opinion surveys.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 156CW. Citizen Politics. 4 Units.
Study of the role of public opinion in the political process. Reviews some key research approaches and findings on which our current understanding of public opinion is based. Provides an opportunity to conduct research and to analyze public opinion surveys.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 156D. Protests, Movements, and Revolutions. 4 Units.
A survey of models of collective action drawn from sociology, economics, psychology, and political science. Focus on areas such as social movements, strikes, crowd psychology, cults, fads, fashions, public opinion, and symbolic and mythical elements in collective culture.

Prerequisite: SOCIOL 1 or POL SCI 6A or ECON 1.

Same as SOCIOL 174.

Restriction: Political Science and Sociology majors have first consideration for enrollment.

POL SCI 157A. Nationalism. 4 Units.
Nationalism, one of the most potent social and political forces of the twentieth century, is explored. Seeks to understand the sources and nature of various forms of nationalism.

POL SCI 157AW. Nationalism. 4 Units.
Nationalism, one of the most potent social and political forces of the twentieth century, is explored. Seeks to understand the sources and nature of various forms of nationalism.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

POL SCI 158C. Afghanistan. 4 Units.
Provides an examination of Afghanistan's traditional social organization, economy, political organization, and relationship among ethnic groups as a basis for discussing the consequences of domestic political turmoil and foreign interventions over the last 20 years. Current situation and future addressed.

Same as SOC SCI 188I, INTL ST 162.

POL SCI 158D. Introduction to Contemporary Middle East Politics. 4 Units.
An overview of basic issues that shape the politics of the Middle East and North Africa. Themes include implication of the colonization era, nation-state formation, inter-Arab relations, nationalism, Arab-Israel conflict, Islamic resurgence, and more.

Same as SOC SCI 188A, INTL ST 165.

POL SCI 159. Special Topics in Comparative Politics. 4 Units.
Studies in selected areas of comparative politics. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 169. Conflict Management. 4 Units.
Special Instance.

POL SCI 171A. Law and Society. 4 Units.
Law and its various roles in society. The nature and meaning of law; legality and power in the American system; law as a mechanism for social change; the role of law in dispute processing, social control, compliance with judicial decisions.

Prerequisite: POL SCI 71A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 171AW. Law and Society. 4 Units.
Law and its various roles in society. The nature and meaning of law; legality and power in the American system; law as a mechanism for social change; the role of law in dispute processing, social control, compliance with judicial decisions.

Prerequisite: POL SCI 71A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 171B. Jurisprudence. 4 Units.
A survey of legal philosophies. Explores jurisprudence from the ancient Greeks to the present, including natural law philosophy; legal positivism and realism; sociological jurisprudence; and liberal, radical, and conservative thought.

Prerequisite: POL SCI 71A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 171C. Comparative Constitutional Politics. 4 Units.
Examines the impact of constitutional courts on politics and policy-making in Canada, France, Germany, and the United States. Cases may focus on the constitutional politics of free speech, abortion, rights to property, and the conduct of foreign relations.

Prerequisite: POL SCI 71A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 171CW. Comparative Constitutional Politics. 4 Units.
Examines the impact of constitutional courts on politics and policy-making in Canada, France, Germany, and the United States. Cases may focus on the constitutional politics of free speech, abortion, rights to property, and the conduct of foreign relations.

Prerequisite: POL SCI 71A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 171D. American Constitutional Law. 4 Units.
American constitutional interpretation of cases involving separation of powers, federal-state relations, rights of property, free expression, privacy, criminal due process, political participation, and equality. Includes legal research methods, development of judicial review, legal reasoning, and impact of Supreme Court decisions.

Prerequisite: POL SCI 71A.

Overlaps with CRM/LAW C122.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 171F. Law in the Twenty-First Century. 4 Units.
Examines the complex relationship between law, the social sciences, and modern society. Lectures explore such issues as the interplay between technology and constitutional rights, the impact of science on law, and the evolving roles of attorneys and judges.

Same as SOC SCI 172D.

Restriction: Political Science and Social Science majors have first consideration for enrollment.

POL SCI 171G. Legal Implications of the Drug Trade. 4 Units.
Examines United States policy to combat domestic and international narcotics trafficking. Analyzes the national drug policy and program implementation by federal and state agencies. Considers the effects of these policies on our individual constitutional rights and the criminal justice system.

POL SCI 172A. International Law. 4 Units.
Examination of the origin, changing structure, application of international law, and the role of legal norms in regulating the behavior of states and maintaining international order.

Prerequisite: POL SCI 71A.

Same as INTL ST 145A.

(VIII)

POL SCI 172B. International Law and the U.S. Legal System. 4 Units.
Explores how international law and U.S. law interact, focusing on recent cases and controversies. Topics include: treaty and customary law as U.S. law; international human rights litigation in U.S. courts; war powers; detentions in the war on terror; and torture.

Prerequisite: POL SCI 71A or POL SCI 172A.

POL SCI 172C. Constitution and Rights. 4 Units.
How are constitutions crafted, maintained, and changed? Does constitutionalism support or undermine democracy? What difference do rights and constitutional courts make? Explores these questions through a comparative examination of the theory and practice of constitutionalism in developing democracies.

Prerequisite: POL SCI 71A.

Same as INTL ST 145C.

POL SCI 172D. Courts in New Democracies . 4 Units.
Examines the conceptual, theoretical, and empirical foundations of the study of courts and politics in new democracies, introducing students to a variety of contemporary debates about how political dynamics shape courts, and how courts shape politics.

Prerequisite: POL SCI 71A.

Same as INTL ST 145D.

POL SCI 174A. Civil Liberties. 4 Units.
Political analysis of selected Supreme Court cases involving claims under the Bill of Rights and the Fourteenth Amendment. Topics include: race, sex, and other forms of discrimination; criminal justice; privacy; freedom of speech and related claims.

Prerequisite: POL SCI 71A.

Overlaps with CRM/LAW C122.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 174B. Contemporary Constitutional Rights. 4 Units.
Addresses the interpretation and application of the United States' fundamental rules. These rules tell us something about the goals of society, and the means chosen to achieve them by allocating rights, duties, costs, and benefits among its members.

Prerequisite: POL SCI 71A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 174C. U.S. Supreme Court. 4 Units.
Overview and analysis of the role played by the U.S. Supreme Court in the American political system. Judicial review, appointment of justices, judicial activism and judicial restraint, process of case selection, court deliberation, land decision-making, impact of Supreme Court decisions.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 174CW. U.S. Supreme Court. 4 Units.
Overview and analysis of the role played by the U.S. Supreme Court in the American political system. Judicial review, appointment of justices, judicial activism and judicial restraint, process of case selection, court deliberation, land decision-making, impact of Supreme Court decisions.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 179. Special Topics in Public Law. 4 Units.
Studies in selected areas of public law. Topics addressed vary each quarter.

Prerequisite: POL SCI 71A.

Repeatability: Unlimited as topics vary.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI H182A. Honors Thesis Workshop. 4 Units.
A weekly seminar/workshop to facilitate the exchange of ideas and research strategies among students and to review their progress in writing the thesis.

Restriction: Open only to students in the Political Science Senior Thesis program.

POL SCI 183. Public Affairs Internship. 4 Units.
Supervised internship and study in political, governmental, nonprofit, or related organizations for students participating in the Department's Public Affairs Internship Program. Enrollment dependent upon availability of intern positions.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

POL SCI 190. Senior Thesis. 4 Units.
Thesis research with Political Science faculty.

Repeatability: May be taken for credit 3 times.

POL SCI 190W. Senior Thesis. 4 Units.
Thesis research with Political Science faculty.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be taken for credit 3 times.

(Ib)

POL SCI 197. Field Study. 1-4 Units.
Field study with Political Science faculty.

Repeatability: Unlimited as topics vary.

POL SCI 198. Directed Group Study. 1-4 Units.
Directed group study with Political Science faculty.

Repeatability: Unlimited as topics vary.

POL SCI 199. Independent Study. 1-4 Units.
Independent study or research with a Political Science faculty member.

Repeatability: May be repeated for credit unlimited times.

POL SCI 209A. Study of Democracy Colloquium. 1.33 Unit.
Skills critical to professional success. Students learn and practice professional presentation skills, develop substantive knowledge in the field by attending talks and panels, and interact with scholars and professionals in the field.

Restriction: Graduate students only. POL SCI 209A may not be taken for credit if taken after SOCIOL 229.

POL SCI 209B. Study of Democracy Colloquium. 1.33 Unit.
This colloquium teaches students skills critical to professional success. Students learn and practice professional presentation skills and develop substantive knowledge in the field by attending talks and panels and interacting with scholars and professionals in the field.

Restriction: Graduate students only. POL SCI 209B may not be taken for credit if taken after SOCIOL 229 Democracy.

POL SCI 209C. Study of Democracy Colloquium . 1.34 Unit.
This colloquium teaches students skills critical to professional success. Students learn and practice professional presentation skills and develop substantive knowledge in the field by attending talks and panels and interacting with scholars and professionals in the field.

Restriction: Graduate students only. POL SCI 209C may not be taken for credit if taken after SOCIOL 229 Democracy.

POL SCI 210A. Colloquium. 1.3 Unit.
Doctoral training requires more than learning substantive debates and research methods; it also requires students learn professional practices, routines, and expectations. This year-long workshop offers students a mix of professional development, outside speakers, and casual conversations with departmental faculty.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

POL SCI 210B. Colloquium. 1.3 Unit.
Doctoral training requires more than learning substantive debates and research methods; it also requires students learn professional practices, routines, and expectations. This year-long workshop offers students a mix of professional development, outside speakers, and casual conversations with departmental faculty.

Prerequisite: POL SCI 210A.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

POL SCI 210C. Colloquium. 1.4 Unit.
Doctoral training requires more than learning substantive debates and research methods; it also requires students learn professional practices, routines, and expectations. This year-long workshop offers students a mix of professional development, outside speakers, and casual conversations with departmental faculty.

Prerequisite: POL SCI 210B.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

POL SCI 211A. Foundations of Modern Political Science. 4 Units.
Provides an introduction to foundational debates and controversies in contemporary political science, exploring these issues through the prism of nineteenth, twentieth and twenty-first century scholars who have profoundly shaped the contours of contemporary political science.

Restriction: Graduate students only.

POL SCI 211B. Micropolitics. 4 Units.
Provides students with comprehensive introduction to the substance and methods of the study of political behavior. Focuses on the level of individual behavior, but the relation to macrosocial analysis is considered.

Restriction: Graduate students only.

POL SCI 211C. Macropolitics. 4 Units.
Examines some of the major research issues in political science involving macro-level questions: systemic processes, political institutions, or system outputs.

Restriction: Graduate students only.

POL SCI 212A. Public Opinion. 4 Units.
Introduction to the study of U.S. public opinion. Provides an overview of the theories regarding opinion formation, the methodologies employed, and the role of public opinion in democratic governments.

Restriction: Graduate students only.

POL SCI 212B. Ethics Workshop. 4 Units.
Students find an important question in ethics, search literature to assess topic's importance, post question to be researched, propose method of analysis and type of data, analyze data, and note how their works contribute to knowledge in the field.

POL SCI 219. Special Topics in Politics and Society. 4 Units.
Current research in politics and society.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

POL SCI 221A. Public Policy . 4 Units.
Explores different approaches to public policy analysis, the diverse conceptions of the goals and objectives that should be served by policy, and the appropriate role of the policy analyst. Policy consequences are traced to indirect and subtle incentives and disincentives.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 221.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

POL SCI 222A. Collaborative Governance and Public Management. 4 Units.
Introduction to inclusive management. To make effective use of public resources, public managers are inventing ways of managing that alter relationships within organizations, between organizations, between sectors, and with the public. Requires rethinking fundamentals such as leadership and motivation.

Same as PP&D 283.

Restriction: Graduate students only.

POL SCI 223A. Theories of Power and Empowerment. 4 Units.
Studies different ways of thinking about power and its uses. Explores theories of power that inform various notions of empowerment, including resistance, participatory democracy, and workplace empowerment.

Same as PP&D 279, SOCIOL 271, MGMTPHD 297R.

Restriction: Graduate students only.

POL SCI 229. Advanced Research Methods: Varied Topics. 4 Units.
Topics in advanced research methods. Topics will vary.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

POL SCI 231A. Political Epistemology. 4 Units.
Focuses on fundamental issues of knowledge in the study of politics, especially interconnections and tensions between politics and knowledge. Counts as the Field Seminar in Political Theory.

Restriction: Graduate students only.

POL SCI 232A. Introduction to Voting Theory. 4 Units.
Introduction to voting modules. Substantive topics include majority rule, voting methods and their properties, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Restriction: Graduate students only.

POL SCI 234A. Research Methods in Political Science. 4 Units.
An introduction to standard research techniques in political science. Issues of epistemology, research design, and approaches to empirical analysis.

Prerequisite: Upper-division or graduate-level statistics.

Restriction: Graduate students only.

POL SCI 239. Special Topics in Political Theory. 4 Units.
Current research in political theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 241B. Seminar in International Relations Theory. 4 Units.
Overview of the major theories guiding research and scholarship in international relations. Focus on major conceptual approaches (realism, neoliberalism, marxism) and levels of analysis (systemic, state, and subnational), as well as on methodological/epistemological debates engulfing the field.

Restriction: Graduate students only.

POL SCI 241D. Norms in International Relations. 4 Units.
Evaluates various theoretical and empirical approaches to understanding the emergence, diffusion, and effects of international norms.

Restriction: Graduate students only.

POL SCI 245A. U.S. Ethnic Politics. 4 Units.
Assesses theories of ethnic political attitudes and behaviors in U.S. politics and examines methodological approaches to testing theories of ethnic politics. The primary focus is contemporary ethnic politics with attention to ethnic politics in American political development.

Same as CHC/LAT 235.

Restriction: Graduate students only.

POL SCI 252A. The State in Comparative Perspective. 4 Units.
Seminar examining the state from theoretical, empirical, comparative perspectives. How the state came into being, the state’s role in the economy, toward society and internationally, and in policy-making in Western Europe, East Asian newly industrialized countries, the Third World.

Restriction: Graduate students only.

POL SCI 252F. Political Culture and Democracy. 4 Units.
Examines the political culture literature and its relationship to democratic development. What are the cultural prerequisites of democracy, what aspects of political culture facilitate democratic politics and governmental performance, and what forms and reforms a political culture.

Restriction: Graduate students only.

POL SCI 253B. Regime Change in East Asia. 4 Units.
Regime change from authoritarianism to democracies (Japan, South Korea, Taiwan); gradual political change (China). Uses theories from comparative literature on regime transition; combines theory with historical institutions, political culture, prior regimes, elements in the transition process in the four countries.

Restriction: Graduate students only.

POL SCI 254A. Introduction to Game Theory. 4 Units.
Introduction to non-cooperative games. The prisoner's dilemma, Nash equilibrium, sequential games, subgame perfection. Applications include collective action, agenda-setter models, spatial competition of political parties, models of revolution and arms race.

Restriction: Graduate students only.

POL SCI 260B. Political Participation. 4 Units.
Examines theoretical approaches to the explanation of the pattern of participation and consideration of the results of empirical studies of such activity by mass publics (mainly in Europe and North America). Addresses issues in both comparative politics and political behavior.

Restriction: Graduate students only.

POL SCI 270A. Political Economy I. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Same as ECON 270A.

Restriction: Graduate students only.

POL SCI 270B. Political Economy II. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: POL SCI 270A.

Same as ECON 270B.

Restriction: Graduate students only.

POL SCI 270C. Political Economy III. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: POL SCI 270B.

Same as ECON 270C.

Restriction: Graduate students only.

POL SCI 273A. Advanced Qualitative Methods: Analyzing Qualitative Data. 4 Units.
Introduces students to the theory and practice of analyzing qualitative data. Students must have already learned about data collection and research design for qualitative research and they must have qualitative data they can analyze in the course.

Same as PP&D 213, SOCIOL 223, MGMTPHD 297K.

Restriction: Graduate students only.

POL SCI 285A. Introduction to Political Psychology I. 4 Units.
Reviews theoretical questions regarding the relationship between the analytical and normative and the polity. Considers relationships between the analytical and normative concerns of psychology and political science, addressing empirical literatures on political socialization, ideology and public opinion, identity and nationality.

POL SCI 285B. Introduction to Political Psychology II. 4 Units.
Discusses the complex set of relationships among the three disciplines of politics, psychology, and economics, focusing on human decision-making processes and political choice.

Restriction: Graduate students only.

POL SCI 290. Dissertation Research. 1-12 Units.
Dissertation research with Political Science faculty.

Repeatability: Unlimited as topics vary.

POL SCI 299. Independent Study. 1-12 Units.
Independent research with Political Science faculty.

Repeatability: Unlimited as topics vary.

Social Science Courses

SOC SCI 1A. Principles in the Social Sciences. 4 Units.
Introduction to various disciplines within the social sciences. Provides an interdisciplinary perspective on understanding human behavior and social institutions, including interpersonal, economic, and cultural activities. Course may be offered online.

(III)

SOC SCI H1E. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Same as SOCECOL H20A.

Restriction: Campuswide Honors Program students only.

(III)

SOC SCI H1F. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Prerequisite: SOC SCI H1E or SOCECOL H20A.

Same as SOCECOL H20B.

Restriction: Campuswide Honors Program students only.

(III)

SOC SCI H1G. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Prerequisite: SOC SCI H1F or SOCECOL H20B.

Same as SOCECOL H20C.

Restriction: Campuswide Honors Program students only.

(III)

SOC SCI 2A. Introduction to Social Science Analysis. 4 Units.
Introduction to social science research and analytical models. Theory construction and use of research methods in an interdisciplinary context. Discussion of the application of social science research to public policy. Computer laboratories develop creative thinking, graphing, and data presentation skills.

Restriction: Social Science majors have first consideration for enrollment.

(III)

SOC SCI 3A. Computer-Based Research in the Social Sciences. 4 Units.
Focuses on the data manipulation, data visualization, and information searching techniques. Hands-on experience in hypothesis testing, mapping, graphics, and data arrays. Course may be offered online.

Restriction: School of Social Sciences majors have first consideration for enrollment.

SOC SCI 5A. Introduction to Human Geography. 4 Units.
Human behavior in a geographical context. Spatial patterns and organization of the cultural, social, and economic activities of man as imposed on and influenced by the earth's physical setting.

(III)

SOC SCI 5B. Introduction to Physical Geography. 4 Units.
An introduction to the physical world we live in. Distribution and dynamics of the earth's air, water, and solid crust. Concepts and principles from climatology and geology. Selected examples from North America and beyond.

SOC SCI 5D. US & World Geography. 4 Units.
Survey of general geographical principles and facts on a world scale, as well as introduction to the broad regional and resource geography of the U.S., emphasizing in particular the interactions of physical and cultural factors.

(III, VIII)

SOC SCI 9A. General Statistics and Probability I. 4 Units.
Introduction to the variety of statistical applications in many fields, including the humanities, physical and social sciences, business, forensic and health sciences. Descriptive statistics, including percentile ranks, standardization, and normal approximation. Estimation and the measurement of error.

Overlaps with ECON 10A, PSYCH 10A, SOCECOL 13, SOC SCI 10A, SOCIOL 10A, POL SCI 10A.

Restriction: Non-Social Sciences majors only.

(Va)

SOC SCI 9B. General Statistics and Probability II. 4 Units.
Introduction to statistical inference, sampling distributions, standard error. Hypothesis tests for proportions and means. Inferential techniques for nominal variables including chisquare. Selected applications in fields such as ecology, forensic science, and quantitative stylistics are based on student interests.

Prerequisite: SOC SCI 9A.

Overlaps with ANTHRO 10B, POL SCI 10B, PSYCH 10B, SOCECOL 13, SOC SCI 10B, SOCIOL 10B.

Restriction: Non-Social Sciences majors only.

(Va)

SOC SCI 9C. General Statistics and Probability III. 4 Units.
Focus on correlation and regression. One-way and two-way factorial analysis of variance. Introduction to repeated measures designs and non-parametric statistics. Critiquing the use of statistics in newspapers and popular magazines. Locating, accessing, and evaluating statistical data.

Prerequisite: SOC SCI 9B.

Overlaps with ANTHRO 10C, POL SCI 10C, PSYCH 10C, SOCECOL 13, SOC SCI 10C, SOCIOL 10C.

Restriction: Non-Social Sciences majors only.

(Vb)

SOC SCI 10A. Probability and Statistics in Social Sciences I. 4 Units.
Introduction to the variety of statistical applications in the social sciences. Descriptive statistics. Measures of central tendency and dispersion. Percentile ranks. Standardization and normal approximation. Basic probability theory focuses on application to statistical inference and binomial distribution. Laboratory required.

Corequisite: SOC SCI 3A.
Prerequisite: SOC SCI 3A.

Overlaps with ECON 10A, PSYCH 10A, SOCECOL 13, POL SCI 10A, SOC SCI 9A, SOCIOL 10A.

Restriction: Lower-division students only. Social Science majors have first consideration for enrollment.

(Va)

SOC SCI 10B. Probability & Statistics in Social Sciences II. 4 Units.
Introduction to statistical inference, sampling distribution, standard error. Hypothesis tests for proportions and means. Inferential techniques for nominal variables including chi-square, study measures of strengths, significance of relationships between variables, assumptions, data requirements, and types of error in significance tests. Course may be offered online.

Prerequisite: SOC SCI 10A.

Overlaps with ANTHRO 10B, POL SCI 10B, SOCECOL 13, SOC SCI 9B, SOCIOL 10B, PSYCH 10B.

Restriction: Social Science majors have first consideration for enrollment.

(Va)

SOC SCI 10C. Probability & Statistics in Social Sciences III. 4 Units.
Focus on correlation, regression, and control for effects of variables. One-way and two-way factorial analysis of variance. A priori and a posteriori comparisons. Introduction to repeated measures design and non-parametric statistics. Discuss use of statistics in newspapers and popular magazines.

Prerequisite: SOC SCI 10B.

Overlaps with ANTHRO 10C, POL SCI 10C, PSYCH 10C, SOCECOL 13, SOC SCI 9C, SOCIOL 10C.

Restriction: Social Science majors have first consideration for enrollment.

(Vb)

SOC SCI 11A. Barter to Bitcoin: Society, Technology and the Future of Money. 4 Units.
Digital money has captured the broad imagination of speculators, coders, regulators, criminals and the mass media. Course puts this change in context: how do we understand money as a social, political and technological phenomenon? Course may be offered online.

Same as IN4MATX 12.

(II, III)

SOC SCI 20. Model United Nations. 2 Units.
Focuses on simulations of the foreign policy pursuits of selected countries in the international community. Emphasis placed on understanding the rules of debate, as well as the policy positions of the student's selected country in the United Nations.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 6 times.

SOC SCI 40. Social Policy and Public Service. 4 Units.
An introduction to the basic theories and principles of public policy. Students examine various influences on the development of public policy and the principle actors in the process, and learn to identify tools and techniques employed in policy making.

(III)

SOC SCI 66. Introduction to Gangs . 4 Units.
Introduces students to street gang subculture and explores risk factors associated with gang membership. Students develop a working definition for street gang and understand the difference between social and legal definitions. Also explores the connection between prison and street gangs.

SOC SCI 70A. Race and Ethnicity. 4 Units.
Focuses on racial and ethnic relations in the United States and compares them with those found in other societies. Analyzes the conditions that favor either cooperation and integration or rivalry, tension, and conflict. Appraises strategies for reducing and resolving conflicts.

Same as SOCIOL 63.

(VII)

SOC SCI 70C. Comparing Cultures. 4 Units.
Introduces students to the scope of cross-cultural comparisons by analyzing the theories, methodologies, and facts utilized by anthropologists, sociologists, social psychologists, political scientists, and historians in comparing cultures.

(III, VII)

SOC SCI 78A. Asian American Histories. 4 Units.
Examines and compares diverse experiences of major Asian American groups since the mid-nineteenth century. Topics include origins of emigration; the formation and transformation of community; gender and family life; changing roles of Asian Americans in American society. Formerly ASIANAM 60A.

Same as ASIANAM 50, HISTORY 15C.

((III or IV) and VII).

SOC SCI 78B. Asian American Communities. 4 Units.
Examines the renewal of Asian immigration following World War II. Explores contemporary Asian American populations and communities in the U.S., and the impact of contemporary Asian immigration on the U.S. political economy and social order.

Same as ASIANAM 52.

(III, VII)

SOC SCI 78C. Asian Americans and Comparative Race Relations. 4 Units.
Analyzes the Asian American experience in comparative perspective, which includes comparisons of different ethnic and racial groups, and across gender and class. Possible topics include labor, economy, politics, migration, nation, popular culture, gender, family, sexuality, and multiraciality.

Same as ASIANAM 53.

(III, VII)

SOC SCI 89. Special Topics in Social Sciences. 2-4 Units.
Studies in selected areas of Social Sciences. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOC SCI 102A. Introduction to Geographic Information Systems. 4 Units.
Hands-on laboratory course introduces students to the fundamentals of Geographic Information Systems (GIS) technology using social science applications. Students will learn to organize, manipulate, and display spatial data leading to the design of their own GIS research project.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 102B. Intermediate Geographic Information Systems. 4 Units.
Expands Geographic Information Systems (GIS) skills to more advanced theories and concepts in the spatial analysis of social science issues and particularly to analyzing and interpreting spatial data. Students develop and complete a GIS research project of their own choosing.

Prerequisite: SOC SCI 102A.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 103A. Game Theory and Politics I. 4 Units.
Introduction to game theory and a survey of its political applications. Examples of topics covered include voting in small committees, legislatures, and mass elections; interest group activities and environmental issues; institutional design, and the evolution of cooperative behavior.

Same as INTL ST 105A, POL SCI 130A, SOCIOL 134.

Restriction: Social Policy and Public Service, Sociology, Political Science, and International Studies majors have first consideration for enrollment.

SOC SCI 103B. Game Theory and Politics II. 4 Units.
More advanced game theory and its political applications, beginning where Game Theory and Politics I ends. Examples of topics covered include revolutions; arms race; spatial models of party competition; political manipulation; political coalitions and their power.

Prerequisite: POL SCI 130A or ECON 116A.

Same as INTL ST 105B, POL SCI 130B.

Restriction: Social Policy and Public Service, International Studies, and Political Science majors have first consideration for enrollment.

SOC SCI 115D. International Business. 4 Units.
Introduction to conducting business in the international arena, decision making in the organization, and globalization of markets and production. Topics covered range from tax and finance to ethics, marketing, and more. Continuing corporate regulatory scandals discussed.

Same as INTL ST 112A.

SOC SCI 115E. California and Global Economy. 4 Units.
Presents the nature of the State's economy and the current and projected role of California in the world economy.

Same as INTL ST 135.

SOC SCI 118G. Regional Geography of California. 4 Units.
Geographical analysis of selected regions of California, in particular geomorphological, hydrological, and climatic conditions, as well as economic and social strengths and weaknesses. May include some fieldwork in Orange County on environmental, social and residential problems, with legislative background information.

SOC SCI 119. Special Topics in Geography. 4 Units.
Studies in selected areas of geography. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOC SCI 120. Transnational Gangs. 4 Units.
Examines the internationalization of U.S. domestic street gangs. The relationship between California gangs Mara Salvatrucha and 18th Street and Mexico/Central American gangs is assessed. Specified topics include: mobilization, migration, territorialism, culture, organization, and use of technology. Course may be offered online.

Prerequisite: SOC SCI 66.

Same as INTL ST 130.
Overlaps with SOC SCI XI120, INTL ST XI130.

SOC SCI 121T. Voting and Political Manipulation. 4 Units.
Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as INTL ST 156A, POL SCI 151H, ECON 154.

Restriction: International Studies, Political Science, Social Science and Economics majors have first consideration for enrollment.

SOC SCI 123A. U.S. Intervention in Latin America. 4 Units.
Explores political, economic, social, and cultural ties that bind Latin America to the United States. Focuses on U.S. intervention and Latin American response from early nineteenth century to present day. Case studies include Mexico, Guatemala, Cuba, Chile, and Central America.

Same as INTL ST 177D, HISTORY 166, CHC/LAT 150.

SOC SCI 130B. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.

Same as REL STD 112B, PSYCH 172S, LPS 140B.

SOC SCI 152A. Non-Government Organization (NGO) Fundamentals. 4 Units.
Introduction to non-governmental organizations, including their role in U.S. society and the international community. Explores varying definitions of NGOs and the characteristics held in common by all NGOs.

Same as INTL ST 152A.

SOC SCI 164B. Domestic Gangs. 4 Units.
Examines the history and development of California street gangs and the role of historical events in that development. Students will be able to contrast and compare gang cohort behaviors between some of the major gangs in California.

Prerequisite: SOC SCI 66.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 164C. Prison Gangs. 4 Units.
Examines the growth and spread of prison gangs throughout the country. Relationships between prison and street gangs, and possible relationships with foreign drug trafficking organizations studied. Violence examined as the standard to establish dominance in and out of prison. Course may be offered online.

Prerequisite: SOC SCI 66.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 164D. Juvenile Gangs. 4 Units.
Examines risk factors that can be used to predict gang membership. Compares generational with non-generational gangs and develops a working sociological definition that can be used to identify street gangs. Myths about juveniles, street gangs. Course may be offered online.

Prerequisite: SOC SCI 66.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 165. Chicano/Latino Families. 4 Units.
Introduction to the research, literature, and issues surrounding the topic of Chicano/Latino families including cultural history, contemporary issues, organization of family, traditions, lifestyles, values, beliefs, generational differences, gender issues, ethnic identity, evolution of demographic patterns, current economic and political standings.

Same as CHC/LAT 170, PSYCH 174H.

SOC SCI 167. Chicano/Chicana Labor History. 4 Units.
Examines origins of Latino/ Latina labor from colonial period to present. Emphasis on the issues of race, culture, class, and gender. Focus on processes and institutions including: encomienda, migration, unions, informal economies, Bracero program, domestic work.

Same as CHC/LAT 138.

SOC SCI 168B. Immigration and Inequality. 4 Units.
Explores immigration, ethnicity, and inequality as interconnected social forces. International migration, propelled by global inequalities, plays a central role in the formation of multinational societies, shapes inter-group relations and patterns of ethnic inequality, and transforms the immigrants themselves.

Same as SOCIOL 166.

SOC SCI 169AZ. Special Topics: Sociology. 4 Units.
No description.

Repeatability: Unlimited as topics vary.

SOC SCI 170A. Research Methods in the Social Sciences. 4 Units.
Examines how interdisciplinary social science research questions are formulated and studies several research methods including: experimental method, quasi-experimental methods, survey research, field research, evaluation research, and meta-analysis. Parametric and non-parametric statistical methods are illustrated using the SPSS program.

Prerequisite: SOC SCI 1A and SOC SCI 3A and SOC SCI 10C and SOC SCI 2A.

Restriction: Upper-division students only. Social Science majors have first consideration for enrollment.

SOC SCI 172A. American Culture. 4 Units.
A survey of the historical development of dominant American culture and society; emphasis on a close reading of key cultural texts, with weekly text as a model of writing examining its use of language and rhetoric.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 172AW. American Culture. 4 Units.
A survey of the historical development of dominant American culture and society; emphasis on a close reading of key cultural texts, with weekly text as a model of writing examining its use of language and rhetoric.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Social Science majors have first consideration for enrollment.

(Ib)

SOC SCI 172D. Law in the Twenty-First Century. 4 Units.
Examines the complex relationship between law, the social sciences, and modern society. Lectures explore such issues as the interplay between technology and constitutional rights, the impact of science on law, and the evolving roles of attorneys and judges.

Same as POL SCI 171F.

Restriction: Political Science and Social Science majors have first consideration for enrollment.

SOC SCI 173G. Film Media and the Latino Community. 4 Units.
Uses film as a resource for understanding contemporary issues and problems facing the Chicano/Latino community. (Does not study cinema as a genre.).

Same as CHC/LAT 114.

(VII)

SOC SCI 173I. Perspectives on the U.S. - Mexican Border. 4 Units.
Economic aspects of the historical development of the United States-Mexican border. The current economic situation in the Southwest and border areas as it affects both Mexico and the Latino/Chicano population is also examined.

Same as CHC/LAT 160, INTL ST 177B.

(VII)

SOC SCI 173N. Revolution in Latin America. 4 Units.
Presents a comparative analysis of the causes, development, and consequences of selected revolutionary movements, focusing on outbreaks in Mexico, Bolivia, Cuba, Chile, Nicaragua, and Grenada. Explores topics of state formation, economic nationalism, social justice, ethnicity, and role of international affairs.

Same as CHC/LAT 151B, HISTORY 166D, INTL ST 177C.

SOC SCI 173Q. Introduction to Cuba: History, Culture, and Society. 4 Units.
Introduction to Cuban history, culture, and society using social science texts, visual and musical materials. Examines major historical moments including the historical relationship between the United States and explores evolution of Cuban music from the earliest times to present.

Same as INTL ST 177F, CHC/LAT 130.

(VIII)

SOC SCI 175B. Ethnic and Racial Communities. 4 Units.
Examines various theoretical analyses of race and ethnicity, particularly as they apply to Asian Americans. Also explores the relationship of Asian Americans to other racialized minorities in the U.S.

Same as ASIANAM 161.

SOC SCI 177B. Asian American Women. 4 Units.
Examines the representations and experiences of Asian American women from diverse perspectives. Explores the commonalities and differences among various groups of Asian American women, with particular focus on history, culture, values, and family roles.

Same as ASIANAM 162.

SOC SCI 178C. The Korean American Experience. 4 Units.
Explores the factors that have distinctly shaped the Korean American experience, including patterns of racial domination, the profile of immigrant flow, immigrant roles in the urban political economy, politics in Korea, and the role of the church.

Same as ASIANAM 151C.

SOC SCI 178D. The Vietnamese American Experience. 4 Units.
Studies the resettlement of Vietnamese in the United States following their exodus from Southeast Asia. Topics discussed include the Vietnam War, the 1975 evacuation, boat and land refugees, the shaping of Vietnamese communities, and Vietnamese American literature.

Same as ASIANAM 151D.

SOC SCI 178E. The Japanese American Experience. 4 Units.
Studies the settlement of Japanese in Hawaii and the continental United States since the late nineteenth century. Topics covered include sugar plantations, development of rural Japanese America, World War II internment, post-War community development, and persistence of Japanese American identity.

Same as ASIANAM 151E.

SOC SCI 178F. South Asian American Experience. 4 Units.
Examines and compares the experiences of South Asian immigrants in the U.S. over time. Looks at the economic, political, and social positions of the immigrants, with special emphasis on religious changes and the changes in the second and later generations.

Same as ASIANAM 151F.

Restriction: Asian American Studies and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 178H. Southeast Asian American Experience. 4 Units.
Analyzes experiences of refugees and immigrants from Southeast Asia, which may include those from Cambodia, Laos, Vietnam, and the Philippines. Examines political and economic factors for their exodus and how they reconstruct their identities, histories, and communities.

Same as ASIANAM 151H.

SOC SCI 178J. Chinese American Experience. 4 Units.
Analyzes the experiences of Chinese in the United States. Immigration, Chinese exclusion, racial and gender identity. Historical overview and contemporary issues covered.

Same as ASIANAM 151J.

SOC SCI 178K. Filipina/Filipino American Experience. 4 Units.
Explores the experience of Filipina/Filipino Americans from the era of Spanish colonization of the Philippines to present-day community formations in the United States, with special emphasis on the twentieth century. Topics include colonialism, nation, migration, gender, and culture.

Same as ASIANAM 151K.

SOC SCI 179. Special Topics in Asian American Studies. 4 Units.
Studies in selected areas of Asian American Studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOC SCI 180X. Research Methods . 4 Units.
Develops an understanding of major research methods emphasizing quantitative research techniques; identifies techniques for research questions; applies understanding in relation to contemporary issues by way of a written a proposal for a quantitative research project.

Grading Option: Pass/no pass only.

Restriction: SAEP students only.

SOC SCI 180Y. Statistical Methods . 4 Units.
Covers the following topics: measurement, data screening procedures, descriptive statistics, the chi-square statistic, logistic regression, bivariate correlation and regression, and multiple correlation and regression. Students will develop a conceptual understanding of applied statistics.

Grading Option: Pass/no pass only.

Restriction: SAEP participants only.

SOC SCI 180Z. Communications . 4 Units.
Improves written and verbal communication skills through gathering, synthesizing, and organizing information into salient and clear points. Students learn to articulate information so that it can be clearly understood by others. Application to SAEP program and acceptance required.

Grading Option: Pass/no pass only.

Restriction: SAEP students only.

SOC SCI 181A. Ethical Leadership. 4 Units.
Explores historical and contemporary theories of ethical and unethical leadership. Examines models of "good leadership" such as cardinal and monastic virtues; and models of "bad leadership," such as Machiavelli's Prince. Explores the philosophies, styles, and accomplishments of leaders.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 183A. International Studies Forum. 2 Units.
A faculty-student forum featuring lecturers from a variety of institutions with discussion issues related to international studies.

Repeatability: May be taken for credit 4 times.

Same as HUMAN 183A, SOCECOL 183A, INTL ST 183A.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

SOC SCI 183B. Seminar in Mediation. 4 Units.
Student develop mediation skills and refine knowledge in the practice and theory of conflict resolution. Students who complete this course may serve as mediators in the Campus Mediation Program. Course is a prerequisite to completing Indep Study as an intern.

Same as HUMAN 183B, INTL ST 183B, SOCECOL 183B.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

SOC SCI 183C. Seminar in Conflict Resolution . 4 Units.
Designed for students pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write research paper.

Same as SOCECOL 183C, HUMAN 183C.

SOC SCI 183CW. Seminar Conflict Resolution. 4 Units.
Designed for seniors who are pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOCECOL 183CW, HUMAN 183CW.

(Ib)

SOC SCI 183E. Conflict Resolution in Cross-Cultural Perspective. 4 Units.
Examines theories of conflict management. Analyzes how conflict is mitigated in diverse cultures: at the interpersonal level, between groups, and on the international scale. Students discuss readings, hear from conflict management practitioners, and simulate negotiations.

Same as ANTHRO 136D, POL SCI 154G, INTL ST 183E.

(VIII)

SOC SCI 184A. Sage Leader Research I. 2 Units.
Participants in the SAGE Scholars Program learn to define leadership concepts, discover various leadership styles, and develop strong leadership and communication skills resulting in strengthened ability to contribute to and interact with UCI and the Orange County community.

Grading Option: Pass/no pass only.

Restriction: SAGE Scholars Program students only.

SOC SCI 184B. Sage Leader Research II. 4 Units.
Provides a survey of contemporary topics and challenges in the fields of management and leadership. Case studies and text by leading authors are used to analyze key leadership issues in twenty-first century, with particular emphasis on current events.

Restriction: SAGE Scholars Program students only.

SOC SCI 184F. International Journalism. 4 Units.
Studies and critically analyzes how the media covers international issues that have reshaped. American foreign coverage and the implications for Americans and U.S. foreign policy. Focuses on international reporting as a way of developing fundamental skills of journalism.

Same as INTL ST 155A.

SOC SCI 184GW. Media Writing. 4 Units.
Designed to teach reporting and news writing basics. Students learn how to gather and organize information, ask effective questions, develop story ideas, research facts, and write stories on deadline. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as INTL ST 155BW.
Overlaps with INTL ST XI155B, SOC SCI XI184G.

Restriction: International Studies majors have first consideration for enrollment.

(Ib)

SOC SCI 185W. People in Society. 4 Units.
Through readings about people in distinctly different societies throughout history, students learn concepts that cross the boundaries of the social science disciplines. Such themes as democracy, elitism, power, social class, and gender as the basis for discussion and writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: School of Social Sciences majors only.

(Ib)

SOC SCI 186A. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as PSYCH 144A, CHC/LAT 191A.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 186B. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144A or SOC SCI 186A or CHC/LAT 191A. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children and be culturally sensitive.

Same as PSYCH 144B, CHC/LAT 191B.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 186C. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144B or SOC SCI 186B or CHC/LAT 191B. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as PSYCH 144C, CHC/LAT 191C.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 187. Twenty-First-Century Graduate Education. 2 Units.
Graduate and professional education in twenty-first century United States. Examines strategies for admission to postbaccalaureate programs and success in graduate study culture. Introduction to processes including planning and preparation, school selection, entrance examination preparation, submission of applications, writing personal statements.

Grading Option: Pass/no pass only.

Restriction: Upper-division students only.

SOC SCI 188A. Introduction to Contemporary Middle East Politics. 4 Units.
An overview of basic issues that shape the politics of the Middle East and North Africa. Themes include implication of the colonization era, nation-state formation, inter-Arab relations, nationalism, Arab-Israel conflict, Islamic resurgence, and more.

Same as INTL ST 165, POL SCI 158D.

SOC SCI 188D. Iran: Past and Present. 4 Units.
Pre-revolutionary Iran; and Iran since the revolution. History, oil and politics: domestic and international.

Same as INTL ST 168.

SOC SCI 188E. Israel and the World: An Introduction. 4 Units.
Examines the founding of Israel, its relationship with the Arab world, the role of the international community, and the challenges it faces today.

Same as INTL ST 170.

SOC SCI 188I. Afghanistan. 4 Units.
Provides an examination of Afghanistan's traditional social organization, economy, political organization, and relationship among ethnic groups as a basis for discussing the consequences of domestic political turmoil and foreign interventions over the last 20 years. Current situation and future addressed.

Same as INTL ST 162, POL SCI 158C.

SOC SCI 188K. Political Islam. 4 Units.
Political Islamd is a diverse phenomenon. While noticeable barriers exist to "Islamist democracy," it is the Islamists who will define the political future of much of the Muslim world. Reviews the experience of Saudi Arabia, Egypt, Pakistan, Turkey, and Indonesia.

Same as INTL ST 161A.

SOC SCI 188M. Psychology of the Middle East Conflict. 4 Units.
Explores how emotions guide actions; political movements and social identity factors in ethnic, religious, or other group conflicts; psycho-biographies of political leaders and effects on foreign policy making; decisions to go to war; psychological dimensions of conflict and conflict resolution.

Same as INTL ST 166.

SOC SCI 189. Special Topics in Social Sciences. 2-4 Units.
Studies in selected areas of social sciences. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI H190A. Honors Research Workshop. 4 Units.
Student develops a 10–15-page prospectus of research for the honors thesis which includes: the research question, literature review, methods of investigation, and bibliography. Student selects a faculty mentor who will supervise thesis research and writing in winter and spring.

Restriction: Honors Program for Social Science majors students only.

SOC SCI H190B. Honors Thesis Research. 4 Units.
The student initiates and completes data collection for the honors thesis. A faculty mentor provides supervision and feedback on thesis chapters.

Prerequisite: SOC SCI H190A.

SOC SCI H190C. Honors Thesis. 4 Units.
The student completes, with the approval of the faculty mentor, an honors thesis containing: statement of the problem, literature review, research hypotheses, methods of investigation, results, discussion, and bibliography.

Prerequisite: SOC SCI H190B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

SOC SCI 191. Graduate-Mentored Study in the Social Sciences. 4 Units.
Offers a hands-on research experience while increasing awareness of the various disciplines in the social sciences and of the requirements of graduate school. Features graduate-mentored study under the supervision of the Associate Dean.

Prerequisite: Identification of a graduate student (who is in good standing) as a mentor.

Grading Option: Pass/no pass only.

SOC SCI 193A. Field Studies in Public and Community Service. 4 Units.
Advanced training in qualitative and ethnographic research centered on community service. Students pursue field studies at nonprofit agencies (200 hours) to understand current social problems in underrepresented and underserved communities. Through field placement, students apply theory to practice.

Prerequisite: SOC SCI 70C or SOCIOL 63. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Social Policy and Public Service majors only.

SOC SCI 193B. Field Studies in Public and Community Service. 4 Units.
Advanced training in qualitative and ethnographic research centered on community service. Students pursue field studies at nonprofit agencies (200 hours) to understand current social problems in underrepresented and underserved communities. Through field placement, students apply theory to practice.

Prerequisite: SOC SCI 193A.

SOC SCI 193C. Field Studies in Public and Community Service. 4 Units.
Advanced training in qualitative and ethnographic research centered on community service. Students pursue field studies at nonprofit agencies (200 hours) to understand current social problems in underrepresented and underserved communities. Through field placement, students apply theory to practice.

Prerequisite: SOC SCI 193B.

SOC SCI 194A. Public Service Internship. 2-4 Units.
Introduces the role of etiquette and leadership in the professional environment. With a two-unit (50 hours) or four-unit (100 hours) credit option, students intern at a nonprofit agency exploring their roles as community leaders and improving their professional skills. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Social Policy and Public Service majors only.

SOC SCI 194B. Community Internship. 2-4 Units.
Required to complete 50 (two units) or 100 (four units) hours at a nonprofit organization, students engage in lectures related to the formation and maintenance of nonprofit organizations. Grant writing, funding issues, and effective service delivery are addressed.

Prerequisite: SOC SCI 194A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Restriction: Social Science majors only.

SOC SCI 194C. Management and Leadership Practicum-Social Science . 2-4 Units.
Social Sciences Academic Resource Center (SSARC) Resource Mangers (RMs) report directly to the Director and Associate Director, serving as frontline resource consultants, assisting visitors with resume development, graduate and professional school planning, internship placement, and professional development.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 12 units.

SOC SCI 195A. Educational Policy Field Studies. 4 Units.
Integrates academic course work with experiential learning; examines the effects of educational policy on urban and suburban schools; explores the relationship between community service and personal academic interests; and develops awareness about the challenges of public education.

Repeatability: May be taken for credit 3 times.

SOC SCI 195B. Educational Policy Field Studies. 4 Units.
Integrates academic course work with experiential learning; examines the effects of educational policy on urban and suburban schools; explores the relationship between community service and personal academic interests; and develops awareness about the challenges of public education.

Prerequisite: SOC SCI 195A.

Repeatability: May be taken for credit 3 times.

SOC SCI 195C. Educational Policy Field Studies . 4 Units.
Integrates academic course work with experiential learning; examines the effects of educational policy on urban and suburban schools; explores the relationship between community service and personal academic interests; and develops awareness about the challenges of public education.

Prerequisite: SOC SCI 195B.

Repeatability: May be taken for credit 3 times.

SOC SCI 196. Global Connect. 2-4 Units.
Identifies factors of change that influence the twenty-first century. Students serve as mentors at high schools to introduce globalization issues through workshops and lectures. Students must submit an application and have a 3.0 or higher overall GPA.

Repeatability: May be taken for credit 3 times.

SOC SCI 197. Professional Internship. 2-4 Units.
Students apply classroom knowledge through research projects in nonprofit agencies (local, state, and government) and the private sector. They pose solutions to agency-posed questions. Students gain field experience through 50 hours (for 2 units) or 100 (for 4 units). Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

Restriction: School of Social Sciences majors only.

SOC SCI 198. Directed Group Study. 2-4 Units.
Directed study with Social Science faculty.

Repeatability: May be taken for credit for 12 units.

SOC SCI 199. Individual Study. 2-4 Units.
Opportunities to do research and learn new skills outside the normal classroom environment. Students participate in planned research and study activities under a written contract with a supervising UCI instructor. Students may enroll for only one 199 each quarter.

Repeatability: May be taken for credit for 16 units.

Restriction: Upper-division students only.

SOC SCI 209. Special Topics in Mathematical Social Science. 4 Units.
Studies in selected areas of mathematical social science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOC SCI 211A. Mathematical Behavioral Sciences Colloquium. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 211B. Mathematical Behavioral Sciences Colloquium. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 211C. Mathematical Behavioral Sciences Colloquium. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 249A. Special Topics in Social Networks. 4 Units.
Studies in selected areas of social networks. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOC SCI 253A. Oral History, Life History. 4 Units.
Interdisciplinary and comparative work in oral and life history; methods of interviewing.

Same as ANTHRO 221A.

Restriction: Graduate students only.

SOC SCI 253F. Population. 4 Units.
Introduces the interrelationships between population and social organization. Considers measurement and explanation of historical and contemporary trends in birth rates, death rates, migration, and marriage and divorce. Case material is drawn primarily from the U.S. and other industrialized nations.

Same as SOCIOL 262A.

Restriction: Graduate students only.

SOC SCI 253J. Social Movements. 4 Units.
A survey of the field of Social Movements, oriented around critical themes in the major theoretical traditions and contemporary exemplars.

Same as SOCIOL 240A.

Restriction: Graduate students only.

SOC SCI 253N. Classical Social Theory. 4 Units.
Examines the development of classical sociological theory through the writings of Karl Marx, Emile Durkheim, Max Weber, Georg Simmel, and George Herbert Mead.

Same as SOCIOL 210A.

Restriction: Graduate students only.

SOC SCI 253R. Contemporary Social Theory. 4 Units.
Familiarizes students with twentieth-century developments in social thought that have influenced sociological research, suggesting "what is living and what is dead" in the "classics" and offering an overview of the main outlines of recent sociological theorizing.

Same as SOCIOL 210B.

Restriction: Graduate students only.

SOC SCI 254A. Transnational Migration. 4 Units.
Examines borders and boundaries as material and semiotic constructs. Drawing upon an array of literatures, but loosely situated in U.S. geo/biopolitics, explores transformative troublings of places, spaces, borders, and bodies of all sorts.

Same as ANTHRO 235A, CHC/LAT 215.

Restriction: Graduate students only.

SOC SCI 254J. Global Urbanization. 4 Units.
Examines the spread of cities worldwide in the twentieth century. What are the political and economic causes of this process? What are the social-cultural, political, and economic effects? How is contemporary urbanization linked to global restructuring of other kinds.

Same as PP&D 273, SOCIOL 252A.

Restriction: Graduate students only.

SOC SCI 254L. Approaches to Globalization. 4 Units.
Historical and contemporary approaches to the world economy, emphasizing anthropological questions of culture, power, identity, inequality. Examines "neo-imperialism," "late capitalism," accumulation, global markets, urban space, the state, business and policy globalization discourse, "local" responses to and instantiations of the "global.".

Same as ANTHRO 248A.

Restriction: Graduate students only.

SOC SCI 255C. Grant and Proposal Writing. 4 Units.
Focuses on production, critique, and revision of student research proposals. A practical seminar designed to improve student proposals, help students through the application processes, and increase students' chances of obtaining support for their research.

Same as ANTHRO 213A.

Restriction: Graduate students only.

SOC SCI 259A. Special Topics in Social Relations. 1-4 Units.
Studies in selected areas of social relations. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOC SCI 272A. Origin and Evolution of Marxist Social Thought. 4 Units.
Focuses on the genesis and evolution of Marxist social thought The "systemic" method of Marx and Engels to questions of economic production and reproduction is compared and contrasted with modern world-system grand visions, feminist-theoretic approaches, and postmodern critiques.

Prerequisite: Undergraduate course in political theory or equivalent.

Restriction: Graduate students only.

SOC SCI 289. Special Topics in Social Science. 4 Units.
Current research in Social Science.

Repeatability: Unlimited as topics vary.

SOC SCI 290. Dissertation Research. 4-12 Units.
Dissertation research with Social Science faculty.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 299. Independent Study. 1-12 Units.
Independent research with Social Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

SOC SCI 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Sociology Courses

SOCIOL 1. Introduction to Sociology. 4 Units.
Considers major sociological concepts, theories, and research findings illuminating processes of interpersonal interaction, social differentiation and stratification, integration and conflict, and change, with attention to variation in class, race/ethnic, gender, multicultural, and cross-national perspectives and experiences.

(III, VII)

SOCIOL 2. Globalization and Social Change. 4 Units.
Examines globalization and international issues from the perspective of sociology and related fields. Issues include economic globalization and global inequality, international environmental problems, international politics, trends in global culture, and global conflict.

(III, VIII)

SOCIOL 3. Social Problems. 4 Units.
Focuses on how institutional and organizational features of societies generate problems for people. Particular attention directed at a set of problems related to political and economic inequality: poverty, racism, sexism, urban and population problems, the environment, the criminal justice system.

(III, VII)

SOCIOL 10A. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Same as ANTHRO 10A.
Overlaps with PSYCH 10A, SOCECOL 13, SOC SCI 10A, POL SCI 10A, SOC SCI 9A.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Va)

SOCIOL 10B. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Prerequisite: SOCIOL 10A.

Same as ANTHRO 10B.
Overlaps with PSYCH 10B, SOCECOL 13, SOC SCI 10B, POL SCI 10B, SOC SCI 9B.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Va)

SOCIOL 10C. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Prerequisite: SOCIOL 10B.

Same as ANTHRO 10C.
Overlaps with PSYCH 10C, SOCECOL 13, SOC SCI 10C, POL SCI 10C, SOC SCI 9C.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Vb)

SOCIOL 19. Special Topics: Methods. 4 Units.
Studies in selected areas of methods. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 29. Special Topics: Theory. 4 Units.
Studies in selected areas of theory. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

SOCIOL 31. Self-Identity and Society. 4 Units.
Studies sociological contributions to theory and research in social psychology, with focus on the social influences on personality, attitudes, beliefs, and behavior; socialization, human groups, and social interaction.

Same as PSYCH 78A.
Overlaps with SOCIOL 61A.

(III)

SOCIOL 39. Special Topics: Social Psychology. 4 Units.
Studies in selected areas of social psychology. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 41. Small Group Dynamics. 4 Units.
Deals with models for understanding behavior in small groups, including coalition formation, socialization, group norms and decision rules, leadership, conformity, group structure, and communication processes.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 43. City and Community. 4 Units.
Examines nature, causes, and consequences of urbanization along with changing scale and complexity, demographic/ecological city growth patterns, quality of life in urban areas, processes of decision-making, and bearing of sociological investigation on public policy concerns in contemporary urban society.

Overlaps with PP&D 40.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 44. Births, Deaths, and Migration. 4 Units.
Introduction to the analysis of human population including fertility, mortality dispersion, sex distribution. Attention is focused on the effects of these variables on, e.g., over-population, social disorganization, and the stability of social institutions.

(VIII)

SOCIOL 49. Special Topics: Structures. 4 Units.
Studies in selected areas of structures. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 51. Asian American Family & Community. 4 Units.
Briefly examines the history of different Asian American groups and provides an in-depth analysis of issues related to family composition, mate selection, changing gender roles, and intergenerational conflict.

(VII)

SOCIOL 55. Media and Society. 4 Units.
Examines social implications of changes in American mass media since World War II, including demise of big-city newspapers, rise of broadcast television, fragmentation of radio and magazine markets. Explores potential implications on culture and institutions of emerging technologies.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 56. Religion and Society. 4 Units.
A critical and personal examination of the varieties of religious and spiritual experiences human beings are undergoing in contemporary society. The role of conscious understanding and unconscious conditioning regarding religion and spirituality.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 59. Special Topics: Social Institutions and Culture. 4 Units.
Studies in selected areas of social institutions and culture. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 62. Families and Intimate Relations. 4 Units.
Sociological theories/research on marriage, kinship, intimacy, and divorce. Emphasis on comparing family patterns in different social classes, ethnic groups, and societies, and on relating family life to the economy and other social institutions. Topics include gender roles, child-rearing, historical change.

(III)

SOCIOL 63. Race and Ethnicity. 4 Units.
Focuses on racial and ethnic relations in the United States and compares them with those found in other societies. Analyzes the conditions that favor either cooperation and integration or rivalry, tension, and conflict. Appraises strategies for reducing and resolving conflicts.

Same as SOC SCI 70A.

(VII)

SOCIOL 64. Sociology of Sexuality. 4 Units.
Explores how and why sexuality matters in society, affecting our expectations, experiences, and opportunities. Provides the conceptual and theoretical tools to analyze the personal and institutional consequences of different social constructions of sexuality.

SOCIOL 65. Cultures in Collision: Indian-White Relations Since Columbus . 4 Units.
An introduction to theories, terms, concepts, and methods used by anthropologists and sociologists to understand Native American cultures. How racial construction of an Indian "other" emerged, how anthropology contributed to Indian invisibility, and the persistence of Indian identity are examined.

Same as ANTHRO 85A.

(VII)

SOCIOL 68. Gender and Race Inequality in the Workplace. 4 Units.
Analysis of current state and trends in major inequality measures including the wage gap, occupational segregation, and access to managerial positions. Theories that purport to explain such differences, and the related empirical evidence, are also covered.

SOCIOL 68A. Ethnic and Immigrant America. 4 Units.
Focusing on Asian, Latino, and Black immigrant groups, examines the second generation's experience of straddling two cultures and growing up American. Covers topics such as assimilation, bilingualism, race relations, education, bicultural conflicts, interracial marriage, and multiracial identities.

Same as CHC/LAT 65.

(VII)

SOCIOL 69. Special Topics: Age, Gender, Race, and Ethnicity. 4 Units.
Studies in selected areas of age, gender, race, and ethnicity. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOCIOL 79. Special Topics: Societies and Social Inequality. 4 Units.
Studies in selected areas of societies and social inequality. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 110. Research Methods. 4 Units.
Methods of data collection and analysis used by sociologists. Experimental methods, surveys, and interviews, field research and participant observation, demographic methods, historical and comparative approaches. Course may be offered online.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 110W. Research Methods. 4 Units.
Methods of data collection and analysis used by sociologists. Experimental methods, surveys, and interviews, field research and participant observation, demographic methods, historical and comparative approaches. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 112. Logical Models in Social Sciences. 4 Units.
Science asks two questions. "How things are?" leads to measurement and statistical analysis. But we see only what we look for. "How things should be, on logical grounds?" leads to quantitative logical models which tell us what to look for.

Same as POL SCI 136A.

SOCIOL 119. Special Topics: Methods. 4 Units.
Studies in selected areas of methods. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 120. Sociological Theory. 4 Units.
What a theory of society is and is not. Historical and contemporary models, perspectives, and schools.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 120W. Sociological Theory. 4 Units.
What a theory of society is and is not. Historical and contemporary models, perspectives, and schools.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 129. Special Topics: Theory. 4 Units.
Studies in selected areas of theory. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 133. Sociology of Generosity. 4 Units.
Introduces recent scientific research on the emergence of prosocial behavior that includes, but is not limited to, cooperation, fairness, reciprocity, and altruism. Emphasis is on learning why individuals would pursue collective benefits at the expense of self-interests.

SOCIOL 134. Game Theory and Politics I. 4 Units.
Introduction to game theory and a survey of its political applications. Examples of topics covered include voting in small committees, legislatures, and mass elections; interest group activities and environmental issues; institutional design, and the evolution of cooperative behavior.

Same as INTL ST 105A, SOC SCI 103A, POL SCI 130A.

Restriction: Social Policy and Public Service, Sociology, Political Science, and International Studies majors have first consideration for enrollment.

SOCIOL 135. Social Psychology of Networks. 4 Units.
Review of network methods used in small group and organizational research. Discussion of social psychological literature relevant to the network of study of cognitive social structure, exchange/communication, identity negotiation, and social control. Case study of network datasets exemplifies research issues.

Same as PSYCH 178N.

Restriction: Sociology and Psychology majors have first consideration for enrollment.

SOCIOL 136. Religious Traditions of Asian Americans. 4 Units.
Studies the religious traditions of Asian Americans, focusing on the transplantation of religious institutions, establishment of sacred spaces, celebration of religious holidays, socialization of children, as well as birth, marriage, gender relations, death, family.

Same as ASIANAM 143.

SOCIOL 138. Business Decisions. 4 Units.
Surveys normative and descriptive models of decision-making behavior, with an emphasis on organizational and policy contexts. Topics include rational choice theory, biases and heuristics, framing effects, and overconfidence. Management fads, panics, and herd behavior are also discussed.

Prerequisite: (ANTHRO 10A and ANTHRO 10B and ANTHRO 10C) or (SOCIOL 10A and SOCIOL 10B and SOCIOL 10C) or (SOC SCI 10A and SOC SCI 10B and SOC SCI 10C) or (MATH 2A and MATH 2B and (STATS 7 or MGMT 7)).

Same as ECON 148.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 139. Special Topics: Social Psychology. 4 Units.
Studies in selected areas of social psychology. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 141. Organizations. 4 Units.
How bureaucracies, formal organizations, and voluntary associations work, how/why they grow, and where they are going. History and structure of organizational rationality; dynamics of organized groups; behavior in organizations; limits of bureaucratization and attempts to overcome these limits through decentralization.

Same as POL SCI 155C.

Restriction: Sociology and Political Science majors have first consideration for enrollment.

SOCIOL 142. White-Collar Crime. 4 Units.
Examines criminal activity in business and corporate enterprise, organizations, and the professions. Theories regarding the causes and control of white-collar and corporate crime are covered as well as the numerous definitions of these terms.

Same as CRM/LAW C142.

Restriction: Sociology, Criminology, Law and Society, and Social Ecology majors have first consideration for enrollment.

SOCIOL 143. Social Networks and Social Support. 4 Units.
Examines the manner in which behaviors/attitudes of individuals are affected by their network ties to others. How are peoples' opportunities and well-being increased/decreased by their social networks? May include studies in mental/physical health, job seeking, separation and loss, and aging.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 144. Politics, Power, and Society. 4 Units.
Includes an examination of the major theoretical approaches to political sociology, and the application of these ideas to the politics of advanced capitalist societies. Also considers stability and change in power structures.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 145. Occupations and Professions. 4 Units.
What makes some jobs satisfying and others boring? How does technology influence the workplace? What changes are coming in the U.S. job market? Sociology and psychology of occupations. Students interview workers and study aspects of their occupations.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

SOCIOL 145W. Occupations and Professions. 4 Units.
What makes some jobs satisfying and others boring? How does technology influence the workplace? What changes are coming in the U.S. job market? Sociology and psychology of occupations. Students interview workers and study aspects of their occupations.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

(Ib)

SOCIOL 147A. Cities and Social Change. 4 Units.
Focuses on comparative urban political economy and the way cities and urban process are linked to changes in the global system. Attempts to draw on a diverse interdisciplinary literature that includes sociology, geography, and urban planning.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

SOCIOL 147AW. Cities and Social Change. 4 Units.
Focuses on comparative urban political economy and the way cities and urban process are linked to changes in the global system. Attempts to draw on a diverse interdisciplinary literature that includes sociology, geography, and urban planning.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

(Ib)

SOCIOL 149. Special Topics: Structures. 4 Units.
Studies in selected areas of structures. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 150. Sociological Lens on Religion. 4 Units.
Examines the effects of religious beliefs, belonging, and institutions on social dynamics, including class, gender, and racial stratification, politics, and social movements. Additional topics: the sociological significance of conversion, commitment, and secularization/sacralization.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 152. Sociology and Psychology of the Arts. 4 Units.
Explores the relationship between artists and the "art world" through which artistic activity is defined, supported, and consumed. Empirical studies in the plastic arts, performing arts, and literature are used to examine varieties of aesthetic expressions.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

SOCIOL 152W. Sociology of Art and Popular Culture. 4 Units.
Explores the relationship between artists and the "art world" through which artistic activity is defined, supported, and consumed. Empirical studies in the plastic arts, performing arts, and literature are used to examine varieties of aesthetic expressions.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

(Ib)

SOCIOL 154. Medical Sociology. 4 Units.
Current problems in U.S. health-care system and proposals for reform. Examines financial barriers to access; problem of patient dumping; underinsurance; prenatal and perinatal care; child services; preventative care and needs of the elderly; minorities; low-income people; undocumented.

Restriction: Upper-division students only. Sociology majors have first consideration for enrollment.

SOCIOL 154W. Medical Sociology. 4 Units.
Current problems in U.S. health-care system and proposals for reform. Examines financial barriers to access; problem of patient dumping; underinsurance; prenatal and perinatal care; child services; preventative care and needs of the elderly; minorities; low-income people; undocumented.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 155B. Baseball and Society. 4 Units.
An examination of baseball's role in American social life over the last 150 years. Issues of fraternal organizations, national development, capitalism, rationalization, race and ethnicity, gender, economic organization, labor relations, and politics are discussed.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 155BW. Baseball and Society. 4 Units.
An examination of baseball's role in American social life over the last 150 years. Issues of fraternal organizations, national development, capitalism, rationalization, race and ethnicity, gender, economic organization, labor relations, and politics are discussed.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 156. Deviance. 4 Units.
Perspectives on deviance and criminality in behavior, institution, community, and myth. The suitability of contemporary theories of deviant behavior.

Same as CRM/LAW C107, PSYCH 177D.

Restriction: Criminology, Law and Society, Social Ecology, Sociology, and Psychology majors have first consideration for enrollment.

SOCIOL 158C. Money, Work, and Social Life . 4 Units.
Sociological perspective on issues related to money and work. Consumption practices and lifestyles, jobs and organizations, issues of money in intimate relations, marriage, and households, illegal work, discrimination, economic globalization are discussed.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 158CW. Money, Work, and Social Life. 4 Units.
Sociological perspective on issues related to money and work. Consumption practices and lifestyles, jobs and organizations, issues of money in intimate relations, marriage, and households, illegal work, discrimination, economic globalization are discussed.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 159. Special Topics: Social Institutions and Culture. 4 Units.
Studies in selected areas of social institutions and culture. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 161. Sociology of Sex and Gender. 4 Units.
Explores complex processes contributing to social construction of gender and sexuality in the U.S. with focus on intersection of gender, race, ethnicity, sexuality, and class; evaluates how men and women are differentially constituted in family, education, work, politics, media, language.

SOCIOL 161W. Sociology of Sex and Gender. 4 Units.
Explores complex processes contributing to social construction of gender and sexuality in the U.S. with focus on intersection of gender, race, ethnicity, sexuality, and class; evaluates how men and women are differentially constituted in family, education, work, politics, media, language.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

SOCIOL 164W. Aging and Society. 4 Units.
Introduction to sociology of age, aging, and the aged. Problems posed by aging population. Life course transitions. How social organizations influence the life course. Work, health, family in later life.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

(Ib)

SOCIOL 165A. Social Inequality: Sociological Perspectives. 4 Units.
Concrete sociological studies from across the world, including the United States, are compared to give perspectives on social status, power, economic differences, race, ethnicity, and gender.

Prerequisite: One course in Anthropology, Economics, Political Science, or Sociology.

SOCIOL 165AW. Social Inequality: Sociological Perspectives. 4 Units.
Concrete sociological studies from across the world, including the United States, are compared to give perspectives on social status, power, economic differences, race, ethnicity, and gender.

Prerequisite: One course in Anthropology, Economics, Political Science, or Sociology. Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VIII)

SOCIOL 166. Immigration and Inequality. 4 Units.
Explores immigration, ethnicity, and inequality as interconnected social forces. International migration, propelled by global inequalities, plays a central role in the formation of multinational societies, shapes inter-group relations and patterns of ethnic inequality, and transforms the immigrants themselves.

Same as SOC SCI 168B.

SOCIOL 167A. Racial and Ethnic Relations in the United States. 4 Units.
Examines central questions and issues in the field of race and ethnicity; the emergence, maintenance, and consequences of the ethnic and racial stratification system in the United States; the future of racial and ethnic relations; and relevant public policy issues.

Same as CHC/LAT 148.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 167AW. Racial and Ethnic Relations in the United States. 4 Units.
Examines central questions and issues in the field of race and ethnicity; the emergence, maintenance, and consequences of the ethnic and racial stratification system in the United States; the future of racial and ethnic relations; and relevant public policy issues.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as CHC/LAT 148W.

Restriction: Chicano/Latino Studies and Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 168. Sexism and Power. 4 Units.
Sexism seen as a socially constructed power which creates and maintains gender differences as relations and practices of structured inequalities. Males and females are objects constructed in a powered language dominated and controlled by males to their positional/distributional advantage.

Same as POL SCI 134J.

Restriction: Upper-division students only. Sociology and Political Science majors have first consideration for enrollment.

SOCIOL 168W. Sexism and Power. 4 Units.
Sexism seen as a socially constructed power which creates and maintains gender differences as relations and practices of structured inequalities. Males and females are objects constructed in a powered language dominated and controlled by males to their positional/distributional advantage.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as POL SCI 134JW.

Restriction: Upper-division students only. Sociology and Political Science majors have first consideration for enrollment.

(Ib)

SOCIOL 169. Special Topics: Age, Gender, Race, and Ethnicity. 4 Units.
Studies in selected areas of age, gender, race, and ethnicity. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 170A. Vietnam War. 4 Units.
Examines social structures and social changes in Vietnamese and U.S. societies through the study of the Vietnam War.

Same as INTL ST 143A.

SOCIOL 170B. U.S. War on Terrorism. 4 Units.
Analyzes the United States war on terrorism by focusing on terrorism, the U.S. wars in Afghanistan and Iraq, and changes in police powers through the Patriot Act, as well as the political leadership which directs the war.

Same as INTL ST 175A.

SOCIOL 171. Environment and Society. 4 Units.
Examines society's changing relationship to the natural world. Delineates different models of "nature" and then explores their institutional roots, the social responses they have generated, and their implications for social inequality.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 173. Social Inequality. 4 Units.
Sources, functions, and dynamics of the unequal distribution of wealth, prestige, knowledge, and power in American and other societies.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 174. Protests, Movements, and Revolutions. 4 Units.
A survey of models of collective action drawn from sociology, economics, psychology, and political science. Focus on areas such as social movements, strikes, crowd psychology, cults, fads, fashions, public opinion, and symbolic and mythical elements in collective culture.

Prerequisite: SOCIOL 1 or POL SCI 6A or ECON 1.

Same as POL SCI 156D.

Restriction: Political Science and Sociology majors have first consideration for enrollment.

SOCIOL 175B. China in the Global Age. 4 Units.
Chinese society from 1949 to present. Social change in the context of political control and ideological considerations. Focus on the power structure, political decision processes, and ideological legitimation, and interplay with the Chinese community and its culture.

Same as INTL ST 158D.

SOCIOL 175D. Migration Destinations. 4 Units.
Examines the migration patterns to the three largest nations that receive immigrants (i.e., permanent settlers): Australia, Canada, and the United States.

Same as ASIANAM 171A, INTL ST 117B.

SOCIOL 177. Immigration and Social Policy. 4 Units.
Explains how people decide to migrate and how they are incorporated into a host society (both historically and currently), examines the effects of immigration on the U.S., analyzes how the framing of immigration shapes the discourse about the issue.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 177W. Immigration and Social Policy. 4 Units.
Explains how people decide to migrate and how they are incorporated into a host society (both historically and currently), examines the effects of immigration on the U.S., analyzes how the framing of immigration shapes the discourse about the issue.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 179. Special Topics: Societies and Social Inequality. 4 Units.
Studies in selected areas of societies and social inequality. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 180A. Sociology Majors Seminar. 4 Units.
Students learn sociology by doing it. A modest-sized research project is planned and implemented by each student.

Prerequisite: SOCIOL 110.

Restriction: Sociology majors only.

SOCIOL 180AW. Sociology Majors Seminar. 4 Units.
Students learn sociology by doing it. A modest-sized research project is planned and implemented by each student.

Prerequisite: SOCIOL 110. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors only.

(Ib)

SOCIOL 188BW. Honors Research and Thesis. 4 Units.
Focuses on the design and implementation of individual research projects undertaken by senior Sociology majors. Writing projects consist of a proposal and paper on some empirical research.

Prerequisite: SOCIOL H188A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Campuswide Honors Program students only.

(Ib)

SOCIOL H188A. Honors Research and Thesis. 4 Units.
Focuses on the design and implementation of individual research projects undertaken by senior Sociology majors. Writing projects consist of a proposal and paper on some empirical research.

Restriction: Campuswide Honors Program students only.

SOCIOL 189. Special Topics: Honors Sequence. 4 Units.
Independent honors research with Social Sciences faculty.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 197. Field Study. 4 Units.
Field study with Sociology faculty.

Repeatability: May be repeated for credit unlimited times.

SOCIOL 198. Directed Group Study . 4 Units.
Directed study with Sociology faculty.

Repeatability: May be repeated for credit unlimited times.

SOCIOL 199. Independent Study. 1-4 Units.
Independent research with Sociology faculty.

Repeatability: May be repeated for credit unlimited times.

SOCIOL 202A. Proseminar I in Sociology. 1 Unit.
Introduces first-year graduate students in Sociology to the current research interests of Sociology faculty, as well as to other aspects of graduate life at UCI and to the profession of sociology more generally.

Restriction: Graduate students only.

SOCIOL 202B. Proseminar II in Sociology. 4 Units.
Focus is on second-year research projects, design, development, data gathering, analysis, and preparing oral and written presentations of the results. Students learn analytic and writing skills, gain experience with research processes, and become socialized about professional standards, customs, and institutions.

Restriction: Graduate students only.

SOCIOL 210A. Classical Social Theory. 4 Units.
Examines the development of classical sociological theory through the writings of Karl Marx, Emile Durkheim, Max Weber, Georg Simmel, and George Herbert Mead.

Same as SOC SCI 253N.

Restriction: Graduate students only.

SOCIOL 210B. Contemporary Social Theory. 4 Units.
Familiarizes students with twentieth-century developments in social thought that have influenced sociological research, suggesting "what is living and what is dead" in the "classics" and offering an overview of the main outlines of recent sociological theorizing.

Same as SOC SCI 253R.

Restriction: Graduate students only.

SOCIOL 211A. Sociology of Gender. 4 Units.
An introduction to the sociology of gender in the U.S. and globally. The social construction of gender and sexuality; theoretical perspectives and feminist frameworks. Theories of economy, patriarch, and race, and the social positions of women and men.

Restriction: Graduate students only.

SOCIOL 212. Network Theory. 4 Units.
An introduction to theoretical work in the field of social networks. Topics include baseline models, homphily, and propinquity, exchange and power, balance theory, diffusion and social influence, equivalence, and cohesion. Deductive use of theory to make novel predictions is emphasized.

Restriction: Graduate students only.

SOCIOL 219. Special Topics: Theory. 2-4 Units.
Studies in selected areas of theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 220A. Research Design. 4 Units.
Data collection, organization, and analysis in ethnographic or quasi-experimental settings, including interviewing, participant observations, behavior observations, and questionnaires. Research design issues include sampling, longitudinal research, and comparative research. Emphasis on the integration of qualitative and quantitative data.

Overlaps with SOCIOL 265.

Restriction: Graduate students only.

SOCIOL 221A. Graduate Statistics I. 4 Units.
Statistics with emphasis on applications in sociology and anthropology. Examines exploratory uses of statistical tools in these fields as well as univariate, bivariate, and multivariate applications in the context of the general linear model.

Restriction: Graduate students only.

SOCIOL 221B. Graduate Statistics II. 4 Units.
Statistics with emphasis on applications in sociology and anthropology. Examines exploratory uses of statistical tools in these fields as well as univariate, bivariate, and multivariate applications in the context of the general linear model.

Prerequisite: SOCIOL 221A.

Restriction: Graduate students only.

SOCIOL 221C. Graduate Statistics III. 4 Units.
Statistics with emphasis on applications in sociology and anthropology. Examines exploratory uses of statistical tools in these fields as well as univariate, bivariate, and multivariate applications in the context of the general linear model.

Prerequisite: SOCIOL 221A and SOCIOL 221B.

Restriction: Graduate students only.

SOCIOL 222A. Comparative and Historical Sociological Methods. 4 Units.
Topics include the logic of comparative and historical analysis techniques and the examination of exemplar works in representative problem areas.

Restriction: Graduate students only.

SOCIOL 223. Advanced Qualitative Methods: Analyzing Qualitative Data. 4 Units.
Introduces students to the theory and practice of analyzing qualitative data. Students must have already learned about data collection and research design for qualitative research and they must have qualitative data they can analyze in the course.

Same as POL SCI 273A, PP&D 213, MGMTPHD 297K.

Restriction: Graduate students only.

SOCIOL 226A. Methods of Demographic Analysis. 4 Units.
Introduces basic demographic methods used in social science and public health research. Topics include sources and limitations of demographic data; components of population growth; measures of nuptiality, fertility, mortality, and population mobility projection methods; and demographic models.

Same as PUBHLTH 209.

Restriction: Graduate students only.

SOCIOL 227A. Seminar Ethnographic & Qualitative Field Methods. 4 Units.
Comprehensive and critical discussion of the traditions of qualitative fieldwork; detailed examination of the collection, coding, analysis, and presentation of ethnographic/qualitative field data; and close mentoring of student projects culminating in an original research paper.

Grading Option: In progress only.

Restriction: Graduate students only.

SOCIOL 227B. Seminar Ethnographic & Qualitative Field Methods. 4 Units.
Comprehensive and critical discussion of the traditions of qualitative fieldwork; detailed examination of the collection, coding, analysis, and presentation of ethnographic/qualitative field data; and close mentoring of student projects culminating in an original research paper.

Prerequisite: SOCIOL 227A.

Restriction: Graduate students only.

SOCIOL 229. Special Topics: Methods . 1-4 Units.
Studies in selected areas of methods. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 230A. Race and Ethnicity. 4 Units.
An examination of central questions and issues in the field of race and ethnicity through a critical analysis and discussion of the principal theoretical perspectives and paradigms that have framed much of the scholarship in the area.

Restriction: Graduate students only.

SOCIOL 232. Inequality. 4 Units.
Theoretical and empirical approaches to the study of social and economic inequality, with special attention to race/ethnicity, class, and gender.

Restriction: Graduate students only.

SOCIOL 233. Immigration and the New Second Generation. 4 Units.
Investigates how the children of today's immigrants incorporate into the United States social structure. Covers topics such as assimilation, immigrant families and communities, education, language, racial and ethnic identities, gender, education, and the changing U.S. racial structure.

SOCIOL 234. Theory of Ethnicity. 4 Units.
Examines critically the meaning and measurement of ethnicity, race, and nation in sociological theory and research. Theories of ethnicity are explored, along with empirical studies of the construction of ethnic and pan-ethnic identities in historical and contemporary contexts.

Restriction: Graduate students only.

SOCIOL 235. Poverty and Development . 4 Units.
Critical examines competing conceptualizations, methods of measurement, and poverty alleviation strategies widely used in developing countries. Focuses on poverty conceptualized as economic deprivation, well-being, vulnerability, and social exclusion.

Same as PP&D 251.

Restriction: Graduate students only.

SOCIOL 236. Immigrant Incorporation. 4 Units.
Focuses on the conceptual and theoretical ideas on immigrant adaptation and identity to a new country; frameworks that emphasize incorporation as a melting pot; synthesizing the theoretical and empirical literature on incorporation in order to develop better models.

Restriction: Graduate students only.

SOCIOL 237. Educational Inequality. 4 Units.
Focuses on macro-level explanations of inequality of schooling, particularly in the U.S. context. Explores traditional models, such as conflict, functionalism, status-attainment, cultural reproduction, and newer synthetic accounts. Emphasis on higher education access and the intersection of education and work.

Restriction: Graduate students only.

SOCIOL 239. Special Topics: Social Inequality. 2-4 Units.
Studies in selected areas of social inequality. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 240A. Social Movements. 4 Units.
A survey of the field of Social Movements, oriented around critical themes in the major theoretical traditions and contemporary exemplars.

Same as SOC SCI 253J.

Restriction: Graduate students only.

SOCIOL 241A. Political Sociology. 4 Units.
Begins with an examination of the three major orientations to the State (Pluralist, Elitist, and Class). Next considers current topics in political sociology including the Welfare State, the New Deal, political behavior, social movements, participation, and democracy.

Restriction: Graduate students only.

SOCIOL 242. Sociology of Culture. 4 Units.
Major perspectives in the sociology of culture. Topics include the role of cultural dynamics in the reproduction of inequality, collective action, political and organizational decision making, emotional experience, and the social impacts of new technologies.

SOCIOL 249. Special Topics: Political Sociology and Social Movements. 2-4 Units.
Studies in selected areas of political sociology and social movements. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 252A. Global Urbanization. 4 Units.
Examines the spread of cities worldwide in the twentieth century. What are the political and economic causes of this process? What are the social-cultural, political, and economic effects? How is contemporary urbanization linked to global restructuring of other kinds.

Same as SOC SCI 254J, PP&D 273.

Restriction: Graduate students only.

SOCIOL 259. Special Topics: Global Studies and Comparative Development. 2-4 Units.
Studies in selected areas of global studies and comparative development. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 260A. Family and Households . 4 Units.
Families and households as a fundamental unit of social organization. Concepts and controversies. U.S. demographic trends and global changes in marriage, divorce, fertility, living arrangements. Housework and paid work. Gender and generational inequalities. How families reproduce stratification systems.

Restriction: Graduate students only.

SOCIOL 261A. Life Course Sociology. 4 Units.
Age is a central organizing principle of individual lives, social institutions, and human populations. Considers how age is socially defined and how developmental transitions between ages (i.e., growing up and growing older) are accomplished.

Restriction: Graduate students only.

SOCIOL 262A. Population. 4 Units.
Introduces the interrelationships between population and social organization. Considers measurement and explanation of historical and contemporary trends in birth rates, death rates, migration, and marriage and divorce. Case material is drawn primarily from the U.S. and other industrialized nations.

Same as SOC SCI 253F.

Restriction: Graduate students only.

SOCIOL 263. The Sociology and Demography of Health and Illness. 4 Units.
Health from a population perspective. Topics include pandemics; the "McKeown debate" (standard of living vs. public health vs. medicine); long-term health changes in developed countries; health and socio-economic status; immigrant health. Not a course in medical sociology as such.

SOCIOL 264. Immigrant America. 4 Units.
The study of the causes and consequences of international migration has become one of the most vital fields of sociological theory and research. Examines principal theoretical perspectives and empirical research on contemporary immigration flows and the processes of incorporation.

Restriction: Graduate students only.

SOCIOL 265. DASA Research Design. 4 Units.
Data collection, organization, and analysis in population studies and demography. Research design issues include sampling, longitudinal research, and comparative research.

Prerequisite: Enrollment in DASA program.

Overlaps with SOCIOL 220A.

Restriction: Graduate standing only.

SOCIOL 269. Special Topics: Social Demography. 4 Units.
Studies in selected areas of social demography. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 271. Theories of Power and Empowerment. 4 Units.
Studies different ways of thinking about power and its uses. Explores theories of power that inform various notions of empowerment, including resistance, participatory democracy, and workplace empowerment.

Same as POL SCI 223A, PP&D 279, MGMTPHD 297R.

Restriction: Graduate students only.

SOCIOL 272A. Work and Industrial Relations. 4 Units.
Explores the nature, causes, and results of workplace conflict in American Society. Considers topics such as "American Exceptionalism," sex segregation in the workplace, strikes and the role of unions in American society.

Restriction: Graduate students only.

SOCIOL 279. Special Topics: Social Organizations and Institutions. 2-4 Units.
Studies in selected areas of social organizations and institutions. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 280. Analysis of Social Network Data. 4 Units.
Overview and application of methods for analyzing social network data. Topics include: data structures, visualization, graph theory, centrality, subgroups, positions, blockmodels, local properties, and statistical models. Social network analysis software is used to analyze a range of examples.

Restriction: Graduate students only.

SOCIOL 281. Introduction to Social Network Analysis. 4 Units.
Designed to provide a broad overview of social network analysis. At the same time, students will have an opportunity to delve deeply into applications of the network approach in their individual areas of interest.

Restriction: Graduate students only.

SOCIOL 289. Special Topics . 2-4 Units.
Studies in selected areas of Social Sciences. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 290. Dissertation Research. 1-12 Units.
Dissertation research with Sociology faculty.

Repeatability: May be taken for credit 10 times.

Restriction: Graduate students only.

SOCIOL 299. Independent Study. 1-12 Units.
Independent research with Sociology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Anthropology

3203 Social & Behavioral Sciences Gateway; 949-824-7602
http://www.anthropology.uci.edu/
George Marcus, **Department Chair**

Anthropology is the comparative study of past and present human societies and cultures. The Department of Anthropology at UCI is at the forefront of addressing issues in contemporary theory and ethnographic methods within the discipline. The Department has a strong interdisciplinary bent, with research and teaching interests in economic anthropology, political and legal anthropology, the anthropology of finance, social history and social change, the anthropology of science, technology and medicine, identity and ethnicity, gender and feminist studies, urban anthropology, modernity and development, religion, visual anthropology, and the arts and expressive culture. The Department also has a strong emphasis on the study of contemporary issues, especially those concerned with emergent, fluid, and complex global phenomena such as international flows of goods, peoples, images, and ideas; the relationship between global processes and local practices; immigration, citizenship, and refugees; population politics; violence and political conflict; ethnicity and nationalism; gender and family; food, health, and technological innovation; law; development and economic transformation; urban studies; and environmental issues. Geographic regions of expertise include China, Southeast Asia, South Asia, Oceania, Europe, Latin America, the Caribbean, East Africa, Latino communities of the United States, and diasporic and transnational communities in the United States and abroad.

Undergraduate Program

The major in Anthropology prepares students to embark on a wide range of careers, to pursue graduate studies, and to continue to learn and achieve in our culturally diverse world. The curriculum develops students' knowledge and skills, including (1) an understanding of cultural diversity and global relationships; (2) the fundamentals of conducting research and analyzing sources of information through ethnographic and other anthropological techniques; and (3) communication skills in organizing and presenting information in written reports and oral presentations.

Requirements for the B.A. Degree in Anthropology

All students must meet the University Requirements (p. 71)**.**
All students must meet the School Requirements (p. 1561)**.**

Departmental Requirements for the Major

School requirements must be met and must include 12 courses (48 units) as specified below:

A. Complete:	
ANTHRO 2A	Introduction to Sociocultural Anthropology
B. Select one of the following:	
ANTHRO 2B	Introduction to Biological Anthropology
ANTHRO 2C	Introduction to Archaeology
ANTHRO 2D	Introduction to Language and Culture
C. Select one of the following:	
ANTHRO 30A	Global Issues in Anthropological Perspective
ANTHRO 30B	Ethnography and Anthropological Methods
D. Select three topical courses (12 units) from the following:	
ANTHRO 120–159	
ANTHRO 170–179	
E. Select two courses (eight units) on a geographical area from ANTHRO 160–169.	
F. Select four additional elective courses (16 units) from the following:	
ANTHRO 30A	Global Issues in Anthropological Perspective
ANTHRO 30B	Ethnography and Anthropological Methods
ANTHRO 40–179	
ANTHRO 180AW	Anthropology Majors Seminar

Students are strongly encouraged to take ANTHRO 180AW after they have had at least three courses beyond ANTHRO 2A and ANTHRO 2B, ANTHRO 2C, or ANTHRO 2D. Students are also strongly encouraged to take both ANTHRO 30A and ANTHRO 30B.

The faculty encourages Anthropology majors or minors to study abroad and experience a different culture while making progress toward degree objectives. The Study Abroad Center, which includes the UC Education Abroad Program (EAP) and the International Opportunities Program (IOP), assists students in taking advantage of many worldwide opportunities. For example, UCEAP offers excellent opportunities to study anthropology at many universities abroad; courses taken abroad can be used to fulfill departmental requirement C, D, and E. Study abroad also can provide opportunities for cross-cultural experience, field research, and foreign language training. The Undergraduate Research Opportunities Program (UROP) provides funding for independent field research. See the Study Abroad Center (p. 138) and the Undergraduate Research Opportunities Program (p. 138) sections of the *Catalogue* for additional information.

Honors Program in Anthropology

The Honors Program in Anthropology is designed to allow undergraduates to pursue field research and write an honors thesis on topics of their choice under the guidance of Department of Anthropology faculty members. Research projects typically involve a combination of library research, exploratory ethnographic interviews, participant observation, and systematic data collection and analysis. The program is open to all senior Anthropology majors with a grade point average of 3.3 or better overall, with 3.5 in Anthropology courses (at least five courses). Successful completion of the Honors Program and the honors thesis satisfies the upper-division writing requirement. Students must apply to be admitted into the Honors Program. The application form is available on the Department of Anthropology (http://www.anthro.uci.edu) website; in the Department office (B203 SBSG); and in the School of Social Sciences Undergraduate Student Affairs Office (1201 SBSG).

Although course work for the Honors Program does not start until the senior year, it is highly recommended that during the spring quarter of the junior year, students find a professor willing to serve as their research project advisor on the basis of a mutually acceptable abstract that indicates the goal and significance of their project. If extensive research is to be undertaken at this time, students enroll in ANTHRO 199.

During the fall quarter of the senior year, students enroll in ANTHRO H190A and write a proposal describing their research question, the relevant background literature, and the method of data collection and analysis. Fieldwork for the project may begin during this quarter.

In the winter quarter of the senior year, students begin or continue ethnographic field research by enrolling in ANTHRO H190B. Field research typically combines exploratory field research with fixed format data collection methods.

In the spring of the senior year, students enroll in ANTHRO H191W and complete a senior honor thesis that is typically 40 to 80 pages long. Honor theses are read and evaluated by the advisor and the Undergraduate Program Director.

Anthropology Minor Requirements

Requirements for the minor in Anthropology are met by taking seven Anthropology courses (28 units) as specified below:

A. Complete:	
ANTHRO 2A	Introduction to Sociocultural Anthropology
B. Select one of the following:	
ANTHRO 2B	Introduction to Biological Anthropology

ANTHRO 2C	Introduction to Archaeology
ANTHRO 2D	Introduction to Language and Culture
C. Select one of the following:	
ANTHRO 30A	Global Issues in Anthropological Perspective
ANTHRO 30B	Ethnography and Anthropological Methods
D. Select two topical courses (eight units) from the following:	
ANTHRO 120–159	
ANTHRO 170–179	
E. Select two courses (eight units) on a geographical area from ANTHRO 160–169.	

Medical Anthropology Minor Requirements

Requirements for the minor in Medical Anthropology are met by taking seven Anthropology courses (28 units) as specified below:

A. Complete:	
ANTHRO 2A	Introduction to Sociocultural Anthropology
B. Select one of the following:	
ANTHRO 2B	Introduction to Biological Anthropology
ANTHRO 2C	Introduction to Archaeology
ANTHRO 2D	Introduction to Language and Culture
C. Select one of the following:	
ANTHRO 30A	Global Issues in Anthropological Perspective
ANTHRO 30B	Ethnography and Anthropological Methods
D. Complete:	
ANTHRO 134A	Medical Anthropology
E. Select three topical courses (12 units) from the following:	
ANTHRO 50B	Gender and Global Health
ANTHRO 121D	Cross-Cultural Studies in Gender
ANTHRO 128A	Science, Technology, Controversy
ANTHRO 128B	Race, Gender, and Science
ANTHRO 132A	Psychological Anthropology
ANTHRO 134B	Anthropology of Drugs
ANTHRO 134F	Anthropology of the Body
ANTHRO 134G	HIV/AIDS in a Global Context
ANTHRO 136K	The Woman and the Body
ANTHRO 139	Special Topics in Cultural and Psychological Anthropology (special topics, by petition to the Undergraduate Director)
SOCIOL 154	Medical Sociology

Residence Requirement for the Minors: The four required upper-division courses must be completed successfully at UCI. Two of the four may be taken through the UC Education Abroad Program provided course content is approved in advance by the Undergraduate Director of the Department of Anthropology.

NOTE: Students may complete only one of the following programs: the major in Anthropology, the minor in Anthropology, or the minor in Medical Anthropology.

Interdisciplinary Minor in Archaeology

An interdisciplinary minor in Archaeology is offered by the Department of Classics (p. 791). See the School of Humanities section of the *Catalogue* for information.

Graduate Program

The Department of Anthropology offers a Ph.D. degree program in Anthropology. The program focuses on social and cultural anthropology, with a strong focus on understanding emergent processes and systems at a number of scales, including the national and transnational level. Areas of teaching emphasis include the anthropology of modernity and development; political, legal, and economic anthropology; ethnographic method; and the anthropology of science, technology, and medicine. In addition, Ph.D. students have the option of enrolling in a Feminist Studies or a Critical Theory emphasis, both of which involve interdisciplinary work with departments and centers in the School of Humanities. The Department's faculty members have interests in ethnicity, gender, international migration, science, technology and medicine, law and finance, urban anthropology, youth

culture, and social networks. The program also provides rigorous training in ethnographic method. The Department is committed to fostering new and innovative approaches to anthropological inquiry in a pluralistic and intellectually open academic environment. Program faculty take diverse theoretical and methodological approaches to a variety of substantive issues. They are united, however, in a willingness to question taken-for-granted theoretical premises and analytic frames, and to engage in good-faith intellectual dialogue about alternative models and approaches.

Admission

Students are admitted to the program based on their application materials and evidence of scholarly potential, including grade point average, GRE scores, and letters of recommendation.

Requirements

Students must complete a one-year Proseminar in Anthropology (ANTHRO 202A-ANTHRO 202B-ANTHRO 202C) during their first year and one course in anthropological fieldwork methods during their second year. In addition, students are required to complete a two-course sequence in statistics, research design, and data analysis (ANTHRO 211A, ANTHRO 212A), and six elective courses in Anthropology, which are selected in consultation with their advisor and which normally cover a coherent area of specialization within the field. All course work must be completed before a student is advanced to candidacy. Students must demonstrate competence to read one foreign language, in accordance with the requirements of the Ph.D. degree in Anthropology.

At the end of the first year, students must pass a formal evaluation which is made by the Department of the basis of the first-year course work and examinations to be taken as part of the Proseminar. Students should advance to candidacy by the end of the third year; the advancement to candidacy examination is based on a research proposal, a review of relevant literature, and an annotated bibliography. The fourth (and, in many cases, some or all of the fifth) year is normally devoted to extended anthropological fieldwork. The sixth year (in some cases, also part of the fifth) is devoted to writing the dissertation, in close consultation with the advisor. The normative time for completion of the Ph.D. is seven years, and the maximum time permitted is eight years.

Program in Law and Graduate Studies (J.D./Ph.D.). Highly qualified students interested in combining the study of law with graduate research and/or professional qualifications in Anthropology are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students in this program pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Ph.D. degree in Anthropology. Additional information is available from the PLGS Program Director's office, (949) 824-4158, or by e-mail to plgs@law.uci.edu. A full description of the program, with links to all relevant application information, can be found at the School of Law Concurrent Degree Programs (http://www.law.uci.edu/plgs) website.

M.A. Concentration in Medicine, Science, and Technology Studies. Highly qualified students seeking training for responding to the significant and rapidly changing impact of medicine and technology upon economies and societies around the world are invited to apply to this terminal Master's degree program, administered by the Department of Anthropology, but drawing expertise from faculty across the Irvine campus. This is a one-year program, with a nine-course schedule (three courses per quarter) leading to an M.A. in Social Science with a concentration in Medicine, Science, and Technology Studies. Additional information is available from Norma Miranda at (949) 824-7602 or by e-mail to nmiranda@uci.edu.

Feminist Studies Emphasis. A graduate emphasis in Feminist Studies is available. Refer to Department of Gender and Sexuality Studies (p. 891) in the School of Humanities section of the *Catalogue* for information.

Critical Theory Emphasis. A graduate emphasis in Critical Theory is available. Refer to the Critical Theory Emphasis (p. 937) in the School of Humanities section of the *Catalogue* for information.

Faculty

Olufunmilayo B. Arewa, J.D. Harvard University, *Professor of School of Law; Anthropology*

Victoria Bernal, Ph.D. Northwestern University, *Associate Professor of Anthropology; Culture and Theory*

Susan C. Bibler Coutin, Ph.D. Stanford University, *Associate Dean of the Graduate Division and Professor of Criminology, Law and Society; Anthropology; Culture and Theory* (law, culture, immigration, human rights, citizenship, political activism, Central America)

Thomas D. Boellstorff, Ph.D. Stanford University, *Professor of Anthropology; Culture and Theory* (virtual worlds, sexuality, postcoloniality, HIV/AIDS, mass media and popular culture, language and culture, Indonesia, Southeast Asia)

Geoffrey C. Bowker, Ph.D. University of Melbourne, *Professor of Informatics; Anthropology* (values in design, social studies of databases, science and technology studies)

John P. Boyd, Ph.D. University of Michigan, *Professor Emeritus of Anthropology*

Michael L. Burton, Ph.D. Stanford University, *Professor Emeritus of Anthropology; Economics*

Francis A. Cancian, Ph.D. Harvard University, *Professor Emeritus of Anthropology; Economics*

Leo Chavez, Ph.D. Stanford University, *Professor of Anthropology*

Benjamin N. Colby, Ph.D. Harvard University, *Professor Emeritus of Anthropology*

Thomas J. Douglas, Ph.D. University of California, Irvine, *Lecturer of Anthropology*

Christopher E. Drover, Ph.D. University of California, Riverside, *Lecturer of Anthropology*

James A. Egan, Ph.D. University of California, Irvine, *Lecturer of Anthropology*

Julia Elyachar, Ph.D. Harvard University, *Associate Professor of Anthropology; Culture and Theory*

Robert Garfias, Ph.D. University of California, Los Angeles, *Professor Emeritus of Anthropology*

David Theo Goldberg, Ph.D. The Graduate Center, City University of New York, *Director of the UC Humanities Research Institute and Professor of Comparative Literature; Anthropology; Culture and Theory* (race, racism, race and the law, political theory, South Africa, digital humanities)

Susan M. Greenhalgh, Ph.D. Columbia University, *Professor Emerita of Anthropology*

Mizuko Ito, Ph.D. Stanford University, *John D. and Catherine T. MacArthur Foundation Chair in Digital Media and Learning* and *Professor in Residence of Anthropology; Education; Informatics* (ethnography, game studies, youth culture, learning sciences, online communities)

Angela C. Jenks, Ph.D. University of California, Berkeley, *Lecturer with Potential Security of Employment of Anthropology*

Eleana Kim, Ph.D. New York University, *Associate Professor of Anthropology*

Karen Leonard, Ph.D. University of Wisconsin, *Professor Emerita of Anthropology*

G. Craig MacAndrew, Ph.D. University of Chicago, *Professor Emeritus of Anthropology*

Lilith Mahmud-Abdelwahab, Ph.D. Harvard University, *Assistant Professor of Gender and Sexuality Studies; Anthropology; Culture and Theory* (elites, race and nationalism, cultural capital, secrecy and conspiracy, feminist ethnography, critical studies of Europe)

George E. Marcus, Ph.D. Harvard University, *UCI Chancellor's Professor of Anthropology*

William M. Maurer, Ph.D. Stanford University, *Dean of the School of Social Sciences* and *Professor of Anthropology; Criminology, Law and Society; Culture and Theory; School of Law* (anthropology of law, globalization, Caribbean, anthropology of money and finance, gender and kinship)

Michael J. Montoya, Ph.D. Stanford University, *UCI Chancellor's Fellow* and *Associate Professor of Anthropology; Chicano/Latino Studies; Culture and Theory; Program in Public Health* (social inequality and health, race and ethnicity, social and cultural studies of science, technology, and medicine, participation of ethnic populations in biomedical research, the U.S./Mexican border, critical bioethics)

Keith Murphy, Ph.D. University of California, Los Angeles, *Assistant Professor of Anthropology; Linguistics*

Sylvia Nam, Ph.D. University of California, Berkeley, *Assistant Professor of Anthropology*

Sheila G. O'Rourke, Ph.D. University of California, Irvine, *Lecturer of Anthropology*

Valerie A. Olson, Ph.D. William Marsh Rice University, *Assistant Professor of Anthropology*

Kristin Peterson, Ph.D. William Marsh Rice University, *Associate Professor of Anthropology; Culture and Theory; European Languages and Studies*

A. K. Romney, Ph.D. Harvard University, *Professor Emerita of Anthropology; Cognitive Sciences*

Gabriele J. Schwab, Ph.D. University of Konstanz, *Department Chair and UCI Chancellor's Professor of Comparative Literature; Anthropology; Culture and Theory; European Languages and Studies* (modern literature, critical theory, psychoanalysis, comparative literature)

Roxanne Varzi, Ph.D. Columbia University, *Associate Professor of Anthropology; Culture and Theory; Film and Media Studies* (Islam, visual anthropology, anthropology of war, media, youth culture, religion and public space, Iran)

Roger Walsh, Ph.D. University of Queensland, *Professor of Psychiatry and Human Behavior; Anthropology*

Douglas R. White, Ph.D. University of Minnesota, *Professor Emeritus of Anthropology*

Mei Zhan, Ph.D. Standford University, *Associate Professor of Anthropology; Culture and Theory* (medical anthropology, cultural and social studies of science, globalization, transnationalism, gender, China and United States)

Courses

ANTHRO 2A. Introduction to Sociocultural Anthropology. 4 Units.
Introduction to cultural diversity and the methods used by anthropologists to account for it. Family relations, economic activities, politics, gender, and religion in a wide range of societies. Stresses the application of anthropological methods to research problems. Course may be offered online.

(III, VIII)

ANTHRO 2B. Introduction to Biological Anthropology. 4 Units.
Evolutionary theory and processes, comparative primate fossil record, human variation, and the adequacy of theory, and empirical data.

(III)

ANTHRO 2C. Introduction to Archaeology. 4 Units.
Archaeological theory and cultural processes with emphasis on the American Southwest, Mesoamerica, and Mesopotamia.

(III)

ANTHRO 2D. Introduction to Language and Culture. 4 Units.
Explores what the study of language can reveal about ourselves as bearers of culture. After introducing some basic concepts, examines how cultural knowledge is linguistically organized and how language might shape our perception of the world.

Same as LINGUIS 68.

(III)

ANTHRO 10A. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Same as SOCIOL 10A.
Overlaps with PSYCH 10A, SOCECOL 13, SOC SCI 10A, POL SCI 10A, SOC SCI 9A.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Va)

ANTHRO 10B. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Prerequisite: SOCIOL 10A.

Same as SOCIOL 10B.
Overlaps with PSYCH 10B, SOCECOL 13, SOC SCI 10B, POL SCI 10B, SOC SCI 9B.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Va)

ANTHRO 10C. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Prerequisite: SOCIOL 10B.

Same as SOCIOL 10C.
Overlaps with PSYCH 10C, SOCECOL 13, SOC SCI 10C, POL SCI 10C, SOC SCI 9C.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Vb)

ANTHRO 20A. People, Cultures, and Environmental Sustainability. 4 Units.
Anthropological consideration of global environmental sustainability from the perspective of human cultures and communities. Causes and consequences of population growth, natural resource management, environmental law, environmental ethics. Case studies emphasize tropical rain forests, arid lands of Africa and North America.

(VIII)

ANTHRO 20B. Anthropology of Food. 4 Units.
Examines how food communicates ideas about ethnocentrism, disgust, privilege, gender, race, labor, social identities and hierarchies, globalization, power, and the "Western diet" and its health consequences.

Same as CHC/LAT 66.

(III, VII)

ANTHRO 30A. Global Issues in Anthropological Perspective. 4 Units.
Explores anthropological perspectives on issues of importance in an increasingly global society. Topics include emphases on ethnic conflict; identity; immigration and citizenship; religion and religious diversity; medical anthropology; legal anthropology; development and economic change; gender.

Restriction: Anthropology majors have first consideration for enrollment.

(VIII)

ANTHRO 30B. Ethnography and Anthropological Methods. 4 Units.
Explores ethnography, anthropology's classic method. Students obtain hands-on training in participant observation, interviewing, and other methods, in local communities, and the preparation of research reports. Also provides theoretical and reflexive readings on ethnography.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 30C. Visual Anthropology . 4 Units.
Focusing on the construction of culture through visuality, this course engages traditional ethnographic films, popular media and anthropological texts to analyze ethics, “reality” and fiction; propaganda and documentary, construction of a frame, the responsibility of the filmmaker, photographer, and anthropologist.

ANTHRO 41A. Global Cultures and Society. 4 Units.
Offers a general overview of the rise of global interdependence in political, economic, demographic, and cultural terms. Considers what drove people from relative isolation into intensified intercourse with one another, and investigates the consequences of this shift.

Same as INTL ST 11.

Restriction: Anthropology and International Studies majors have first consideration for enrollment.

(III, VIII)

ANTHRO 50B. Gender and Global Health. 4 Units.
Examines the social forces, life circumstances, and political and economic processes that influence gendered health outcomes. Focuses especially on women located at the economic and political margins of societies throughout the world.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 85A. Cultures in Collision: Indian-White Relations Since Columbus . 4 Units.
An introduction to theories, terms, concepts, and methods used by anthropologists and sociologists to understand Native American cultures. How racial construction of an Indian "other" emerged, how anthropology contributed to Indian invisibility, and the persistence of Indian identity are examined.

Same as SOCIOL 65.

(VII)

ANTHRO 89. Special Topics in Anthropology. 1-4 Units.
Studies in selected areas of Anthropology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 121AW. Kinship and Social Organization. 4 Units.
Organization of social life primarily in preindustrial societies. Theories of kinship, marriage regulations, sexual behavior, and social roles. Comparisons of biological, psychological, sociological, and economic explanations of social organization.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

ANTHRO 121D. Cross-Cultural Studies in Gender. 4 Units.
Familiarizes students with the diversity of women's experiences around the world. Gender roles and relations are examined within cultural and historical contexts. A central concern is how class, race, and global inequalities interact with women's status.

Prerequisite: ANTHRO 2A or ANTHRO 2B.

Same as INTL ST 153B.

ANTHRO 121G. Political Anthropology. 4 Units.
Utilizes anthropological accounts of Western and non-Western societies to question conventional ways of thinking about power and politics. Classical traditions in political anthropology are critiqued; an alternative view is presented through recent anthropological political analyses of various topics.

ANTHRO 121J. Urban Anthropology. 4 Units.
Cultural roles of urban centers and processes of urbanization in comparative perspective, focusing on both nonwestern, nonindustrial societies of past and present; the relationship between modern urban centers and Third World peoples. Migration, urban poverty, in Africa, Asia, Latin America.

Same as INTL ST 153C.

ANTHRO 125A. Economic Anthropology. 4 Units.
Economic systems in comparative perspective: production, distribution, and consumption in market and non-market societies; agricultural development in the third world.

Prerequisite: One course in general science, anthropology, economics, geography, or sociology.

Same as ECON 152A.

Restriction: Economics, Quantitative Economics, Business Economics, and Anthropology majors have first consideration for enrollment.

ANTHRO 125B. Ecological Anthropology. 4 Units.
Studies relationships between human communities and their natural environments. The role of environment in shaping culture; effects of extreme environments on human biology and social organization; anthropologist's role in studying global environmental problems, e.g., African famine, tropical rain forests destruction.

Prerequisite: ANTHRO 2A or ANTHRO 2B or ANTHRO 2C.

ANTHRO 125F. Humans and Other Animals. 4 Units.
Explores peoples' relationships with other animals, a topic that continues to shape anthropological understandings of humanness, culture, and the social. Subthemes: symbol and matter, nature/culture, ontologies, relations, moralities, ecologies, futures.

Prerequisite: ANTHRO 2A or ANTHRO 2B or ANTHRO 2D.

ANTHRO 125S. The Anthropology of Money. 4 Units.
Anthropological approaches to money; impact of money on subsistence economies; cultural history of money; and modern transformations of money. Students conduct ethnographic research on alternative money practices in Southern California, and create an online exhibition and research paper.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 125X. Transnational Migration. 4 Units.
Examines the movement of people across national borders, governmentality and the role of state practices to control populations, and issues of citizenship, belonging, and identity. Examples are drawn from the United States, Europe, Latin America, Asia, and Africa.

Same as CHC/LAT 161, INTL ST 117A.

(VIII)

ANTHRO 125Z. Muslim Identities in North America. 4 Units.
Explores multiple identities of Muslims in North America, including indigenous Muslims and immigrants of many national origins. Explores religious, political, cultural, ethnic, class differences among American Muslims, turning to Islamic institutions or events near UCI to conduct fieldwork projects.

Same as ASIANAM 142.

ANTHRO 126A. Elite Cultures. 4 Units.
The distinctive contribution that ethnographic studies have made to the understanding of elites past and present, in particular societies and globally.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 127A. Law and Modernity. 4 Units.
The rise and spread of Enlightenment legal traditions, social contract theory, individual rights, ideologies of "liberty, equality, fraternity"; contradictions of liberal law, its understandings of "primitive" and "civilized"; pervasive myths of property, difference, race, and rights. Reading- and writing-intensive.

Same as CRM/LAW C191.

ANTHRO 128A. Science, Technology, Controversy. 4 Units.
Explores ways in which the social sciences conceive of science as a sociocultural practice. Emphasis on literature in Science and Technology Studies (STS), especially writings that concern the relationship of science to space and place, power, and politics.

Restriction: Anthropology majors only.

ANTHRO 128B. Race, Gender, and Science. 4 Units.
Perfect for pre-health, science and social science majors wanting to appreciate how science and society interact. Race and gender as biological and socio-cultural constructs are examined. Questions explored: What is disease? What is science? What are social and biological differences.

Same as CHC/LAT 176, GEN&SEX 188A.

(VII)

ANTHRO 128C. Digital Cultures . 4 Units.
Explores cultural and political implications of the infotech revolution and the ways new media are used around the world, new cultural practices and spaces (e.g., cybercafes), debates surrounding the meanings of these new technologies, and their implications for transforming society.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 129. Special Topics: Social and Economic Anthropology. 1-4 Units.
Studies in selected areas of Social and Economic Anthropology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 132A. Psychological Anthropology. 4 Units.
Cultural differences and similarities in personality and behavior. Child-rearing practices and consequent adult personality characteristics, biocultural aspects of child development and attachment, culture and behavior evolutionary models, politically linked personality, cognitive anthropology, psychology of narrative forms, comparative national character studies.

Prerequisite: ANTHRO 2A or PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)

Same as PSYCH 173A.

Restriction: Psychology majors have first consideration for enrollment.

ANTHRO 134A. Medical Anthropology. 4 Units.
Introduces students to cross-cultural perspectives and critical theories in anthropological studies of medicine. Special attention is given to diverse ways of understanding bodies, illnesses, and therapeutic practices in our changing world.

Same as CHC/LAT 178A.

(VIII)

ANTHRO 134B. Anthropology of Drugs. 4 Units.
Examines the increasing role "drugs" play in shaping the expression, understanding, and representation of the self and social life. The shifting construction of licit/illicit; cultural and ethnographic representations of drug use; pharmaceutical industry; production and management of addiction and disease.

Restriction: Upper-division students only.

(III)

ANTHRO 134C. Medicine, Food, and Health. 4 Units.
With anthropological studies of edible things as its foundation, this course explores topics related to the relationship between medical knowledge, eating, and health from a medical anthropological perspective.

Prerequisite: ANTHRO 2A or ANTHRO 2B or ANTHRO 2D.

ANTHRO 134F. Anthropology of the Body. 4 Units.
Examines human bodies as both biological and,sociocultural entities and explores the relationship among mind, body,and society cross-culturally. Topics include embodiment; race, sex, gender and the body; somatization; control of the body; commodified bodies; and hybrid/cyborg bodies.

ANTHRO 134G. HIV/AIDS in a Global Context. 4 Units.
Examines issues concerning cultural conceptions of HIV infection and disease worldwide. Topics include treatment and prevention, identity and behavior, risk, ethnicity, gender, youth, sexuality, activism, drug use, illness, religion, the clinical encounter, national belonging, and the pharmaceutical industry.

(VIII)

ANTHRO 134GW. HIV/AIDS in a Global Context. 4 Units.
Examines issues concerning cultural conceptions of HIV infection and disease worldwide. Topics include treatment and prevention, identity and behavior, risk, ethnicity, gender, youth, sexuality, activism, drug use, illness, religion, the clinical encounter, national belonging, and the pharmaceutical industry.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VIII)

ANTHRO 135A. Religion and Social Order. 4 Units.
An anthropological exploration of religious belief and practices in diverse social and historical contexts. Emphasis placed on selected non-western traditions of the sacred, and on issues of power, ritual, moral order, and social transformation.

ANTHRO 135I. Modern South Asian Religions. 4 Units.
Nineteenth- and twentieth-century developments in Hinduism, Islam, and Sikhism are covered, with emphasis on changing forms as well as contents of religious movements and the state.

Same as INTL ST 158A.

(VIII)

ANTHRO 136A. Nationalism and Ethnicity in the Contemporary World. 4 Units.
An exploration of the concepts of identity, culture, ethnicity, race, and nation through ethnographic cases, with a view to asking larger questions: how do people create nativeness and foreignness? How does "culture" get worked into contemporary racisms and nationalisms.

Same as INTL ST 153E.

(VIII)

ANTHRO 136B. History of Anthropological Theory. 4 Units.
Provides foundational knowledge in the discipline of anthropology by reviewing competing approaches in anthropological theory, from the nineteenth century to the present. Covers historically fundamental approaches—social evolutionism, functionalism—and recent movements such as feminism, cultural studies, poststructuralism, and postmodernism.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 136D. Conflict Resolution in Cross-Cultural Perspective. 4 Units.
Examines theories of conflict management. Analyzes how conflict is mitigated in diverse cultures: at the interpersonal level, between groups, and on the international scale. Students discuss readings, hear from conflict management practitioners, and simulate negotiations.

Same as POL SCI 154G, SOC SCI 183E, INTL ST 183E.

(VIII)

ANTHRO 136G. Colonialism and Gender. 4 Units.
An anthropological enquiry into the ways colonial relations of power have been structured and gendered throughout the world, and to what effect. Examines the social locations of men and women in the everyday exercise of colonial and imperial power.

Same as INTL ST 153D.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 136K. The Woman and the Body. 4 Units.
Probes culture and politics of the female body in contemporary American life. Focusing on "feminine beauty," examines diverse notions of beauty, bodily practices, and body politics embraced by American women of different classes, ethnicities, and sexualities.

(VII)

ANTHRO 137A. Reading Images Culturally. 4 Units.
Provides analytical tools necessary to undertake research on visual representations. Images, as cultural productions, are steeped in the values, ideologies, and taken-for-granted beliefs of the culture which produced them. Of concern are representations of race, identity, gender, and the "Other.".

Same as CHC/LAT 116.

(VII)

ANTHRO 138H. Music of Indonesia and the Philippines. 4 Units.
Thousands of islands are encompassed by Philippines, Malaysia, and Indonesia. Common cultural ties are obscured by colonial conditions and influences during last two centuries. Reviews region's major forms of music, from earliest communal societies to complex stratified and recent cultures.

ANTHRO 138J. Music of Japan and Okinawa. 4 Units.
A survey of the musics that developed in the islands of Japan and Okinawa from the perspective of the social, political, and economic forces that played upon the culture and that formed the context of these musical languages.

Restriction: Upper-division students only. Anthropology majors have first consideration for enrollment.

ANTHRO 138M. Music as Expressive Culture. 4 Units.
Fundamental requirements for development of a musical tradition. Guiding structural principles for new forms of expression to be understood and accepted. How members of society develop individual musical cultures which permit them to interact with the personal cultures of others.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 138Q. Latino Music: A View of Its Diversity and Strength. 4 Units.
A survey of the music of the many Latin cultures of the Americas including Mexico, Central and South America, as well as the Caribbean and of those many Latin cultures which thrive and survive in the United States.

Same as CHC/LAT 115A.

(VIII)

ANTHRO 139. Special Topics in Cultural and Psychological Anthropology. 1-4 Units.
Studies in selected areas of Cultural and Psychological Anthropology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 141A. Ancient Civilization of Mexico and the Southwest. 4 Units.
The prehistory and cultural evolution of the civilization which originated in Mexico, including the Olmecs, Aztecs, Toltecs, Maya, and Zapotec, as well as the Pueblos of the Southwestern U.S. Topics include the origins of food production and of the state.

Same as INTL ST 177I.

ANTHRO 149. Special Topics in Archaeology. 1-4 Units.
Studies in selected areas of Archaeology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 150A. Language and Social Cognition. 4 Units.
Explores the relationship between language and cognition in social and cultural contexts. The overall goal is to think through how language structure and use impact how individuals perceive, think about, and understand the world around them.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 151A. Improvisation, Language, and Culture. 4 Units.
Addresses improvisation, both in performance and in everyday life. Examines improvisation as the "flexible regulation" of everyday behavior by exploring different scholarly treatments of language and interaction, and working on developing actual theatrical improvisation skills.

Restriction: Upper-division students only.

ANTHRO 152A. Language Origins: Evolution, Genetics, and the Brain. 4 Units.
Examines how human language(s) may have originated. Studies pertinent techniques (reconstruction) and addresses related questions, including Is our language faculty inborn (i.e., genetically encoded)? Can brain imaging and population genetics research help to unlock this mystery of human evolution?.

Same as HISTORY 135G, GLBLCLT 105, LINGUIS 175.

ANTHRO 161T. Field Research: Asian Immigrants and Refugees in Orange County. 4 Units.
Instruction in field work methodology via research projects involving the local communities of immigrants and refugees from Asia. Open only to School of Social Sciences majors.

Restriction: Seniors only. School of Social Sciences majors only.

ANTHRO 161TW. Field Research: Asian Immigrants and Refugees in Orange County. 4 Units.
Instruction in field work methodology via research projects involving the local communities of immigrants and refugees from Asia.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Seniors only. School of Social Sciences majors only

(Ib)

ANTHRO 162A. Peoples and Cultures of Latin America. 4 Units.
Surveys the prehistory of Latin America and its indigenous cultures, emphasizing the impact of colonial rule, capitalism, and twentieth-century transformations. Emphasis on communities from several countries. In some years, emphasis on comparisons between the Latin American and Caribbean experiences.

Same as INTL ST 177J.

(VIII)

ANTHRO 162B. Indian North America. 4 Units.
A survey of indigenous peoples in North America: American Indians, Alaska Natives, First Nations, Native Americans. Tribal populations and geographic distributions, political and social organization, sovereignty, self-determination, intergovernmental relations; cultural continuity and change; management, preservation, development of environments/resources.

(VII)

ANTHRO 162BW. Indian North America. 4 Units.
A survey of indigenous peoples in North America: American Indians, Alaska Natives, First Nations, Native Americans. Tribal populations and geographic distributions, political and social organization, sovereignty, self-determination, intergovernmental relations; cultural continuity and change; management, preservation, development of environments/resources.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VII)

ANTHRO 162C. Race and Empire in Colonial Latin America. 4 Units.
Explores how native people of Latin America with enslaved and free African incorporated and defied Spanish and Portuguese colonization. Focuses on religious adaptions, resistance movements, legal systems, and the emergence of multicultural communities to explain how race shaped European empires.

Same as HISTORY 165.

ANTHRO 163A. Peoples of the Pacific. 4 Units.
The cultural history and recent developments among the Pacific peoples of Polynesia, Micronesia, Melanesia, New Guinea, and Australia.

Same as INTL ST 158B.

(VIII)

ANTHRO 164A. Twenty-First Century Africa. 4 Units.
Comparative studies of the cultures and societies of Sub-Saharan Africa, with emphasis on critical study of colonialism and postcoloniality, social transformation, and the politics of identity.

Prerequisite: ANTHRO 2A.

Same as INTL ST 157A.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 164P. Peoples and Cultures of Post-Soviet Eurasia. 4 Units.
Examines the cultures and political conflicts of the more than 130 indigenous ethnic groups in the European and Asian territories of the former U.S.S.R. Emphasis is on the theoretical issues of ethnicity, nationalism, and conflict management.

Same as INTL ST 162B, POL SCI 154F.

(VIII)

ANTHRO 165A. Modern Iran: Cinema and Society. 4 Units.
Exploring modern Iran through film, literature, photography, travel writing, philosophy and social science texts introduces students to important concepts in post-colonial studies, social thought, war culture, religion and media as experienced through the paradigm of a non-Western modernity.

ANTHRO 169. Special Topics in Area Studies. 1-4 Units.
Studies in selected areas of Anthropology. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 179. Special Topics: Methods and Formal Representations. 1-4 Units.
Studies in selected areas of Methods and Formal Representations. Topics addressed vary each quarter.

Restriction: Anthropology majors have first consideration for enrollment.

ANTHRO 180AW. Anthropology Majors Seminar. 4 Units.
A course in anthropological theory designed especially for majors in Anthropology. Different issues are considered in different years.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be taken for credit 3 times.

Restriction: Anthropology majors only.

(Ib)

ANTHRO 190. Senior Thesis. 4 Units.
Senior thesis with Anthropology faculty.

Repeatability: May be taken for credit 3 times.

ANTHRO H190A. Honors Research Workshop. 4 Units.
Students articulate the goals and significance of their research projects. Written work consists of an eight- to fifteen-page research proposal, due by quarter's end, describing the research question, the relevant literature, and methods of data collection and analysis.

Prerequisite: 3.3 or greater GPA.

Restriction: Anthropology Honors Program students only.

ANTHRO H190B. Honors Field Research. 4 Units.
Students begin or continue ethnographic field research that combines exploratory field research (e.g., participant-observation, interviews, study of archival and documentary materials) with fixed format data collection methods (e.g., standardized interviews, behavioral observations).

Prerequisite: ANTHRO H190A.

ANTHRO H191W. Honors Senior Thesis. 4 Units.
Student drafts a senior honor thesis (typically) with the following sections: problem statement, literature review, ethnographic background, description of the methods, results, and conclusions.

Prerequisite: ANTHRO H190A and ANTHRO H190B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

ANTHRO 197. Field Study. 1-4 Units.
Field study with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

ANTHRO 198. Directed Group Study. 1-4 Units.
Directed study with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

ANTHRO 199. Independent Study. 1-4 Units.
Independent research with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

ANTHRO 202A. Proseminar in Anthropology. 4 Units.
Year-long intensive introduction to the history of anthropological thought and reading in classical and contemporary ethnography for first-year graduate students.

Restriction: Graduate students only.

ANTHRO 202B. Proseminar in Anthropology. 4 Units.
Year-long intensive introduction to the history of anthropological thought and reading in classical and contemporary ethnography for first-year graduate students.

Prerequisite: ANTHRO 202A.

Restriction: Graduate students only.

ANTHRO 202C. Proseminar in Anthropology. 4 Units.
Year-long intensive introduction to the history of anthropological thought and reading in classical and contemporary ethnography for first-year graduate students.

Prerequisite: ANTHRO 202B.

Restriction: Graduate students only.

ANTHRO 204A. Proseminar in Medicine, Science, and Technology. 4 Units.
Explores the phenomena studied by "medical anthropology" and "science and technology studies" are inextricably linked, and how understanding formations requires moving between disparate fields of inquiry. Required for students pursuing a Graduate Certificate in Anthropoligies of Medicine, Science, and Technology.

Restriction: Students pursuing a Graduate Certification in Anthropoligies of Medicine, Science, and Technology have first consideration for enrollment.

ANTHRO 208A. Anthropological Fieldwork Methodology. 4 Units.
A survey of anthropological fieldwork methodology techniques, including attention to contemporary analysis of fieldwork.

Restriction: Graduate students only.

ANTHRO 211A. Statistics and Research Design. 4 Units.
Introduces basic concepts of research design for anthropology in conjunction with relevant concepts from the field of statistics, which will be learned in conjunction with the research designs that require use of those methods.

Restriction: Graduate students only.

ANTHRO 212A. Research Design and Data Analysis. 4 Units.
Introduces advanced concepts of research design for anthropology, presents statistical models for multivariate analysis and for analysis of systems of relationships, and includes practice in sampling and data analysis.

Restriction: Graduate students only.

ANTHRO 213A. Grant and Proposal Writing. 4 Units.
Focuses on production, critique, and revision of student research proposals. A practical seminar designed to improve student proposals, help students through the application processes, and increase students' chances of obtaining support for their research.

Same as SOC SCI 255C.

Restriction: Graduate students only.

ANTHRO 221A. Oral History, Life History. 4 Units.
Interdisciplinary and comparative work in oral and life history; methods of interviewing.

Same as SOC SCI 253A.

Restriction: Graduate students only.

ANTHRO 228A. Anthropology Encounters. 4 Units.
Cultural encounters have long provided the ground for ethnographic research. This seminar refocuses on "encounter" not only as the material condition but also as a productive heuristic device in anthropological inquiry. Examines the reorientation of anthropology as a "global discipline.".

ANTHRO 230A. Anthropology and History. 4 Units.
An examination of the complex, long-standing relationship between anthropology and history. Themes include: history, culture, and colonialism; history and the power to represent; nostalgia and the uses of the past in struggles over "national history.".

Restriction: Graduate students only.

ANTHRO 230D. Ethnographies. 4 Units.
Surveys changes in the character of ethnographic writing in the face of changing fields and topics of research. The emergence of new research terrains and the comparative contexts of ethnography are emphasized.

ANTHRO 231C. Technomethods for Sociocultural Research. 4 Units.
An introduction to using particular technologies for conducting contemporary ethnographic fieldwork. Focuses both on the practical use of these tools and the conceptual work that is necessary for successfully integrating them into specific research projects.

ANTHRO 232B. Medical Anthropology. 4 Units.
Explores historical and contemporary theoretical positions and debates in medical anthropology. Topics may include subjectivity, theories of the body, biopolitics, biomedical technologies, sexuality, pharmaceuticals, political economy and health, infectious disease and epidemics, health disparities, and humanitarianism.

Restriction: Students pursuing a Graduate Certification in Anthropoligies of Medicine, Science, and Technology have first consideration for enrollment.

ANTHRO 232C. Ethnographies of Science and Medicine. 4 Units.
Surveys current ethnographic research pertaining to medical anthropology and science and technology studies.

ANTHRO 234C. Anthropology of Food. 4 Units.
Course examines the role of food in culture history and in anthropological thinking about ethnocentrism, disgust, privilege, gender, race, identities, social relationships, kinship, social hierarchies, globalization, production, consumption, food scarcities, body image, health, and power.

Restriction: Graduate students only.

ANTHRO 235A. Transnational Migration. 4 Units.
Examines borders and boundaries as material and semiotic constructs. Drawing upon an array of literatures, but loosely situated in U.S. geo/biopolitics, explores transformative troublings of places, spaces, borders, and bodies of all sorts.

Same as SOC SCI 254A, CHC/LAT 215.

Restriction: Graduate students only.

ANTHRO 240A. Economic Anthropology. 4 Units.
Classic and contemporary theory in economic anthropology. Case studies: Latin America (primarily Mexico and the Andes), Africa, and the Pacific. Substantive topics: non-market exchange, markets and marketplaces, households, gender, management of common property (fisheries, pastoral lands, forests), labor, and development.

Restriction: Graduate students only.

ANTHRO 242A. Language and the Social World. 4 Units.
An introduction to the study of language in culture. Topics include theories of the sign; the relation of language structure to linguistic practice; language and group formation; linguistic ideologies; conversation analysis; and language and embodiment.

ANTHRO 245A. Seminar in Political Anthropology. 4 Units.
Explores anthropological approaches to politics. Covers a range of issues and topics, including: theories of culture, power, and hegemony; approaches to colonial and post-colonial relations of global inequality; and ethnographic approaches to the modern state.

Restriction: Graduate students only.

ANTHRO 246B. Law, Colonialism, & Nationalism. 4 Units.
Origins and spread of law in colonial and nationalist contexts: law's role in constituting and policing difference. Recent theoretical approaches; property in things and people; human and indigenous rights; "customary" law; legal foundations of nationalism; resistance to/through law; globalization.

Restriction: Graduate students only.

ANTHRO 246C. Nations, States, and Gender. 4 Units.
Explores the ways in which nations, nationalism, states, and citizenship are gendered relations and processes. Questions include: How do women construct themselves as political subjects and how are constructions of citizenship and discourses of rights gendered.

Restriction: Graduate students only.

ANTHRO 247A. Structuralism and Post-Structuralism. 4 Units.
Traces recent theoretical discussions and arguments over the philosophical and historical "subject" from structuralist decenterings toward the characteristically "post-structuralist" contemporary concern with the historical and political constitution of subjectivities and subject positions.

Restriction: Graduate students only.

ANTHRO 248A. Approaches to Globalization. 4 Units.
Historical and contemporary approaches to the world economy, emphasizing anthropological questions of culture, power, identity, inequality. Examines "neo-imperialism," "late capitalism," accumulation, global markets, urban space, the state, business and policy globalization discourse, "local" responses to and instantiations of the "global.".

Same as SOC SCI 254L.

Restriction: Graduate students only.

ANTHRO 249A. Humanism and Posthumanism. 4 Units.
Examines alternative forms of human, humanisms, and posthumanisms to explore the inherent ambiguities and shifting boundaries of knowing and being human, and to venture into modes of analysis that problematize the universality and globality of liberal humanism.

ANTHRO 249B. Multispecies Anthropology. 4 Units.
Examines how the co-constituting categories of animal and human in tandem with investigating how engagements with human/animal relations continue to define and alter anthropology. Subthemes: meaning, nature/culture, non-humanism, ontologies, relations, matter, evolutions, ecologies, and futures.

ANTHRO 250A. The Cultural Politics of Visual Representation. 4 Units.
Develops a theoretical framework for analyzing and reading visual images. Images, as cultural productions, are steeped in the values, ideologies, and taken-for-granted beliefs of the culture which produced them and a political economy that is class, race, and gender inflected.

ANTHRO 250B. Digital Technologies, Culture, and Media. 4 Units.
Explores questions of sociality in cyberspace, including what social theories and ethnographic methods are effective in studying online cultures. Topics include general issues like indexicality, reference, temporality, spatiality, and embodiment, and topics such as language, gender, ethnicity, property, and inequality.

Restriction: Graduate students only.

ANTHRO 252A. Queer Anthropology. 4 Units.
Explores historical and contemporary scholarship that employs ethnographic approaches to address the discursive construction of sexuality. Also examines how the discipline of anthropology has been shaped by the study of sexuality.

Restriction: Graduate students only.

ANTHRO 253A. Design, Aesthetics, and Social Life. 4 Units.
Anthropology has only recently recognized that design demands consideration as a cultural form linked to, yet nonetheless distinct from, other aesthetic endeavors. Course is largely oriented toward collaboratively working out a conceptual basis for a distinctly anthropological approach to design.

ANTHRO 254A. Postcoloniality and the Subject. 4 Units.
Examines key issues regarding postcoloniality and conceptions of selfhood in the context of varied forms of colonial and state power. In particular, explores how technology and desire intersect with these questions of subjectification.

ANTHRO 256A. Ethnographies of Technology. 4 Units.
Surveys current ethnographic research pertaining to technologies, technical systems, and infrastructures.

ANTHRO 257A. Natures and Environments. 4 Units.
Examines social scientific understandings of natural contexts and human milieus via a survey of key analytic categories. Begins by examining historical and ongoing definitions and problems organized around “nature” and “environment” as separate but imbricated concepts.

ANTHRO 259A. Dissertation Writing Seminar. 4 Units.
Intended for advanced, post-fieldwork Anthropology graduate students. Emphasis on the presentation of research design and results, problems of ethnographic writing, and qualitative and quantitative data and analysis. Prerequisites: post-fieldwork; graduate standing in Anthropology or consent of instructor.

Restriction: Graduate students only.

ANTHRO 289. Special Topics in Anthropology. 1-4 Units.
Studies in selected areas of Anthropology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

ANTHRO 290. Dissertation Research. 4-12 Units.
Dissertation research with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ANTHRO 299. Independent Study. 4-12 Units.
Independent research with Anthropology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Chicano/Latino Studies

383 Social Science Tower; 949-824-7180
http://www.chicanolatinostudies.uci.edu/
Vicki L. Ruiz, **Department Chair**

Chicano/Latino Studies is an interdisciplinary department organized to provide undergraduate and graduate students with the opportunity to examine the historical and contemporary experiences of Americans of Latino origin or ancestry. This diverse population includes people who trace their heritage to Mexico, Puerto Rico, Cuba, El Salvador, Guatemala, Nicaragua, and other Latin American and Caribbean nations. The curriculum is designed to provide an awareness, knowledge, and appreciation of the language, history, culture, literature, sociology, anthropology, politics, social ecology, health,

medicine, and creative (art, dance, drama, film, music) accomplishments of Chicano/Latino communities. The Department offers a B.A. degree in Chicano/Latino Studies, an undergraduate minor, and a graduate emphasis.

Change of Major. Students who wish to change their major to Chicano/Latino Studies should contact the Department office for information about change of major requirements, procedures, and policies. Information is also available at the UCI Change of Major Cri (http://www.changeofmajor.uci.edu)teria (http://www.changeofmajor.uci.edu) website.

Scholarship Opportunities

The **Jeff Garcilazo Fellowship/Scholarship Fund**, established in honor and memory of the late Chicano/Latino Studies and History professor, provides opportunities for students to examine the historical and contemporary experiences of Latino communities. The Jeff Garcilazo Prize is awarded annually to the undergraduate student author(s) of the best research paper(s) in Chicano/Latino Studies.

The **Hispanic Scholarship Fund (HSF)**, formerly the National Hispanic Scholarship Fund, awards scholarships annually to students enrolled in and attending an accredited college full-time from the fall through the spring (or summer) terms. More information is available at the Hispanic Scholarship Fund (http://www.hsf.net) website.

Career Opportunities

Chicano/Latino Studies graduates have used their degrees as the foundation for careers in public service, social service, education, the corporate world, and the law. Many also go on to earn M.A. and Ph.D. degrees in Social Science and Humanities disciplines at major universities throughout the nation. What links all of these careers is that the Chicano/Latino Studies major prepares its students for careers that will speak of the needs of Chicano and Latino communities nationwide and globally. The highest number of the Department's majors have pursued advanced degrees and professional degrees, such as law degrees or advanced teaching credentials. Their training at UCI has served them well in that the list of institutions that they are attending include the nation's best, such as Harvard University, Stanford University, Columbia University, and several University of California campuses.

Others have moved directly into the workforce. Interestingly, many have selected careers that offer the opportunity to ensure that younger Latinos are able to seize the same opportunities the Department's students did and attend four-year colleges and universities. Chicano/Latino Studies majors work as primary and secondary school teachers, work for advocacy organizations focusing on Latino health and children's services, and have taken positions in legislative offices both in California and in Washington, D.C.

Undergraduate Program

Requirements for the B.A. Degree in Chicano/Latino Studies

All students must meet the University Requirements (p. 71)**.**
All students must meet the School Requirements (p. 1561)**.**

Departmental Requirements for the Major

A. Five core courses:	
CHC/LAT 61	Introduction to Chicano/Latino Studies I
CHC/LAT 62	Introduction to Chicano/Latino Studies II
CHC/LAT 63	Introduction to Chicano/Latino Studies III
CHC/LAT 101	Research in the Latino Community
CHC/LAT 102W	Chicano/Latino Research Seminar
B. Complete:	
SPANISH 2A	Intermediate Spanish (or equivalent) [1]
C. One comparative ethnic studies course selected from African American Studies, Asian American Studies, or	
EDUC 124	Multicultural Education in K-12 Schools [2]
D. Three upper-division electives, one from each of the following categories:	
Literature, Arts, and Media (CHC/LAT 110–129)	
History (CHC/LAT 130–139)	
Inequalities and Social Context (CHC/LAT 140–189)	
E. Four additional elective courses, three of which must be upper-division, selected from CHC/LAT courses. [3]	

1 Students are encouraged to continue their Spanish language education through SPANISH 2C.

2 Course must focus on the study of African American or Asian American communities in the United States.

3 Electives may include Independent Study courses (CHC/LAT 199). Students may obtain credit for one of these three courses through participation in a study abroad program in Mexico. Students must consult with the Department office for additional information regarding this option.

Residence Requirement for the Major: A minimum of five upper-division courses required for the major must be completed successfully at UCI. Courses taken through the UC Education Abroad Program will be counted toward satisfaction of the residence requirement.

Optional Independent Research Project

Students are encouraged to pursue field research and write a substantial research paper on topics of their choice under the guidance of Chicano/Latino faculty members. Often, this project will grow out of issues examined in CHC/LAT 102W Chicano/Latino Research Seminar. Research projects typically involve a combination of library research and fieldwork in the Chicano/Latino community. Methods and analytical frameworks vary depending on the student and faculty advisors. Interested students should enroll in CHC/LAT 199 Independent Study.

Honors Program in Chicano/Latino Studies

The Honors Program in Chicano/Latino Studies is designed to allow undergraduates to pursue independent research and write an honors thesis on topics of their choice under the guidance of Chicano/ Latino Studies faculty members. Research projects typically involve a combination of library research, data analysis, and field research. The program is open to all senior Chicano/Latino Studies majors with a grade point average of 3.3 or better overall, with 3.5 in Chicano/Latino Studies courses (at least five courses). Prior completion of or concurrent enrollment in CHC/LAT 101 Research in the Latino Community is strongly recommended. Successful completion of the Honors Program and the honors thesis satisfies the upper-division writing requirement.

Although course work for the Honors Program does not start until the senior year, it is highly recommended that during the spring quarter of the junior year, students find a professor willing to serve as their research project advisor on the basis of a mutually acceptable abstract that indicates the goal and significance of their project. If extensive research is to be undertaken at this time, students should enroll in CHC/LAT 199.

During the fall quarter of the senior year, students enroll in CHC/LAT H190A and write a proposal describing their research question, the relevant background literature, and the method of data collection and analysis. Fieldwork for the project may begin during this quarter.

In the winter quarter of the senior year, students begin or continue their research by enrolling in CHC/LAT H190B. In the spring quarter of the senior year, students enroll in CHC/LAT H190C and complete a senior honors thesis.

Additional Opportunities

In addition to satisfying the requirements for the major or minor, students are encouraged to take advantage of the variety of unique educational opportunities available at UCI. Through the University's Education Abroad Program (UCEAP), students receive academic credit while studying at universities in Mexico, Chile, Costa Rica, Brazil, or Spain. Internship opportunities with private and public institutions concerned with the Chicano/Latino communities are available in Orange County, Sacramento, and Washington, D.C. Independent research with faculty on Chicano/Latino issues is also encouraged. Student research is conducted and given academic credit through independent study or group research courses. The Undergraduate Research Opportunities Program (UROP) and the Summer Academic Enrichment Program (SAEP) are examples of programs at UCI which allow students to work as research assistants with professors.

Requirements for the Minor in Chicano/Latino Studies

Completion of seven courses as follows:

A. Core courses:	
CHC/LAT 61	Introduction to Chicano/Latino Studies I
CHC/LAT 62	Introduction to Chicano/Latino Studies II
CHC/LAT 63	Introduction to Chicano/Latino Studies III
B. Select three upper-division courses from CHC/LAT 100–189.	
C. Complete:	
SPANISH 2A	Intermediate Spanish (or equivalent) [1]

[1] Students who are exempted from SPANISH 2A based on high school study or its equivalent or through test results must instead complete a fourth upper-division course selected from CHC/LAT 100–189.

Residence Requirements for the Minor: Other than the language requirement, no more than two courses taken at other academic institutions may be used toward satisfaction of the minor.

Graduate Program

Graduate Emphasis in Chicano/Latino Studies

The Department of Chicano/Latino Studies offers a graduate emphasis in Chicano/Latino Studies, which is available in conjunction with the Ph.D. programs in the Departments of Anthropology; Criminology, Law and Society; English; History; Political Science; Planning, Policy, and Design; Sociology; Spanish and Portuguese; Gender and Sexuality Studies; the program in Visual Studies; the School of Education; and the program in Social Science. Satisfactory completion of the emphasis is certified by the Chair of Chicano/Latino Studies and is noted in the student's dossier.

Admission to the Graduate Emphasis

Applicants must first be admitted to, or currently enrolled in, one of the participating programs listed above. Applicants must submit to the Chicano/Latino Graduate Program Committee (1) an application form listing prior undergraduate and graduate course work related to Chicano/Latino Studies (if any), institutions attended, and major(s); and (2) a one- to two-page statement of purpose, including career objectives, areas of interest and research, and record of research, teaching, community, and/or creative work.

The Committee determines admissions, in consultation with the Chicano/Latino Studies core faculty, based upon the extent to which the applicant's research interests relate to Chicano/Latino Studies, the applicant's previous course work, and research or other experience related to Chicano/Latino Studies. Lack of prior course work does not preclude admission, so long as the statement of research interests is congruent with the graduate emphasis and makes a compelling case.

Graduate Emphasis Requirements

Minimum course work for the graduate emphasis in Chicano/Latino Studies consists of four courses: CHC/LAT 200A and three elective courses selected from the list of graduate courses in Chicano/Latino Studies. Two of these elective courses must be cross-listed with department(s) other than the department in which the student is earning his/her Ph.D. One must be cross-listed with a department in a school other than the school in which the student is earning his/her degree and the second must be cross-listed with a department other than the department in which the student is earning his/her degree.

For doctoral students, the qualifying examination and dissertation topic should incorporate U.S. Latinos and/or issues relevant to Chicano/Latino Studies as a central focus of analysis. One member of the candidate's dissertation committee should be a core or affiliate faculty of the Chicano/Latino Studies Department.

Faculty

Belinda Campos, Ph.D. University of California, Berkeley, *Associate Professor of Chicano/Latino Studies; Psychology and Social Behavior* (culture, relationships, positive emotion, health)

Anita Casavantes Bradford, Ph.D. University of California, San Diego, *Assistant Professor of Chicano/Latino Studies; History*

Louis Desipio, Ph.D. University of Texas at Austin, *Professor of Chicano/Latino Studies; Political Science*

Cynthia Feliciano, Ph.D. University of California, Los Angeles, *Associate Professor of Sociology; Chicano/Latino Studies; Education* (race/ethnicity/minority relations, migration and immigration, education)

Raúl A. Fernández, Ph.D. Claremont Graduate University, *Director of the UC-Cuba Academic Initiative* and *Professor Emeritus of Chicano/Latino Studies; Culture and Theory; Social Sciences*

Glenda M. Flores, Ph.D. University of Southern California, *Assistant Professor of Chicano/Latino Studies; Sociology*

Gilbert G. Gonzalez, Ph.D. University of California, Los Angeles, *Professor Emeritus of Chicano/Latino Studies; Culture and Theory; Social Sciences*

Michael J. Montoya, Ph.D. Stanford University, *UCI Chancellor's Fellow* and *Associate Professor of Anthropology; Chicano/Latino Studies; Culture and Theory; Program in Public Health* (social inequality and health, race and ethnicity, social and cultural studies of science, technology, and medicine, participation of ethnic populations in biomedical research, the U.S./Mexican border, critical bioethics)

Alejandro Morales, Ph.D. Rutgers, The State University of New Jersey, *Professor of Chicano/Latino Studies; Spanish and Portuguese*

Ana Rosas, Ph.D. University of Southern California, *Associate Professor of Chicano/Latino Studies; History*

Vicki L. Ruiz, Ph.D. Stanford University, *UCI Distinguished Professor of History; Chicano/Latino Studies; Culture and Theory* (Chicana/Latina history, U.S. labor, immigration, gender)

Courses

CHC/LAT 61. Introduction to Chicano/Latino Studies I. 4 Units.
An introduction to the study of the historical foundations of the Chicano/Latino experience. Addresses such topics as empire, migration, immigrant settlement, economic integration, race, gender, and the formation of group identities.

(III, VII)

CHC/LAT 62. Introduction to Chicano/Latino Studies II. 4 Units.
Provides an introduction to the arts, literature, and culture of Chicano/Latino communities. Analyzes representations of and cultural production in Chicano/Latino communities through such media as folklore, literature, art, film, architecture, dance theatre, performance, music, poetry, mass media, and language.

(III, VII)

CHC/LAT 63. Introduction to Chicano/Latino Studies III. 4 Units.
Examines contemporary public policy issues in Chicano/Latino communities. Each offering addresses at least three of the following themes: migration, immigrant incorporation, identity construction, language policy, health policy, politics, sexuality, gender, labor, class, and education. Course may be offered online.

(III, VII)

CHC/LAT 64. Introduction to Race and Ethnicity in Political Science. 4 Units.
Examines major theories that attempt to explain the roles of race and ethnicity in U.S. politics. Course may be offered online.

Same as POL SCI 61A.

(III, VII)

CHC/LAT 65. Ethnic and Immigrant America. 4 Units.
Focusing on Asian, Latino, and Black immigrant groups, examines the second generation's experience of straddling two cultures and growing up American. Covers topics such as assimilation, bilingualism, race relations, education, bicultural conflicts, interracial marriage, and multiracial identities.

Same as SOCIOL 68A.

(VII)

CHC/LAT 66. Anthropology of Food. 4 Units.
Examines how food communicates ideas about ethnocentrism, disgust, privilege, gender, race, labor, social identities and hierarchies, globalization, power, and the "Western diet" and its health consequences.

Same as ANTHRO 20B.

(III, VII)

CHC/LAT 69. Lower-Division Special Topics in Chicano/Latino Studies. 4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

CHC/LAT 101. Research in the Latino Community. 4 Units.
Students engage in firsthand research in the local Orange County environment. Students identify a research problem, conduct a literature review, develop questions and/or hypotheses, appropriate methods, and write a proposal.

Prerequisite: Two courses from CHC/LAT 61 or CHC/LAT 62 or CHC/LAT 63 and two courses from CHC/LAT 110-189.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 101B. Supervised Research for Chicano/Latino Studies Majors. 4 Units.
Students who have designed a research project & begun collecting data in CHC/LAT 101 will continue to collect/analyze data for their research projects. By end of the course, students will be prepared to write up their findings in CHC/LAT 102W.

Prerequisite: CHC/LAT 101.

Restriction: Chicano/Latino Studies majors only.

CHC/LAT 102W. Chicano/Latino Research Seminar. 4 Units.
Taught as a writing and research seminar in Chicano/Latino Studies. Student develops own project; engages in peer editing; drafts, writes, and presents paper at Spring research conference. Prior course work in Chicano/Latino Studies helpful, i.e., CHC/LAT 61, 62, 63.

Prerequisite: CHC/LAT 101. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. Chicano/Latino Studies Majors only.

(Ib)

CHC/LAT 110. Chicano Literature and Culture. 4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter. Taught in English.

Repeatability: May be taken for credit 4 times as topics vary.

Same as SPANISH 140.

CHC/LAT 114. Film Media and the Latino Community. 4 Units.
Uses film as a resource for understanding contemporary issues and problems facing the Chicano/Latino community. (Does not study cinema as a genre.).

Same as SOC SCI 173G.

(VII)

CHC/LAT 115A. Latino Music: A View of Its Diversity and Strength. 4 Units.
A survey of the music of the many Latin cultures of the Americas including Mexico, Central and South America, as well as the Caribbean and of those many Latin cultures which thrive and survive in the United States.

Same as ANTHRO 138Q.

(VIII)

CHC/LAT 116. Reading Images Culturally. 4 Units.
Provides analytical tools necessary to undertake research on visual representations. Images, as cultural productions, are steeped in the values, ideologies, and taken-for-granted beliefs of the culture which produced them. Of concern are representations of race, identity, gender, and the "Other.".

Same as ANTHRO 137A.

(VII)

CHC/LAT 121. Latina/Latino Pop: Latina/Latino Popular Culture. 4 Units.
With a focus on the politics of language and space/place, prepares students to critically analyze sites of Latina/Latino popular culture including: music, film, performance, sports, media, and varied subcultures.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 129. Special Topics in Literature, Arts, Media, Culture. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 130. Introduction to Cuba: History, Culture, and Society. 4 Units.
Introduction to Cuban history, culture, and society using social science texts, visual and musical materials. Examines major historical moments including the historical relationship between the United States and explores evolution of Cuban music from the earliest times to present.

Same as INTL ST 177F, SOC SCI 173Q.

(VIII)

CHC/LAT 132A. Chicana/Chicano History: Pre-Colonial to 1900. 4 Units.
Examines social history of the southwest region from antiquity to 1900. Discusses major questions, theory and research methods pertinent to Chicanas/Chicanos. Themes include: indigenous empires, conquest, colonialism, social stratification, ideology, marriage, sexuality, industrial capitalism, accommodation and resistance.

Same as HISTORY 151A.

CHC/LAT 132B. Chicana/Chicano History: Twentieth Century. 4 Units.
Examines social history of the Southwest with emphasis on Mexican-origin people. Discusses major questions, theory and research methods pertinent to Chicana/Chicano history. Themes explored include: immigration, xenophobia, class struggle, leadership, generational cohorts, unionization, education, barrioization, ethnicity, patriarchy, sexuality.

Same as HISTORY 151B.

CHC/LAT 133B. Twentieth-Century Mexico. 4 Units.
Examines the history of contemporary Mexico beginning with the Mexican Revolution and concluding with the present administration. Social, economic, and political effects of the Revolution; formation of a "one-party democracy"; economic transformation of the nation; the present crisis.

Same as HISTORY 161C.

CHC/LAT 134. U.S. Latino Literature and Cultures. 4 Units.
Focuses on aspects of literature, art, cultural production, and history of the multifaceted Latino cultures that have developed within the United States. Focuses on one group, such as Caribbean Americans, Chicanos, Central Americans, or a comparative perspective of several groups.

Same as SPANISH 110C.

CHC/LAT 135. Latinas in the Twentieth Century U.S.. 4 Units.
Latinas in the U.S. from 1900 to present, offering a diversity of their cultures, regional histories, sexualities, generations, and classes.

Same as HISTORY 151C.

CHC/LAT 138. Chicano/Chicana Labor History. 4 Units.
Examines origins of Latino/ Latina labor from colonial period to present. Emphasis on the issues of race, culture, class, and gender. Focus on processes and institutions including: encomienda, migration, unions, informal economies, Bracero program, domestic work.

Same as SOC SCI 167.

CHC/LAT 139. Special Topics in Chicano/Latino History. 1-4 Units.
Studies in selected areas of Chicano/Latino History. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Chicano/Latino majors only.

CHC/LAT 140A. Latina/Latino Queer Sexualities. 4 Units.
Introduces students to the notion of "queer" in relation to Chicanas/Chicanos and Latinas/Latinos and provides students with theoretical frameworks to explore the shifting categories of sexuality, gender, Chicano, Latino within the scholarship areas of Chicana/Chicano and Latina/Latino Studies.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 142. Latinos and the Law. 4 Units.
Examines a range of theoretical, empirical, and policy approaches to legal issues affecting the Latino population, with emphasis on California. Discusses topics concerning the purpose of law, the creation of law, and the enforcement of law.

Same as CRM/LAW C171.

(VII)

CHC/LAT 147. Comparative Minority Politics. 4 Units.
Examines the political experiences of Blacks, Latinos, and Asian Americans in the United States from roughly 1950 to the present. Focuses on how each group has pursued political empowerment via both conventional political channels and social movements.

Same as AFAM 151, ASIANAM 132, POL SCI 124C.

CHC/LAT 148. Racial and Ethnic Relations in the United States. 4 Units.
Examines central questions and issues in the field of race and ethnicity; the emergence, maintenance, and consequences of the ethnic and racial stratification system in the United States; the future of racial and ethnic relations; and relevant public policy issues.

Same as SOCIOL 167A.

Restriction: Sociology majors have first consideration for enrollment.

CHC/LAT 148W. Racial and Ethnic Relations in the United States. 4 Units.
Examines central questions and issues in the field of race and ethnicity; the emergence, maintenance, and consequences of the ethnic and racial stratification system in the United States; the future of racial and ethnic relations; and relevant public policy issues.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOCIOL 167AW.

Restriction: Chicano/Latino Studies and Sociology majors have first consideration for enrollment.

(Ib)

CHC/LAT 150. U.S. Intervention in Latin America. 4 Units.
Explores political, economic, social, and cultural ties that bind Latin America to the United States. Focuses on U.S. intervention and Latin American response from early nineteenth century to present day. Case studies include Mexico, Guatemala, Cuba, Chile, and Central America.

Same as INTL ST 177D, SOC SCI 123A, HISTORY 166.

CHC/LAT 151. Latinos in U.S. Politics. 4 Units.
Comparing the political issues facing Latino groups by examining their migration histories, voting behavior, nonelectoral participation, and policy issues. Latino issues are examined on the national, state, and local levels, including formal representation, immigration, affirmative action, and language policy.

Same as POL SCI 124B.

(VII)

CHC/LAT 151A. Latin American Politics. 4 Units.
Introduces the main concepts and theoretical approaches underlying the study of Latin American politics, examines recent political dynamics, and explores the challenges the region faces in the twenty-first century and how countries will attempt to address them.

Same as INTL ST 176K, POL SCI 153A.

Restriction: Political Science majors, Chicano/Latino Studies majors, and International Studies majors have first consideration for enrollment.

CHC/LAT 151B. Revolution in Latin America. 4 Units.
Presents a comparative analysis of the causes, development, and consequences of selected revolutionary movements, focusing on outbreaks in Mexico, Bolivia, Cuba, Chile, Nicaragua, and Grenada. Explores topics of state formation, economic nationalism, social justice, ethnicity, and role of international affairs.

Same as SOC SCI 173N, HISTORY 166D, INTL ST 177C.

CHC/LAT 152A. Race, Ethnicity, and Social Control. 4 Units.
Provides a historical and sociological survey of racial and ethnic group relations in contexts of crime control, emphasizing the roles of racial ideology, structural racism, and social movements in shaping these dynamic relations, and their significance to American liberal democracy.

Prerequisite: CRM/LAW C7.

Same as CRM/LAW C116.

CHC/LAT 153. Cross-Cultural Research on Urban Gangs. 4 Units.
Taking an urban policy approach, examines the background and contemporary traditions of gangs in several ethnic groups including African-, Asian-, and Mexican-Americans. Cross-cultural exploration of the varied facets of gang life. The major social-control institutions affecting them.

Same as CRM/LAW C156.

(VII)

CHC/LAT 154. Latino Metropolis. 4 Units.
Explores the processes of Latino urbanization in the United States and the spatialization of Latino identities, particularly in the context of Southern California with selected comparisons drawing from other cities.

Same as PP&D 172.

(VII)

CHC/LAT 155. Culture Change and the Mexican People. 4 Units.
Reviews culture contact and colonization, innovation diffusion, acculturation, assimilation, culture conflict and marginality, modernization, urbanization, legal transformations. Mexico and the Southwestern U.S. are reviewed through several centuries to better appreciate the indigenous base of the Mexican people.

Same as CRM/LAW C172.

CHC/LAT 156W. Chicano/Latinos and Labor. 4 Units.
Explores theories that explain the occupational pathways and workplace experiences of Latinos in various work sectors. Investigates jobs such as migrant labor, child street vendors, Latina/Latino professionals, and Latinos migrating to the U.S. South that work in poultry processing plants.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

CHC/LAT 157. Cuban Society and Revolution. 4 Units.
Explores the causes, development, and legacy of the 1959 Revolution. Themes include economic dependency, democracy, race, gender, culture, and the always volatile relations between Cuba and the United States.

Same as POL SCI 153G, HISTORY 166C, INTL ST 177E.

CHC/LAT 158. Feminisms of Color. 4 Units.
Surveys the development of Chicana feminist thought and practice. Focuses on historical contemporary writings by and about Chicana feminists. Draws from interdisciplinary scholarship in order to survey the diversity of Chicana feminisms.

(VII)

CHC/LAT 158W. Feminisms of Color. 4 Units.
Surveys the development of Chicana feminist thought and practice. Focuses on historical contemporary writings by and about Chicana feminists. Draws from interdisciplinary scholarship in order to survey the diversity of Chicana feminisms.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VII)

CHC/LAT 159. Special Topics in Society, Labor, Politics, Law, Gender, Race, Ethnicity. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Chicano/Latino majors only.

CHC/LAT 160. Perspectives on the U.S. - Mexican Border. 4 Units.
Economic aspects of the historical development of the United States-Mexican border. The current economic situation in the Southwest and border areas as it affects both Mexico and the Latino/Chicano population is also examined.

Same as SOC SCI 173I, INTL ST 177B.

(VII)

CHC/LAT 161. Transnational Migration. 4 Units.
Examines the movement of people across national borders, governmentality and the role of state practices to control populations, and issues of citizenship, belonging, and identity. Examples are drawn from the United States, Europe, Latin America, Asia, and Africa.

Same as ANTHRO 125X, INTL ST 117A.

(VIII)

CHC/LAT 163. U.S. Immigration Policy. 4 Units.
Examines selected immigration policy debates since the nineteenth century, rationale and consequences of immigration law since 1965, problems of administration, implementation and enforcement, impact of immigration policy on foreign relations, and contemporary debate regarding the future of U.S. policy.

Same as POL SCI 126C.

(VII)

CHC/LAT 166. Chicano Movement. 4 Units.
Explores the history of Mexicans in the U.S. with particular attention paid to their integration into the U.S. capitalist economy. Examines this economic history and the Chicano movement, "El Movimiento," within the wide context of socio-economic change.

Same as PP&D 177.

Restriction: Chicano/Latino Studies, Urban Studies, and Social Ecology majors have first consideration for enrollment.

CHC/LAT 168. Chicano/Latino Social Psychology. 4 Units.
Examines theories, research, and major issues of relevance to understanding social psychological processes in Chicano/Latino populations. Topics include social development, cultural orientations, gender and sexuality, close relationships, happiness and well-being, stereotyping, prejudice and discrimination, and mental and physical health.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PSY BEH 192Q.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

CHC/LAT 169. Special Topics in Globalization, Transnationalism, Immigration, U.S.-Mexico Border. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

CHC/LAT 170. Chicano/Latino Families. 4 Units.
Introduction to the research, literature, and issues surrounding the topic of Chicano/Latino families including cultural history, contemporary issues, organization of family, traditions, lifestyles, values, beliefs, generational differences, gender issues, ethnic identity, evolution of demographic patterns, current economic and political standings.

Same as SOC SCI 165, PSYCH 174H.

CHC/LAT 171. Chicano/Latino Psychology. 4 Units.
Examines research and literature investigating Chicano/Latino ethnicity as a variable influencing behavior. Explores mental health needs and issues of Chicano/Latinos and discusses competent, sensitive methods of mental health service delivery.

Same as PSYCH 174F.

CHC/LAT 176. Race, Gender, and Science. 4 Units.
Perfect for pre-health, science and social science majors wanting to appreciate how science and society interact. Race and gender as biological and socio-cultural constructs are examined. Questions explored: What is disease? What is science? What are social and biological differences.

Same as ANTHRO 128B, GEN&SEX 188A.

(VII)

CHC/LAT 177. Culture and Close Relationships. 4 Units.
Examines cultural influences on close relationship processes including attraction, love, friendship, family, social support, and significance of close relationships for health and well-being. National and ethnic sources of cultural variation examined include Latin America, Asia, Africa, and the Middle East.

Same as PSY BEH 192R.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

CHC/LAT 177W. Culture and Close Relationships. 4 Units.
Examines cultural influences on close relationship processes including attraction, love, friendship, family, social support, and significance of close relationships for health and well-being. National and ethnic sources of cultural variation examined include Latin America, Asia, Africa, and the Middle East.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PSY BEH 192RW.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(Ib, VII)

CHC/LAT 178. Health and the Latino Paradox. 4 Units.
Examines research and theories concerning the physical and mental health of U.S. Latino populations. Contemporary accounts, health care implications, and new directions for understanding sources of risks and resilience for health in Latino populations are evaluated and discussed.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PSY BEH 192S.

Restriction: Psychology and Social Behavior and Chicano/Latino Studies majors have first consideration for enrollment.

(VII)

CHC/LAT 178A. Medical Anthropology. 4 Units.
Introduces students to cross-cultural perspectives and critical theories in anthropological studies of medicine. Special attention is given to diverse ways of understanding bodies, illnesses, and therapeutic practices in our changing world.

Same as ANTHRO 134A.

(VIII)

CHC/LAT 179. Special Topics in Health, Medicine, and Psychosocial Dynamics. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Chicano/Latino Studies majors have first consideration for enrollment.

CHC/LAT 182. Latina/Latino Access and Persistence in Higher Education. 4 Units.
Introduction to how social, political, and economic forces impact on Latina/Latino racial/ethnic minorities with regard to their access and persistence in the U.S. higher education system. Investigates historical perspectives and theoretical underpinnings of college access and retention research.

Same as EDUC 182.

CHC/LAT 183. Multicultural Education in K-12 Schools. 4 Units.
Provides a theoretical and empirical overview of educational issues affecting low-income immigrant and U.S.-born minority student populations in an increasingly diverse and changing society.

Same as EDUC 124.

(VII)

CHC/LAT 184. College Advising for High School Students. 4 Units.
Provides a brief introduction to college-access issues and in-depth understanding in the field of college advising. Students learn how to help high school students develop higher education plans and guide them through the college application process.

Same as EDUC 183.

CHC/LAT 189. Special Topics in Educational Policy and Issues. 1-4 Units.
Studies in selected areas of Chicano/Latino Studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

CHC/LAT H190A. Honors Research Preparation. 4 Units.
Students write a proposal describing their research question, the relevant background literature, and the method of data collection and analysis. Field work for the project may begin this quarter.

Restriction: Open only to students in the Honors Program in Chicano/Latino Studies.

CHC/LAT H190B. Honors Field Research. 4 Units.
Students begin or continue their research for their senior honors thesis.

Prerequisite: CHC/LAT H190A.

CHC/LAT H190C. Honors Thesis. 4 Units.
Student drafts a senior honor thesis (typically) with the following sections: problem statement, literature review, description of the methods, results, and conclusions.

Prerequisite: CHC/LAT H190A and CHC/LAT H190B.

CHC/LAT H190CW. Honors Thesis. 4 Units.
Student drafts a senior honor thesis (typically) with the following sections: problem statement, literature review, description of the methods, results, and conclusions.

Prerequisite: CHC/LAT H190A and CHC/LAT H190B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

CHC/LAT 191A. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as SOC SCI 186A, PSYCH 144A.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

CHC/LAT 191B. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144A or SOC SCI 186A or CHC/LAT 191A. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children and be culturally sensitive.

Same as SOC SCI 186B, PSYCH 144B.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

CHC/LAT 191C. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144B or SOC SCI 186B or CHC/LAT 191B. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as SOC SCI 186C, PSYCH 144C.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

CHC/LAT 198. Group Directed Study. 1-4 Units.
Directed study with Chicano/Latino faculty.

Repeatability: Unlimited as topics vary.

CHC/LAT 199. Independent Study. 1-4 Units.
Independent research with Chicano/Latino faculty.

Repeatability: May be repeated for credit unlimited times.

CHC/LAT 200A. Theoretical Issues in Chicano/Latino Research. 4 Units.
Introduction to theoretical issues in the scholarship in Chicano/Latino Studies. Theories from social sciences, humanities, critical theory. Topics: immigration, identity, gender and sexuality, globalization, transnationalism, social, political, and economic integration, race theory, labor market participation, social history, cultural productions.

CHC/LAT 210A. Cultural and Historial Precedents for Latinos and Medical Care. 2 Units.
Introduction to the history of Latinos, focusing on relevant pre-Columbian, colonial, and modern social and cultural developments, including issues of race, gender, sexuality, religious beliefs, and health beliefs and practices.

Grading Option: In progress only.

Overlaps with CHC/LAT 212.

CHC/LAT 210B. Cultural and Historical Precedents for Latinos and Medical Care. 2 Units.
Introduction to the history of Latinos, focusing on relevant pre-Columbian, colonial, and modern social and cultural developments, including issues of race, gender, sexuality, religious beliefs, and health beliefs and practices.

Prerequisite: CHC/LAT 210A.

Overlaps with CHC/LAT 212.

Restriction: Chicano/Latino Studies 210A-B and 212 may not both be taken for credit.

CHC/LAT 211A. Latinos/Latinas and Medical Care: Contemporary Issues. 2 Units.
Introduction to medical anthropological and social science perspectives on Latinos/Latinas in relation to a number of health and medically-related issues, i.e., immigration, gender, reproduction, culture, social structure, political economy, sexuality, utilization of medical services, and health beliefs.

CHC/LAT 211B. Latinos/Latinas and Medical Care: Contemporary Issues. 2 Units.
Introduction to medical anthropological and social science perspectives on Latinos/Latinas in relation to a number of health and medically-related issues, i.e., immigration, gender, reproduction, culture, social structure, political economy, sexuality, utilization of medical services, and health beliefs.

Prerequisite: CHC/LAT 211A.

CHC/LAT 215. Transnational Migration. 4 Units.
Examines borders and boundaries as material and semiotic constructs. Drawing upon an array of literatures, but loosely situated in U.S. geo/biopolitics, explores transformative troublings of places, spaces, borders, and bodies of all sorts.

Same as SOC SCI 254A, ANTHRO 235A.

Restriction: Graduate students only.

CHC/LAT 217. Street Ethnography. 4 Units.
Focuses on urban street populations, especially gangs, and outlines some of the major conceptual and theoretical issues related to this topic and the processes of street socialization. Methods of inquiry include mapping, ethnohistory, survey questionnaires, and other quantitative techniques.

Same as CRM/LAW C222.

Restriction: Graduate students only.

CHC/LAT 221. Race, Ethnicity, and Social Control. 4 Units.
Origins and organization of racialized social control, with emphasis on criminal justice. Racial politics of criminal/juvenile justice considered in comparative (historical and international) perspective. Exploration of theoretical and methodological issues for research on race, ethnicity, and social control.

Same as CRM/LAW C241.

Restriction: Graduate students only.

CHC/LAT 235. U.S. Ethnic Politics. 4 Units.
Assesses theories of ethnic political attitudes and behaviors in U.S. politics and examines methodological approaches to testing theories of ethnic politics. The primary focus is contemporary ethnic politics with attention to ethnic politics in American political development.

Same as POL SCI 245A.

Restriction: Graduate students only.

CHC/LAT 289. Special Topics in Chicano/Latino Studies. 1-4 Units.
Current research in Chicano/Latino Studies.

Repeatability: May be repeated for credit unlimited times.

CHC/LAT 290. Dissertation Research. 4 Units.
Dissertation research with Chicano/Latino faculty.

Repeatability: May be taken for credit 10 times.

Restriction: Graduate students only.

CHC/LAT 299. Independent Study. 4 Units.
Independent study with Chicano/Latino Studies faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Cognitive Sciences

2201 Social & Behavioral Sciences Gateway; 949-824-3771
http://www.cogsci.uci.edu/
Ramesh Srinivasan, **Department Chair**

The Department of Cognitive Sciences is committed to the investigation of the abstract, complex structures that underlie human cognition: language, thought, memory, learning, sensorimotor integration and perception. The main areas of research strength within the department are visual and auditory perception, experimental psychology, cognitive psychology, mathematical psychology and cognitive neuroscience.

Undergraduate Program

Students should be aware that psychology courses are offered in several different departments and programs. Students interested in general psychology including the areas of development, clinical, perception, learning, memory, cognitive processes and neuroscience are advised to consult the course listings for the B.A. in Psychology section for the Department of Cognitive Sciences. The courses in this major are designed to provide students with a strong foundation in general psychology. Students specifically interested in a program with a quantitative approach to theory and research in any of the areas of Cognitive Neuroscience; Experimental Psychology (emphasizing Sensation, Perception, Attention and Memory); Language Science; or Computational Cognitive Science should consult the course listings for the B.S. in Cognitive Sciences also here in this section. Students interested in other areas of psychology are advised to consult the course listings in the School of Social Ecology (p. 1442) and the Francisco J. Ayala School of Biological Sciences (p. 260) sections.

In anticipation that the number of students who are qualified to elect psychology as a major will exceed the number of positions available, students applying for admission for fall 2014 should be sure to file their application before November 30, 2013.

NOTE: Students may complete either the B.A. in Psychology or B.S. in Cognitive Sciences but not both.

Change of Major

Information about change-of-major requirements, procedures, and policies is available in the School of Social Sciences Undergraduate Student Affairs Office and at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Excellence in Psychological Research

Psychology majors doing independent research under PSYCH 199 may be eligible for participation in the Undergraduate Research Opportunities Program (UROP). Participants can obtain research funding and have the opportunity to have their research papers published in a peer-reviewed student journal or to present them at a special conference of UCI student research. Guidelines for the program are available from the Department of Cognitive Sciences office.

Requirements for the B.S. Degree in Cognitive Sciences

Overview

The B.S. in Cognitive Sciences is structured to provide students with a challenging introduction to the broad field of Cognitive Sciences that is strongly grounded in theory and an empirical approach emphasizing experimental/computational methods. To ensure an intellectually coherent experience and that students receive an in-depth grounding in at least one area, all students in the major are required to choose one of the following areas of concentration: (a) Cognitive Neuroscience; (b) Experimental Psychology–Sensation, Perception, Attention, and Memory; (c) Language Science; (d) Computational Cognitive Science. Associated with each of these concentrations is a required set of core courses, and electives. In addition, students in all the concentrations are required to acquire a background in (a) calculus, (b) statistics, (c) introductory computer programming, and (d) some combination of the natural sciences, logic and philosophy of science, linguistics, or more advanced computer science or mathematics as is appropriate to their concentration. Finally, each student will be required to participate in faculty-sponsored research and are expected to produce a senior thesis. This will be completed with PSYCH H111A-PSYCH 111BW-PSYCH H111C.

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 1561)**.**

Departmental Requirements for the Major

School requirements must be met and must include courses as specified below:

A. Complete:	
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
PSYCH 110	Quantitative Methods for Cognitive Sciences Research
or STATS 110	Statistical Methods for Data Analysis I
PSYCH 114M	MATLAB Programming
or I&C SCI 31	Introduction to Programming
PSYCH 9A- 9B- 9C	Psychology Fundamentals and Psychology Fundamentals and Psychology Fundamentals
PSYCH 109	Cognitive Sciences Research Seminar
PSYCH H101A- H101B- H101C	Honors Seminar in Psychology I and Honors Seminar in Psychology II and Honors Seminar in Psychology III
PSYCH H111A	Honors Experimental Psychology
PSYCH 111BW- H111B	Honors Advanced Experimental Psychology and Honors Advanced Experimental Psychology Laboratory
PSYCH H111C	Honors Research in Experimental Psychology
STATS 7	Basic Statistics
B. Select three courses from the following list (at least two of these courses must come from a single discipline). Note that each of the concentrations recommends particular selections from these alternatives which are prerequisites for more advanced courses:	
BIO SCI 35	The Brain and Behavior
BIO SCI 36	Drugs and the Brain
BIO SCI 37	Brain Dysfunction and Repair
BIO SCI 38	Mind, Memory, Amnesia, and the Brain
BIO SCI 93	From DNA to Organisms
BIO SCI 94	From Organisms to Ecosystems
I&C SCI 31	Introduction to Programming *
I&C SCI 32	Programming with Software Libraries
I&C SCI 33	Intermediate Programming
IN4MATX 41	Informatics Core Course I
IN4MATX 42	Informatics Core Course II
PHYSICS 3A- 3B- 3C	Basic Physics and Basic Physics and Basic Physics
or	

PHYSICS 7C- 7D- 7E	Classical Physics and Classical Physics and Classical Physics
with labs PHYSICS 7LC and PHYSICS 7LD	
NOTE: Careful selection should be made in order to satisfy general education requirements.	
C. Three additional courses must be taken in Biology, Physics, Computer Science, Linguistics, Logic and Philosophy of Science, Mathematics, or Statistics. In some cases specific courses are recommended for each concentration. They can be chosen either from the list above or from the following list:	
LINGUIS 1	Languages of the World
LINGUIS 3	Introduction to Linguistics
LINGUIS 10	Introduction to Phonology
LINGUIS 20	Introduction to Syntax
LINGUIS 51	Acquisition of Language
LINGUIS 68	Introduction to Language and Culture
LPS 30	Introduction to Symbolic Logic
LPS 31	Introduction to Inductive Logic
MATH 2D	Multivariable Calculus
MATH 2E	Multivariable Calculus
MATH 3A	Introduction to Linear Algebra
MATH 3D	Elementary Differential Equations
MATH 4	Mathematics for Economists
PHYSICS 15	Physics of Music
PSYCH 56L	Acquisition of Language
STATS 111	Statistical Methods for Data Analysis II
STATS 112	Statistical Methods for Data Analysis III
D. In addition to the core course taken as part of the concentration, two additional core courses must be taken selected from this list:	
PSYCH 120A	Abnormal Psychology
PSYCH 120D	Developmental Psychology
PSYCH 120H	History of Psychology
PSYCH 120P	Personality Theories
PSYCH 130A	Perception and Sensory Processes
PSYCH 140C	Cognitive Science
PSYCH 140L	Principles of Learning Theory
PSYCH 140M	Human Memory
PSYCH 150	Psychology of Language
PSYCH 160A	Introduction to Cognitive Neuroscience
PSYCH 160D	Brain Disorders and Behavior
E. All courses for the above major requirements must be taken with a grade of C+ or better. Students must maintain an overall grade point average of 3.0 for courses within the major.	

* If not used to satisfy Introductory Programming Requirement.

Concentrations

Every student in the major is required to select a concentration within the major from the four choices listed below by the beginning of the junior year. The choice of concentration has implications for choosing particular prerequisite courses outside the major as well as the core courses and three electives.

Concentration in Cognitive Neuroscience

BIO SCI 35	The Brain and Behavior
Select two courses from the following:	
BIO SCI 36	Drugs and the Brain
BIO SCI 37	Brain Dysfunction and Repair
BIO SCI 38	Mind, Memory, Amnesia, and the Brain
BIO SCI 93	From DNA to Organisms

BIO SCI 94	From Organisms to Ecosystems
Required Core Course	
PSYCH 160A	Introduction to Cognitive Neuroscience
Select three electives from the following:	
PSYCH 161	Language and the Brain
PSYCH 161H	Hearing and the Brain
PSYCH 161P	Perceptual Neuroscience
PSYCH 162A	Neurobiology of Learning and Memory
PSYCH 162B	Human Memory Disorders
PSYCH 168E	Embodied Cognition

Concentration in Experimental Psychology-Sensation, Perception, Attention and Memory

BIO SCI 35	The Brain and Behavior
Select at least one of the Physics course listed above (under Department requirements)	
Select one core course from the following:	
PSYCH 130A	Perception and Sensory Processes
PSYCH 140C	Cognitive Science
PSYCH 140L	Principles of Learning Theory
PSYCH 140M	Human Memory
Three electives should be chosen from the preceding list of core courses and PSYCH 131A, PSYCH 131B.	

Concentration in Language Science

BIO SCI 35	The Brain and Behavior
LINGUIS 3	Introduction to Linguistics
PSYCH 56L	Acquisition of Language
and either	
LINGUIS 10	Introduction to Phonology
or LINGUIS 20	Introduction to Syntax
Core Course	
PSYCH 150	Psychology of Language
Select three elective courses from the following:	
LINGUIS 102	Formal Languages and Automata
LINGUIS 111	Intermediate Phonology
LINGUIS 121	Intermediate Syntax
PSYCH 156A	Acquisition of Language II
PSYCH 161	Language and the Brain
PSYCH 161H	Hearing and the Brain
PSYCH 161P	Perceptual Neuroscience

Concentration in Computational Cognitive Science

I&C SCI 31	Introduction to Programming
MATH 3A	Introduction to Linear Algebra
PSYCH 114M	MATLAB Programming
Core Course	
PSYCH 140C	Cognitive Science
Select three elective courses from the following:	
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 178	Machine Learning and Data-Mining
COMPSCI 183	Introduction to Computational Biology
PSYCH 112R- 112LR	Cognitive Robotics and Cognitive Robotics Laboratory
PSYCH 131A	Vision

PSYCH 140M	Human Memory
PSYCH 168E	Embodied Cognition

Honors

Honors in Cognitive Sciences

To graduate with Honors in Cognitive Sciences, a student must successfully complete the requirements for the B.S. degree in Cognitive Sciences with an overall grade point average of 3.2 in Cognitive Sciences major courses and must produce a thesis deemed acceptable by the faculty.

Research Support

The B.S. in Cognitive Sciences requires students to participate in faculty-guided research that is expected to lead to a senior thesis. In many cases, support for that research will be provided by the faculty member in whose lab the student is working. In addition, students working on research projects are eligible for participation in the Undergraduate Research Opportunities Program (UROP). Participants can obtain research funding and have the opportunity to have their research papers published in a peer-reviewed student journal or to present them at a special conference of UCI student research. Guidelines for the program are available from the Department of Cognitive Sciences office.

Campuswide Honors Program

The Campuswide Honors Program is available to selected high-achieving students from all academic majors from their freshman through senior years. For more information contact the Campuswide Honors Program, 1200 Student Services II; (949) 824-5461; honors@uci.edu; or visit the Campuswide Honors Program (http://www.honors.uci.edu) website.

Sample Program — Cognitive Neuroscience Concentration

Freshman		
Fall	**Winter**	**Spring**
PSYCH 9A	PSYCH 9B	PSYCH 9C
MATH 2A	MATH 2B	STATS 7
Gen. Ed.	Gen. Ed.	Gen. Ed.
	PSYCH 109	
Sophomore		
Fall	**Winter**	**Spring**
PSYCH H111A (and H111A Lab)	PSYCH 111BW	PSYCH H111C
PSYCH 114M	PSYCH H111B	PSYCH 203D
BIO SCI 35	Gen. Ed.	Gen. Ed.
	BIO SCI 36	BIO SCI 37
Junior		
Fall	**Winter**	**Spring**
PSYCH 160A	Concen. Core course	Concen. Elective course
PSYCH H101A	Gen. Ed.	Gen. Ed.
Addl. Science course	Addl. Science course	Addl. Science course
Elective course	Addl. Core course	Elective course
Senior		
Fall	**Winter**	**Spring**
PSYCH H101B	Elective course	PSYCH H101C
Concen. Elective course	Concen. Elective course	Addl. Core course
Addl. Core course	Addl. Core course	Elective course
Elective course	Elective course	Elective course

Sample Program — Cognitive Neuroscience Concentration and Campuswide Honors

Freshman		
Fall	**Winter**	**Spring**
PSYCH 9A	PSYCH 9B	PSYCH 9C
SOC SCI H1E	SOC SCI H1F	SOC SCI H1G
	PSYCH 109	
Sophomore		
Fall	**Winter**	**Spring**
MATH 2A	MATH 2B	STATS 7
SOC SCI H1E	SOC SCI H1F	SOC SCI H1G
PSYCH 114M	Gen. Ed.	Addl. Science course
PSYCH 160A	Concen. Core course	

Junior		
Fall	**Winter**	**Spring**
PSYCH H111A (and H111A Lab)	PSYCH 111BW	PSYCH H111C
PSYCH 203D	PSYCH H111B	PHYSICS H90
PSYCH H101A	CHEM H90	Addl. Core course
	Addl. Science course	Elective
Senior		
Fall	**Winter**	**Spring**
PSYCH H101B	Addl. Core course	PSYCH H101C
BIO SCI H90	Addl. Science course	Elective
Concen. Elective course	Concen. Elective course	Concen. Elective course
Elective	Elective	

Requirements for the B.A. Degree in Psychology

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 1561)**.**

Departmental Requirements for the Major

School requirements must be met and must include 18 courses (70 units) as specified below:

A. Complete:	
PSYCH 9A- 9B- 9C	Psychology Fundamentals and Psychology Fundamentals and Psychology Fundamentals
B. Two introductory courses (eight units) in the social sciences selected from:	
ANTHRO 2A	Introduction to Sociocultural Anthropology
ANTHRO 2B	Introduction to Biological Anthropology
ANTHRO 2D	Introduction to Language and Culture
ECON 1	Introduction to Economics
LINGUIS 3	Introduction to Linguistics
POL SCI 6C	Introduction to Political Science: Micropolitics
SOC SCI 5A	Introduction to Human Geography
SOCIOL 1	Introduction to Sociology
SOCIOL 2	Globalization and Social Change
SOCIOL 3	Social Problems
or one or two quarters of the following when topic is not psychology:	
SOC SCI H1E- H1F- H1G	Honors: Critical Issues on the Social Sciences and Honors: Critical Issues on the Social Sciences and Honors: Critical Issues on the Social Sciences
C. A one-quarter course and laboratory in experimental psychology or research methods selected from the following:	
PSYCH 112A- 112LA	Experimental Psychology and Experimental Psychology Laboratory
PSYCH 112M- 112LM	Research Methods in Psychology and Research Methods in Psychology Laboratory
PSYCH 112R- 112LR	Cognitive Robotics and Cognitive Robotics Laboratory
NOTE: These courses have as prerequisites PSYCH 9A, PSYCH 9B, PSYCH 9C and one year of mathematics/statistics (see course listings). These prerequisites are strictly enforced. PSYCH 112A, PSYCH 112LA are the first quarter of a multi-quarter sequence that satisfies the upper-division writing requirement and allows students to plan and conduct research projects. Students taking these courses should plan to continue in them through at least the second quarter. Students who intend to fulfill the upper-division writing requirement in some other way should consider taking PSYCH 112M and PSYCH 112LM, PSYCH 112P and PSYCH 112LP, or PSYCH 112R and PSYCH 112LR to fulfill the laboratory requirement.	
D. Select four upper-division Psychology core courses (16 units). These courses are designated with an ending number "0" and include the following:	
PSYCH 120A	Abnormal Psychology
PSYCH 120D	Developmental Psychology
PSYCH 120H	History of Psychology
PSYCH 120P	Personality Theories
PSYCH 130A	Perception and Sensory Processes

PSYCH 140C	Cognitive Science
PSYCH 140L	Principles of Learning Theory
PSYCH 140M	Human Memory
PSYCH 150	Psychology of Language
PSYCH 160A	Introduction to Cognitive Neuroscience
PSYCH 160D	Brain Disorders and Behavior

E. Select seven additional courses (four or more units each) with emphasis in psychology, distributed as follows:

1. No more than one of the seven may be lower-division. PSYCH 7A and PSYCH 46A may not be used to fulfill this requirement.
2. Three of the upper-division courses used to satisfy requirements D and E must be taken from one of the following modules: Psychology 110–119 (Research Methodologies), 120–129 (General Psychology), 130–139 (Perception and Sensory Processes), 140–149 and 150–159 (Learning and Cognition and Language Sciences combined), 160–169 (Cognitive Neuroscience), and 170–179 (Interdisciplinary Studies).
3. Certain courses offered in the School of Biological Sciences and the School of Social Ecology may be used in partial satisfaction of this requirement. A total of three of these courses (12 units) may be used in this way with a maximum of two from either of these Schools.

   The courses that may be used in this way are those in the Department of Cognitive Sciences' course listings numbered PSYCH 127, PSYCH 147, and PSYCH 177, as well as Psychology and Social Behavior 193E (same as Criminology, Law and Society C105) and Biological Sciences D137, E174, N110, and N159.
4. No more than three of the courses (each of four or more units) may be numbered 190–199.

NOTE: Psychology majors are strongly encouraged to take BIO SCI 1A and BIO SCI 35 toward satisfaction of the science and technology portion of the general education requirement (category II). Furthermore, it is strongly recommended that students who intend to pursue post-baccalaureate work in psychology take the PSYCH 112A-PSYCH 112B-PSYCH 112C sequence. Most psychology graduate programs require statistics (which, at UCI, may be satisfied by taking PSYCH 10A-PSYCH 10B-PSYCH 10C or SOC SCI 10A-SOC SCI 10B-SOC SCI 10C), but some require calculus (which, at UCI, may be satisfied by taking MATH 2A-MATH 2B).

Honors Program in Psychology

The two-year Honors Program in Psychology is open to selected juniors who are majoring in psychology. It provides thorough grounding in research methods and culminates with the opportunity for basic research in some area of psychology under faculty supervision. The program has a limited number of openings and seeks to attract outstanding students who plan to undertake postgraduate education in some field of the psychological sciences. Admission to the program is based on a formal application that is normally submitted in the spring quarter of the sophomore year. Applicants should have an overall grade point average of at least 3.2 and a grade point average of at least 3.5 in psychology courses, although this requirement may be waived in unusual cases.

During the junior year, students who participate in the program are expected to enroll in Honors Experimental Psychology (PSYCH H111A-PSYCH 111BW-PSYCH H111C), and in the fall quarter of the Honors Seminar in PSYCH H101A. As seniors, following successful completion of these junior-year requirements, psychology honors students are enrolled in the Honors Seminar in Psychology (PSYCH H101B-PSYCH H101C) in the fall and spring quarters. Participants in the honors program are expected to complete course work beyond the general education requirement in one or more of the following areas: biological sciences, mathematics, computer science, physical science, linguistics, philosophy. The honors seminar may be used to satisfy two of the courses required by Part E of the psychology major requirements. To graduate with honors in psychology, a student must successfully complete the requirements for the B.A. degree in psychology with an overall grade point average of 3.2 and a grade point average of at least 3.5 in psychology courses. In addition, honors students must successfully complete a senior honors thesis as part of the senior-year course work.

Sample Programs — Psychology Majors

General

Freshman		
Fall	**Winter**	**Spring**
PSYCH 9A	PSYCH 9B	PSYCH 9C
Gen. Ed.	Gen. Ed.	Gen Ed
Gen. Ed.	Gen. Ed.	Gen. Ed.
	SOC SCI 3A	Intro SOC SCI course
Sophomore		
Fall	**Winter**	**Spring**
PSYCH 10A	PSYCH 10B	PSYCH 10C
PSYCH Core course[1]	PSYCH Core course[1]	PSYCH Core course[1]
Intro SOC SCI course	Gen. Ed.	Gen. Ed.
Gen. Ed.	Gen. Ed.	Gen. Ed.
Junior		
Fall	**Winter**	**Spring**
PSYCH Core course[1]	Gen. Ed.	UD PSYCH course[1]

Module[2]	Module[2]	Module[2]
Experimental[3]	Electives	Electives
Electives	UD PSYCH course	Electives
Senior		
Fall	**Winter**	**Spring**
UD PSYCH course	UD PSYCH course	Electives
PSYCH 199	PSYCH 199	Electives
Electives	Electives	Electives
Electives	Electives	Electives

1 Psychology core course, an upper-division course with the ending number “0.”

2 Select three courses from one module sequence: Psychology 110–119 (Research Methodologies), 120–129 (General Psychology), 130–139 (Perception and Sensory Processes), 140–149 and 150–159 (Learning and Cognition and Language Sciences combined), 160–169 (Cognitive Neuroscience), and 170–179 (Interdisciplinary Studies).

3 For Experimental course select one course and lab course: PSYCH 112A, PSYCH 112M, PSYCH 112R.

Sample Program — Graduate School Track

Freshman		
Fall	**Winter**	**Spring**
PSYCH 9A	PSYCH 9B	PSYCH 9C
HUMAN 1A	HUMAN 1B	HUMAN 1C
HUMAN 1AS	HUMAN 1BS	HUMAN 1CS
MATH 2A	MATH 2B	STATS 7
Sophomore		
Fall	**Winter**	**Spring**
PSYCH 10A	PSYCH 10B	PSYCH 10C
PSYCH Core course[1]	PSYCH Core course[1]	PSYCH Core course[1]
Intro SOC SCI course	Intro SOC SCI course	Gen. Ed.
1 Computer tech course	Gen. Ed.	Gen. Ed.
		* Apply to honors in spring
Junior		
Fall	**Winter**	**Spring**
PSYCH 112A	PSYCH 112BW	PSYCH 112C
PSYCH Core course[1]	UD PSYCH course	UD PSYCH course
Gen. Ed.	Gen. Ed.	Gen. Ed.
Gen. Ed.	Gen. Ed.	Gen. Ed.
Senior		
Fall	**Winter**	**Spring**
PSYCH 199	PSYCH 199	PSYCH H101C
Electives	Electives	Electives
Electives	Electives	Electives
Electives	Electives	Electives

1 Psychology core course, an upper-division course with the ending number “0.”

Sample Program — Transfer Psychology Track

Junior		
Fall	**Winter**	**Spring**
PSYCH 10A	PSYCH 10B	PSYCH 10C
1 Computer tech course	PSYCH Core course[1]	PSYCH Core course[1]
PSYCH Core course[1]	UD PSYCH course	UD Writing course
Senior		
Fall	**Winter**	**Spring**
UD PSYCH course	UD PSYCH course	UD PSYCH course
PSYCH 112A or 112M	PSYCH Core course[1]	UD PSYCH course
UD PSYCH course	Electives	Electives
Electives	Electives	Electives

[1] Psychology core course, an upper-division course with the ending number “0.”

Sample Program — Honors

Freshman		
Fall	**Winter**	**Spring**
PSYCH 9A	PSYCH 9B	PSYCH 9C
HUMAN 1A	HUMAN 1B	HUMAN 1C
HUMAN 1AS	HUMAN 1BS	HUMAN 1CS
MATH 2A	MATH 2B	STATS 7
Sophomore		
Fall	**Winter**	**Spring**
PSYCH 10A	PSYCH 10B	PSYCH 10C
PSYCH Core course[1]	PSYCH Core course[1]	PSYCH Core course[1]
Intro SOC SCI course	Intro SOC SCI course	Gen. Ed.
1 Computer tech course	Gen. Ed.	Gen. Ed.
		* Apply to honors in Spring
Junior		
Fall	**Winter**	**Spring**
PSYCH H101A	PSYCH 111BW	PSYCH H111C
PSYCH H111A	UD PSYCH course	UD PSYCH course
PSYCH Core course[1]	Gen. Ed.	Gen. Ed.
Gen. Ed.	Gen. Ed.	Gen. Ed.
Senior		
Fall	**Winter**	**Spring**
PSYCH H101B	PSYCH 199	PSYCH H101C
PSYCH 199	Electives	Electives
Electives	Electives	Electives
Electives	Electives	Electives

[1] Psychology core course, an upper-division course with the ending number “0.”

Psychology Minor Requirements

Requirements for the minor in psychology are met by taking seven or eight psychology courses (28 or 32 units) as specified below:

A. Complete either:	
PSYCH 7A	Introduction to Psychology (for the 28-unit minor)
or	
PSYCH 9A- 9B- 9C	Psychology Fundamentals and Psychology Fundamentals and Psychology Fundamentals (for the 32-unit minor)
B. Select three upper-division psychology courses from the following:	
PSYCH 120A	Abnormal Psychology
PSYCH 120D	Developmental Psychology
PSYCH 120H	History of Psychology
PSYCH 120P	Personality Theories
PSYCH 130A	Perception and Sensory Processes
PSYCH 140C	Cognitive Science
PSYCH 140L	Principles of Learning Theory
PSYCH 140M	Human Memory
PSYCH 150	Psychology of Language
PSYCH 160A	Introduction to Cognitive Neuroscience
PSYCH 160D	Brain Disorders and Behavior
C. Complete one of the following:	
For students who took PSYCH 7A: Select three additional psychology courses (four or more units each) no more than one of which is a lower-division course.	

For students who took PSYCH 9A, PSYCH 9B, PSYCH 9C: select two additional upper-division psychology courses (four or more units each). PSYCH 190–199 cannot be used to fulfill this requirement.

D. In addition, the school mathematics and computer science requirement (school requirement 1) must be satisfied.

Graduate Study in the Cognitive Sciences

The Department of Cognitive Sciences offers a Ph.D. degree program in psychology, with a specialization in cognitive science, to prepare students for research and teaching careers in academia, industry and government. The emphasis is on modern techniques of experimentation and theory construction. Special attention is given to providing hands-on research experience and equipping students with sophisticated mathematical and computing skills. The department has 30 faculty; two are members of the National Academy of Sciences, and many serve as editors or editorial board members of leading professional journals, and as members of NSF and NIH study panels. Many cognitive sciences faculty are also members of UCI's Institute for Mathematical Behavioral Sciences, and the department is generally regarded as one of the world's leading centers for mathematically oriented research in cognitive psychology. The department is also allied closely to the school's Center for Cognitive Neuroscience and Engineering and the Center for Language Science.

Admission

In addition to meeting the general requirements for admission, applicants should have acquired a background in mathematics equivalent to at least one year of calculus. Advanced course work in some of the following fields is highly desirable: psychology, computer science, mathematics, physical sciences, engineering, biology, logic, and linguistics. Standard requirements for admission include Graduate Record Examination (GRE) scores for tests taken within the past five years, official transcripts of all college course work, and at least three letters of recommendation. Applicants whose primary language is not English are required to demonstrate proficiency in English for admission consideration. Information about this requirement is available at http://www.grad.uci.edu/admissions/applying-to-uci/english-proficiency.html.

To receive full consideration for fellowship and assistantship awards, applications must be received by December 15. While applications filed and completed before January 15 will be reviewed for admissions and financial support, applicants are strongly encouraged to submit their application by December 15. Admissions decisions are made in March. Application materials are available online at the Graduate Division Web site, http://www.grad.uci.edu/.

Requirements for the Doctoral Degree in Psychology

Course work. Students must complete 12 courses distributed as follows: the cognitive and brain sciences core courses, PSYCH 210A-PSYCH 210B; three quantitative courses drawn from PSYCH 203A, and two of PSYCH 203B, PSYCH 203C, or PSYCH 203D; two computational methods courses PSYCH 205A and either PSYCH 205B or PSYCH 205C; two cognitive science core courses drawn from the PSYCH 211–219 module; and three electives.

Students must fulfill the Ph.D. program's computer-programming language requirement.

Students are expected to enroll in the Cognitive Sciences Research Seminar PSYCH 201A-PSYCH 201B- PSYCH 201C during all quarters in residence prior to passage of the advancement-to-candidacy examination. During the fall of the first year in the program, students should enroll in the Seminar in Professional Development PSYCH 204A and the Proseminar PSYCH 202A.

Second-year examination. During the first year, in consultation with their advisor, the student should establish an advisory committee consisting of three faculty members, including the advisor and at least one other cognitive sciences faculty member. The committee should meet with the student during spring quarter of the first year to determine the student's area(s) of research interest and to identify the published literature with which the student must be familiar. At the beginning of the fall quarter of their second year, students will be required to take a second-year examination. It will involve (1) a critical review of work in the student's area of research interest, and (2) an oral examination by the student's committee members. Should the student fail the second-year exam, the student will be allowed to repeat the exam in the winter quarter. A subsequent failure results in the student exiting the program.

Pre-advancement talk. Prior to advancement, usually in the third year, each student will give a talk to the department faculty and students in the Cognitive Sciences Research Seminar PSYCH 201A-PSYCH 201B- PSYCH 201C. Each student is expected to carry out theoretical/empirical research during the first two years. By the start of the third year, each student should have completed a research project of a scope and nature that is potentially publishable in a professional journal. (Another forum for the pre-advancement talk may be substituted with the written approval of the Graduate Director.) This talk is required prior to the student's advancement to candidacy.

Advancement examination. The advancement examination consists of a written research proposal in NIH NRSA Predoctoral Fellowship format, and an oral defense of the proposed research. The requirements for advancement are detailed below.

Dissertation. Students must submit a dissertation describing original publishable research and present a public defense of the dissertation as the final requirement of the Ph.D. program as detailed below.

Concentration in Cognitive Neuroscience

Students can also pursue a Ph.D. in psychology with a concentration in cognitive neuroscience. This is an interdisciplinary field which studies the relation between mind and brain. With the development of non-invasive functional brain imaging techniques during the last two decades, the integration of cognitive and neural models of information processing has become a major focus in the field, and a major growth area within the department's academic plan.

The program concentration is administered by the Department of Cognitive Sciences and coordinated by the cognitive neuroscience graduate director. Commensurate with the multidisciplinary nature of cognitive neuroscience, the department expects to admit students with a variety of undergraduate educational backgrounds. These include, but are not necessarily limited to, undergraduate degrees in psychology/cognitive science, neuroscience, biology, computer science, mathematics and engineering.

Requirements

Course work. Students must complete 12 courses distributed as follows: the cognitive and brain sciences core courses, PSYCH 210A-PSYCH 210B; two quantitative courses drawn from PSYCH 203A and one of PSYCH 203B, PSYCH 203C, or PSYCH 203D; one computational course drawn from the PSYCH 205A-PSYCH 205B-PSYCH 205C sequence; two neuroscience methods courses drawn from PSYCH 236, PSYCH 265, PSYCH 268A; two neuroscience courses drawn from the PSYCH 261–269 module; and three electives.

Students must fulfill the Ph.D. program's computer-programming language requirement.

Students are expected to enroll in the Cognitive Sciences Research Seminar PSYCH 201A-PSYCH 201B- PSYCH 201C during all quarters in residence prior to passage of the advancement-to-candidacy examination. During the fall of the first year in the program, students should enroll in the Seminar in Professional Development PSYCH 204A and the Proseminar PSYCH 202A.

Second-year examination. During the first year, the student in consultation with their advisor should establish an advisory committee consisting of three faculty members, including the advisor and at least one other cognitive sciences faculty member. The committee should meet with the student during spring quarter of the first year to determine the student's area(s) of research interest and to identify the published literature with which the student must be familiar. At the beginning of the fall quarter of their second year, students will be required to take a second-year examination. It will involve (1) a critical review of work in the student's area of research interest, and (2) an oral examination by the student's committee members. Should the student fail the second year exam, the student will be allowed to repeat the exam in the winter quarter. A subsequent failure results in the student leaving the program.

Pre-advancement talk. Prior to advancement, usually in the third year, each student will give a talk to the department faculty and students in the Cognitive Sciences Research Seminar PSYCH 201A-PSYCH 201B- PSYCH 201C. Each student is expected to carry out theoretical/empirical research during the first two years. By the start of the third year, each student should have completed a research project of a scope and nature that is potentially publishable in a professional journal. (Another forum for the pre-advancement talk may be substituted with the written approval of the graduate director.)This talk is required prior to the student's advancement to candidacy.

Advancement examination. The advancement examination consists of a written research proposal in NIH NRSA Predoctoral Fellowship format, and an oral defense of the proposed research. The requirements for advancement are detailed below.

Dissertation. Students must submit a dissertation describing original publishable research and present a public defense of the dissertation as the final requirement of the Ph.D. program as detailed below.

Requirements for the M.A. Degree

NOTE: Although the department does not have an M.A. program, students may earn an M.A. degree as part of the Ph.D. program.

The student must (1) complete the required course work as outlined above; (2) present a talk and submit an approved paper, both based on empirical/theoretical research, as described above; and (3) fulfill a computer-programming language requirement by completing satisfactorily the computational research methods sequence PSYCH 205A-PSYCH 205B or by demonstrating proficiency in use of a programming language for cognitive sciences research as assessed by two faculty members and approved by the graduate director.

Requirements for Advancement to Candidacy

The requirements for advancement to candidacy are (1) the student must meet the requirements listed above for the M.A. degree; (2) the student must, in addition, form a five-member faculty committee selected according to Graduate Division policy. The committee will examine the student on a topic which is determined in consultation with the committee. A written document describing the student's work on this topic must be submitted to the committee prior to advancement. The student must demonstrate an understanding of the background and issues for the research topic and show sufficient preparation and creativity to undertake planning for a dissertation project (e.g., by describing a possible experimental design or outlining a possible theoretical development); and (3) students are required to advance to candidacy by the end of the fall quarter of their third year in the program.

Requirements for the Ph.D. Degree

The requirements for the Ph.D. degree are (1) the student must formally present and defend a written dissertation proposal to a committee of at least three members selected according to Graduate Division requirements. The dissertation proposal presentation may take place as part of the examination for Advancement to Candidacy, in which case, that five-member committee will approve the dissertation proposal; (2) the proposal must be approved prior to the final dissertation defense (usually at least three months before to allow time for the candidate to incorporate suggestions and changes required by the committee); (3) prior to the approval of the final version of the dissertation the student is expected to defend the dissertation in a public colloquium announced with at least one week's notice; and (4) all requirements for the Ph.D. degree must be fulfilled within three years after advancement to candidacy.

The normative time for advancement to candidacy is three years. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is six years.

Faculty

William H. Batchelder, Ph.D. Stanford University, *Professor of Cognitive Sciences*

Bruce G. Berg, Ph.D. Indiana University, *Associate Professor of Cognitive Sciences*

Alyssa Brewer, Ph.D. Stanford University, *Assistant Professor of Cognitive Sciences*

Lawrence F. Cahill, Ph.D. University of California, Irvine, *Professor of Neurobiology and Behavior; Cognitive Sciences*

Charles F. Chubb, Ph.D. New York University, *Professor of Cognitive Sciences*

Thomas M. D'Zmura, Ph.D. University of Rochester, *Professor of Cognitive Sciences*

Barbara A. Dosher, Ph.D. University of Oregon, *UCI Distinguished Professor of Cognitive Sciences*

Charless C. Fowlkes, Ph.D. University of California, Berkeley, *Associate Professor of Computer Science; Cognitive Sciences; Electrical Engineering and Computer Science* (computer vision, machine learning, computational biology)

Emily D. Grossman, Ph.D. Vanderbilt University, *Associate Professor of Cognitive Sciences*

Gregory S. Hickok, Ph.D. Brandeis University, *Professor of Cognitive Sciences; Linguistics*

Donald D. Hoffman, Ph.D. Massachusetts Institute of Technology, *Professor of Cognitive Sciences; Logic and Philosophy of Science*

Geoffrey J. Iverson, Ph.D. New York University, *Professor of Cognitive Sciences*

Jeffrey Krichmar, Ph.D. George Mason University, *Professor of Cognitive Sciences; Computer Science*

Michael Lee, Ph.D. University of Adelaide, *Professor of Cognitive Sciences*

Mimi Liljeholm, Ph.D. University of California, Los Angeles, *Assistant Professor of Cognitive Sciences*

Elizabeth F. Loftus, Ph.D. Stanford University, *UCI Distinguished Professor of Psychology and Social Behavior; Cognitive Sciences; Criminology, Law and Society; School of Law* (cognitive psychology, human memory, psychology and law)

Gary S. Lynch, Ph.D. Princeton University, *Professor of Psychiatry and Human Behavior; Anatomy and Neurobiology; Cognitive Sciences*

David Christian Lyon, Ph.D. Vanderbilt University, *Assistant Professor of Anatomy and Neurobiology; Cognitive Sciences*

Virginia Mann, Ph.D. Massachusetts Institute of Technology, *Professor of Cognitive Sciences; Education; Linguistics*

John Middlebrooks, Ph.D. University of California, San Francisco, *Professor of Otolaryngology; Biomedical Engineering; Cognitive Sciences; Neurobiology and Behavior* (hearing research, neurophysiology, auditory prosthesis, computational neuroscience, auditory cortex)

Louis E. Narens, Ph.D. University of California, Los Angeles, *Professor of Cognitive Sciences; Logic and Philosophy of Science*

Lisa Pearl, Ph.D. University of Maryland, College Park, *Associate Professor of Cognitive Sciences; Linguistics; Logic and Philosophy of Science*

Virginia Richards, Ph.D. University of California, Berkeley, *Professor of Cognitive Sciences*

A. K. Romney, Ph.D. Harvard University, *Professor Emerita of Anthropology; Cognitive Sciences*

Kourosh Saberi, Ph.D. University of California, Berkeley, *Professor of Cognitive Sciences*

Barbara W. Sarnecka, Ph.D. University of Michigan, *Associate Professor of Cognitive Sciences; Logic and Philosophy of Science*

Steven L. Small, M.D. University of Rochester, *Dr. Stanley van den Noort Endowed Chair* and *Professor of Neurology; Cognitive Sciences; Neurobiology and Behavior*

George Sperling, Ph.D. Harvard University, *UCI Distinguished Professor of Cognitive Sciences; Neurobiology and Behavior*

Ramesh Srinivasan, Ph.D. Tulane University, *Professor of Cognitive Sciences; Biomedical Engineering* (cognitive neuroscience, brain development, consciousness, perception, EEG, brain dynamics)

Arnold Starr, M.D. New York University, *Professor Emeritus of Neurology; Cognitive Sciences; Neurobiology and Behavior*

Hal S. Stern, Ph.D. Stanford University, *Dean of the Donald Bren School of Information and Computer Sciences, Ted and Janice Smith Family Foundation Endowed Chair in Information and Computer Science,* and *Professor of Statistics; Cognitive Sciences*

Mark Steyvers, Ph.D. Indiana University, *Professor of Cognitive Sciences; Psychology and Social Behavior* (wisdom of crowds, aggregating human judgments, computational models of the mind, machine learning and statistics, memory and decision making)

James M. Swanson, Ph.D. Ohio State University, *Professor Emeritus of Pediatrics; Cognitive Sciences*

Jennifer S. Trueblood, Ph.D. Indiana University, *Assistant Professor of Cognitive Sciences*

Joachim S. Vandekerckhove, Ph.D. Catholic University of Leuven, *Assistant Professor of Cognitive Sciences*

Charles E. Wright, Ph.D. University of Michigan, *Associate Professor of Cognitive Sciences*

Fan-Gang Zeng, Ph.D. Syracuse University, *Director of Hearing Research and Professor of Otolaryngology; Anatomy and Neurobiology; Biomedical Engineering; Cognitive Sciences* (cochlear implants and auditory neuroscience)

Courses

PSYCH 7A. Introduction to Psychology. 4 Units.
Introduction to field of psychology, addressing the application of scientific methods to the study of human development, learning, memory, problem solving, perception, biological mechanisms, emotions and motivation, personality, psychopathology, and effects of diverse social and cultural contexts on human behavior. Course may be offered online.

Same as PSY BEH 9.
Overlaps with PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B.

Restriction: Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9A. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSY BEH 11A.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9B. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSY BEH 11B.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9C. Psychology Fundamentals. 4 Units.
Designed to provide freshman with an in-depth survey of general psychology. Topics include biological bases of behavior, sensation, perception, cognition, development, personality, psychopathology, and social psychology.

Same as PSY BEH 11C.

Restriction: Freshman only. Psychology and Social Behavior, Psychology, Criminology, Law and Society, Social Ecology, Urban Studies, Public Health Sciences, and Public Health Policy majors have first consideration for enrollment. PSY BEH 9 and PSYCH 7A may not be taken for credit if taken after PSY BEH 11A, PSY BEH 11B, PSY BEH 11C, PSYCH 9A, PSYCH 9B, or PSYCH 9C.

(III)

PSYCH 9D. Psychology Fundamentals Research. 1.3 Unit.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9A.

PSYCH 9E. Psychology Fundamentals Research. 1.3 Unit.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9B.

PSYCH 9F. Psychology Fundamentals Research. 1.3 Unit.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9C.

PSYCH 10A. Probability and Statistics in Psychology I. 4 Units.
An introduction to probability and statistics. Emphasis on thorough understanding of the probabilistic basis of statistical inference. Examples drawn primarily from psychology.

Overlaps with ANTHRO 10A, SOCECOL 13, SOC SCI 10A, SOCIOL 10A, POL SCI 10A.

Restriction: Psychology majors have first consideration for enrollment.

(Va)

PSYCH 10B. Probability and Statistics in Psychology II. 4 Units.
An introduction to probability and statistics. Emphasis on thorough understanding of the probabilistic basis of statistical inference. Examples drawn primarily from psychology.

Prerequisite: PSYCH 10A.

Overlaps with ANTHRO 10B, SOCECOL 13, SOC SCI 10B, SOCIOL 10B, POL SCI 10B.

Restriction: Psychology majors have first consideration for enrollment.

(Va)

PSYCH 10C. Probability and Statistics in Psychology III. 4 Units.
An introduction to probability and statistics. Emphasis on thorough understanding of the probabilistic basis of statistical inference. Examples drawn primarily from psychology.

Prerequisite: PSYCH 10B.

Overlaps with ANTHRO 10C, SOCECOL 13, SOC SCI 10C, SOCIOL 10C, POL SCI 10C.

Restriction: Psychology majors have first consideration for enrollment.

(Vb)

PSYCH 21A. Adolescent Psychology. 4 Units.
Focuses on psychosocial dynamics of today's adolescents in America emphasizing the quest for identity, independence, values, and sexual orientation. The influence of society, family, school, and peers is analyzed. Strategies for helping troubled adolescents are discussed.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Overlaps with PSY BEH 112D.

(III)

PSYCH 46A. Introduction to Human Memory. 4 Units.
Covers the core concepts of modern research and theorizing about human memory, including structural subdivisions (e.g., perceptual memory, short-term memory, long-term memory), different measures of memory (e.g., recall, reorganization), and some practical applications of memory research (e.g., mnemonics). Course may be offered online.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Overlaps with PSYCH 140M, PSY BEH 192J.

(III)

PSYCH 56L. Acquisition of Language. 4 Units.
What children say, what they mean, and what they understand. Theories about the learning of language by one-, two-, and three-year olds. Comparison of kinds of data on which these theories are based.

Same as LINGUIS 51.

(III)

PSYCH 78A. Self-Identity and Society. 4 Units.
Studies sociological contributions to theory and research in social psychology, with focus on the social influences on personality, attitudes, beliefs, and behavior; socialization, human groups, and social interaction.

Same as SOCIOL 31.
Overlaps with SOCIOL 61A.

(III)

PSYCH 89. Special Topics in Lower-Division Psychology. 4 Units.
Studies in selected areas of psychology at the lower-division level. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

PSYCH H101A. Honors Seminar in Psychology I. 4 Units.
Focuses on the research activities and honors thesis research projects of each student and the research of various Cognitive Sciences faculty. Students discuss their research interests in the early and later stages of their projects. Research projects and write-ups required.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Honors Program in Psychology students only.

PSYCH H101B. Honors Seminar in Psychology II. 4 Units.
Focuses on the research activities and honors thesis research projects of each student and the research of various Cognitive Sciences faculty. Students discuss their research interests in the early and later stages of their projects. Research projects and write-ups required.

Prerequisite: PSYCH H101A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Honors Program in Psychology students only.

PSYCH H101C. Honors Seminar in Psychology III. 4 Units.
Focuses on the research activities and honors thesis research projects of each student and the research of various Cognitive Sciences faculty. Students discuss their research interests in the early and later stages of their projects. Research projects and write-ups required.

Prerequisite: PSYCH H101B.

Repeatability: May be taken for credit 2 times.

Restriction: Honors Program in Psychology students only.

PSYCH 109. Cognitive Sciences Research Seminar. 4 Units.
Read and discuss examples of the primary research leading to the concepts covered in Psychology Fundamentals. Focus is on how this research is conducted and how inferences from it are drawn.

Corequisite: PSYCH 9B.
Prerequisite: PSYCH 9A.

Restriction: Cognitive Sciences majors have first consideration for enrollment.

PSYCH 110. Quantitative Methods for Cognitive Sciences Research. 4 Units.
Basics of quantitative methods used in cognitive science research focusing on linear algebra, Fourier analysis, multivariate statistics, and signal detection theory. Examples drawn from models and methods used in cognitive sciences research with practical examples.

Prerequisite: MATH 2A and MATH 2B and STATS 7 AND (PSYCH 114M or I&C SCI 31).

Restriction: Cognitive Sciences majors have first consideration for enrollment.

PSYCH 111BW. Honors Advanced Experimental Psychology. 4 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH H111B.
Prerequisite: PSYCH H111A and (PSYCH H11A or PSYCH 112A). Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Honors Program in Psychology students only.

(Ib)

PSYCH H111A. Honors Experimental Psychology. 4 Units.
Emphasis on design of experiments and analysis of results. Experiments are conducted in laboratory sections.

Corequisite: PSYCH H111LA.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and 10B and 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Overlaps with PSYCH 112A.

Restriction: Campuswide Honors Program students only.

PSYCH H111B. Honors Advanced Experimental Psychology Laboratory. 2 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH 111BW.

PSYCH H111C. Honors Research in Experimental Psychology. 4 Units.
Each student conducts a research project in experimental psychology. The projects are discussed in a seminar format. Written reports on each project are submitted at the end of the quarter.

Prerequisite: PSYCH 111BW or PSYCH 112B.

Restriction: Honors Program in Psychology students only.

PSYCH 112A. Experimental Psychology. 4 Units.
Emphasis on design of experiments and analysis of results. Experiments are conducted in laboratory sections.

Corequisite: PSYCH 112LA.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Overlaps with PSYCH H111A, PSYCH 112F, PSYCH 112G.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112B. Advanced Experimental Psychology. 4 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH 112LB.
Prerequisite: PSYCH 112A and PSYCH 112LA.

Overlaps with PSYCH 112F, PSYCH 112FW, PSYCH 112G, PSYCH 112GW.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112BW. Advanced Experimental Psychology. 4 Units.
Design and analysis of multivalent, factorial, and correlational studies. Students prepare proposals for independent research.

Corequisite: PSYCH 112LB.
Prerequisite: PSYCH 112A and PSYCH 112LA. Satisfactory completion of the Lower-Division Writing requirement.

Overlaps with PSYCH 112F, PSYCH 112FW, PSYCH 112G, PSYCH 112GW.

Restriction: Psychology majors have first consideration for enrollment.

(Ib)

PSYCH 112C. Research in Experimental Psychology. 4 Units.
Each student conducts a research project in experimental psychology. The projects are discussed in a seminar format. Written reports on each project are submitted at the end of the quarter.

Prerequisite: PSYCH 112B and PSYCH 112LB.

Overlaps with PSYCH 112F, PSYCH 112FW, PSYCH 112G, PSYCH 112GW.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112D. Effective Graphical Presentation of Data. 4 Units.
Learn to use MATLAB to produce graphical displays of data based on psychological principles for effective design. Approach is problem-oriented, with emphasis on case-studies using data from psychological experiments and real-world corpora. Assessment via independent individual projects.

Corequisite: PSYCH 112LD.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and STATS 7)).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LA. Experimental Psychology Laboratory. 2 Units.
Required laboratory section and co-requisite for Psych 112A.

Corequisite: PSYCH 112A.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LB. Advanced Experimental Psychology Laboratory. 2 Units.
Required laboratory section and co-requisite for PSYCH 112B and PSYCH 112BW.

Corequisite: PSYCH 112B or PSYCH 112BW.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LC. Research in Experimental Psychology.
Required laboratory section and co-requisite for PSYCH 112C.

Corequisite: PSYCH 112C.

PSYCH 112LD. Effective Graphical Presentation of Data Lab . 2 Units.
Lab to learn to use MATLAB to produce graphical displays of data based on psychological principles for effective design. Approach is problem-oriented, with emphasis on case-studies using data from psychological experiments and real-world corpora. Assessment via independent individual projects.

Corequisite: PSYCH 112D.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LM. Research Methods in Psychology Laboratory. 2 Units.
Required laboratory section and co-requisite for PSYCH 112M.

Corequisite: PSYCH 112M.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112LR. Cognitive Robotics Laboratory. 2 Units.
Required laboratory section and co-requisite for Psych 112R.

Corequisite: PSYCH 112R.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112M. Research Methods in Psychology. 4 Units.
Research methods in psychology for majors who wish to fulfill this requirement separately from upper-division writing. Covers both experimental and descriptive research methods, analysis of results, and reading the psychological literature. Research experience is provided in laboratory sections.

Corequisite: PSYCH 112LM.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Overlaps with PSYCH 112F, PSYCH 112FW.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 112R. Cognitive Robotics. 4 Units.
Introduces concepts on experimental design, embodiment, robot construction, and computer programming. Concepts of embodied intelligence and case studies of cognitive robotics are covered in lecture. Simple robots are constructed and programmed to carry out different behavioral experiments in lab.

Corequisite: PSYCH 112LR.
Prerequisite: ((PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)) and ((PSYCH 10A and PSYCH 10B and PSYCH 10C) or (MATH 2A and MATH 2B and (MATH 7 or STATS 7))).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 113T. Introduction to Psychological Tests and Measurement. 4 Units.
Principles of psychological measurement, including elementary psychophysics, psychometrics, test theory, and the measurement of abilities, attitudes, traits, and interests. Reliability and validity of psychological measurements.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C) and PSYCH 10A.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 114M. MATLAB Programming. 4 Units.
MATLAB is a mathematical software package for solving quantitative problems often encountered in experimental psychology. Topics include rudiments of programming, statistical analysis of data, matrix algebra, signal processing, graphic visualization, and simulated models of cognitive and perceptual processes.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 119. Special Topics in Research Methodologies. 1-4 Units.
Studies in selected areas of research methodologies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 120A. Abnormal Psychology. 4 Units.
Introduction to psychopathology and behavioral deviations, and the concepts of theories regarding these conditions.

Prerequisite: PSYCH 7A or PSYCH 9C or PSY BEH 9 or PSY BEH 11C.

Overlaps with PSY BEH 102C.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 120D. Developmental Psychology. 4 Units.
A general introduction to the study of the physical, intellectual, social, and emotional development of the child from birth to adulthood.

Prerequisite: PSYCH 7A or PSYCH 9A or PSY BEH 9 or PSY BEH 11A

Overlaps with PSY BEH 111D.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 120H. History of Psychology. 4 Units.
A history of the development of various schools and systems of psychological thought.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSY BEH 192A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 120P. Personality Theories. 4 Units.
A survey of the evolution of personality theory during this century. An overview of major perspectives in the field, with special attention to Freud, Jung, and Adler.

Prerequisite: PSYCH 7A or PSYCH 9C or PSY BEH 9 or PSY BEH 11C.

Overlaps with PSY BEH 170S.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 121M. Theories of Motivation. 4 Units.
Factors affecting the behavioral performance of organisms. A survey of theoretical and empirical approaches to the physiological, psychological, and social factors which generate behavior.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Overlaps with PSY BEH 176S.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 121P. Positive Psychology. 4 Units.
Positive psychology, at the subjective level, is about valued subjective experiences; at the individual level, it is about positive individual traits; and at the group level, it is about the civic virtues and institutions that move individuals toward better citizenship.

Prerequisite: (PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 121S. Psychology of Sleep and Consciousness. 4 Units.
Covers the physiology, neurochemistry, and neuroanatomy associated with sleep, contemporary sleep theory, REM and NREM, phenomenology, sleep disorders, examination of differences between conscious and unconscious cognitive function, the history of sleep and dream theories from ancient time to present day.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 122C. Clinical Psychology. 4 Units.
Provides overview of the clinical psychology field including theories and techniques used in counseling and testing.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 122I. Organizational/Industrial Psychology. 4 Units.
Introduction to applied psychology in organizations, including personnel testing, selection, training and evaluation, job and classification analysis, job satisfaction and motivation, organizational development, leadership, market research and consumer psychology. Potential ethical problems are discussed.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSY BEH 11B or PSY BEH 11C or PSYCH 7A or PSYCH 9A or PSYCH 9B or PSYCH 9C.

Same as PSY BEH 180S.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 123P. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as LPS 143, PHILOS 143.

Restriction: Psychology and Philosophy majors have first consideration for enrollment.

PSYCH 124S. Sports Psychology. 4 Units.
Discusses the field of sports psychology with an emphasis on clinical practice including motivation, goal setting, performance skills, and mental skills. Discusses and utilizes a wide range of techniques designed to enhance performance and manage problems among athletes.

Prerequisite: (PSYCH 7A or PSYCH 9C) or (PSY BEH 9 or PSY BEH 11C).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 124V. Psychology of Violence. 4 Units.
Discusses the psychology of violence and aggression with an emphasis on understanding the psychological, social, and physiological roots of violent and aggressive behavior. Psychological treatment techniques and strategies for prevention of aggressive and violent behavior are also discussed.

Prerequisite: (PSYCH 7A or PSYCH 9C) or (PSY BEH 9 or PSY BEH 11C).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 127A. Adult Development. 4 Units.
Examines why and how we change (with attention to gains as well as losses) from ages 18-65 and the nature and sources of continuity over time. Topics include physical and intellectual functioning, personality, coping strategies, and social roles and relationships.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 113D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127C. Clincal Child Psychology. 4 Units.
Examines research and theory concerning childhood psychopathology behavior disorders. Diagnosis and assessment, early identification of high-risk children, fears and phobias, antisocial behavior, childhood psychoses, autism, depression, attention deficit/hyperactivity disorders, and ethical and policy implications of identifying children who are different.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSY BEH 152C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127D. Development of Gender Differences. 4 Units.
Examination of research on how sexes differ in physiology, cognitive functioning, personality, and social behavior. Sex-differentiated development from the prenatal period through adulthood. Explanations for male-female differences are sought, focusing on biological (genetic, hormonal), and social (familial, cultural) mechanisms.

Prerequisite: PSY BEH 9 or PSYCH 9B or PSY BEH 11B or PSYCH 7A.

Same as PSY BEH 117D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127E. Psychology and Emotion. 4 Units.
General theories of emotion and research regarding cognitive, behavioral, physiological, and subjective experience of emotion. Specific topics include emotion regulation, emotion and health, emotional intelligence, and emotional development.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C.

Same as PSY BEH 177S.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127G. Gerontology. 4 Units.
Examines stereotypes and myths associated with aging; physiological and psychological changes that accompany old age; distinguishes behavior changes due to aging per se from those due to historical and socioeconomic factors; political, social aspects of old age in contemporary society.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 114D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127H. Child Health Psychology. 4 Units.
Exploration of psychological antecedents, concomitants, and consequences of medical illnesses in children. Children's beliefs about health, illness, and medication; the role of stress; coronary-prone behavior; therapeutic adherence and physician-patient interaction; coping with chronic illness; effects of child's illness on family.

Prerequisite: PSY BEH 9 or PSY BEH 11C or PSYCH 9C or PSYCH 7A. Recommended: SOCECOL 10.

Same as PSY BEH 138H.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Public Health Policy majors have first consideration for enrollment.

PSYCH 127I. Infant Development. 4 Units.
Study of human development from conception through the first two years of life, covering processes and events in the domains of physical, social, and cognitive development.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 110D.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 127T. Child Therapies. 4 Units.
Examines research methodologies, empirical data, and implications of diverse intervention strategies. Primary topics include psychotherapy process and outcome, family therapies, behavioral intervention, cognitive behavior modification, pediatric psychopharmacology, and ethical and social policy implications of intervening in other people's lives.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 122C.

Same as PSY BEH 155C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 129. Special Topics in General Psychology. 4 Units.
Studies in selected areas of general psychology. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 130A. Perception and Sensory Processes. 4 Units.
A general introduction to the scientific study of sensory processes and perceptual phenomena, with special emphasis on the visual system.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.

Same as PSY BEH 192E.
Overlaps with PSYCH 131A, PSYCH 131B.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 131A. Vision. 4 Units.
Visual perception and the anatomy and physiology of the visual system. Topics include: the retina and the visual pathway; visual sensitivity; color vision; spatial vision; motion perception; and the development of the visual system.

Same as BIO SCI N182.
Overlaps with PSYCH 130A.

Restriction: Upper-division students only. Psychology majors have first consideration for enrollment.

PSYCH 131B. Hearing. 4 Units.
Auditory perception, the anatomy and physiology of the auditory system, and the physics of sound. Topics include: neural transduction of sound, sensitivity, sound localization, complex sound perception, and hearing loss.

Prerequisite: (PSYCH 9A and PSYCH 9B) or (PSY BEH 11A and PSY BEH 11B).

Overlaps with PSYCH 130A, PSY BEH 192E.

Restriction: Upper-division students only. Psychology majors have first consideration for enrollment.

PSYCH 135A. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 235A.

PSYCH 135B. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 235B.

PSYCH 135C. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 235C.

PSYCH 135M. The Mind/Body Problem. 4 Units.
What is consciousness and what is matter and how are the two related? How can brains have minds? This multidisciplinary course draws on information from the fields of computer vision, artificial intelligence, cognition, neurophysiology, philosophy, and psychophysics.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 139. Special Topics in Perception and Sensory Processes. 4 Units.
Studies in selected areas of perception and sensory processes. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 140C. Cognitive Science. 4 Units.
Introduction to investigations of the structure and function of the mind, from viewpoints of computation, neuroscience, philosophy, and cognitive psychology. Topics include: perception, attention, knowledge representations, learning and memory, action, reasoning, and language.

Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSYCH 11B) or PSYCH 7A or (PSYCH 9A and PSYCH 9B).

Same as PSY BEH 192G.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 140L. Principles of Learning Theory. 4 Units.
Investigation of the learning and memory processes of humans and animals. Basic experimental approaches to learning and memory, empirical results, and theoretical interpretations of the evidence are discussed.

Prerequisite: PSY BEH 9 or PSY BEH 11A or PSYCH 7A or PSYCH 9A.

Same as PSY BEH 192I.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 140M. Human Memory. 4 Units.
Developments in the area of memory; history of memory research; theories of the nature of memory. Visual memory, recognition memory, high-speed scanning, free recall, short-term memory, mnemonics, retrieval, relationship of memory to thinking. Selected theoretical formulations for memory.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 192J.
Overlaps with PSYCH 46A.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 141J. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as EDUC 141A.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

PSYCH 141K. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as EDUC 141B.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

PSYCH 141L. Jumpstart I: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lecture, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Same as EDUC 141C.

Restriction: Psychology majors and School of Education students have first consideration for enrollment.

PSYCH 141M. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as EDUC 141D.

PSYCH 141N. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as EDUC 141E.

PSYCH 141O. Jumpstart II: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141J and PSYCH 141K and PSYCH 141L) or (EDUC 141A and EDUC 141B and EDUC 141C).

Same as EDUC 141F.

PSYCH 141P. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as EDUC 141G.

PSYCH 141Q. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as EDUC 141H.

PSYCH 141R. Jumpstart III: Early Language, Literacy, and Social Development. 4 Units.
An experiential course integrated with lecture material in the field of child development and education. Students are expected to attend lectures, complete assignments, and commit eight hours per week as mentors of disadvantaged preschool children.

Prerequisite: (PSYCH 141M and PSYCH 141N and PSYCH 141O) or (EDUC 141D and EDUC 141E and EDUC 141F).

Same as EDUC 141I.

PSYCH 143P. Human Problem Solving. 4 Units.
Modern developments in the psychology of human problem solving. Topics include: concept identification, arithmetic, sets, logic puzzles, story problems, group problem solving, and theorem proving.

Prerequisite: PSY BEH 9 or PSY BEH 11B or PSYCH 7A or PSYCH 9B.

Same as PSY BEH 192K.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 144A. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as SOC SCI 186A, CHC/LAT 191A.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

PSYCH 144B. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144A or SOC SCI 186A or CHC/LAT 191A. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children and be culturally sensitive.

Same as SOC SCI 186B, CHC/LAT 191B.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

PSYCH 144C. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144B or SOC SCI 186B or CHC/LAT 191B. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as SOC SCI 186C, CHC/LAT 191C.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

PSYCH 145P. Attention and Learning Deficits in Children I. 4 Units.
Learning in normal and attention-deficit disordered children. Covers the normal developmental course of learning and a variety of deficits. Includes field work with attention-deficit disordered children.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 145Q. Attention and Learning Deficits in Children II. 4 Units.
Learning in normal and attention-deficit disordered children. Covers the normal developmental course of learning and a variety of deficits. Includes field work with attention-deficit disordered children.

Prerequisite: PSYCH 145P.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 145R. Attention and Learning Deficits in Children III. 4 Units.
Learning in normal and attention-deficit disordered children. Covers the normal developmental course of learning and a variety of deficits. Includes field work with attention-deficit disordered children.

Prerequisite: PSYCH 145Q.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 146MW. Writing about Memory. 4 Units.
Covers a broad range of texts, literary, philosophical, and scientific, each probing the nature of memory and its meaning in human life. Readings are drawn from across many disciplines and many perspectives.

Prerequisite: PSYCH 7A or PSYCH 9B or PSY BEH 9 or PSY BEH 11B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Psychology majors have first consideration for enrollment.

(Ib)

PSYCH 147C. Cognitive Behavior Therapy. 4 Units.
Presentation of principles and procedures of therapeutic interventions based on cognitive-behavior methods. Cognitive factors in learning, emotional arousal, psychological disorder, and psychotherapy reviewed. Introduces the application of cognitive behavioral methods to problems of depression, anxiety, anger, pain, and impulsivity.

Prerequisite: PSY BEH 9 or (PSY BEH 11A and PSY BEH 11C) or PSYCH 7A or (PSYCH 9A and PSYCH 9C).

Same as PSY BEH 154C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 148A. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 228A.

PSYCH 148B. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 228B.

PSYCH 148C. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 228C.

PSYCH 149. Special Topics in Cognition and Learning. 4 Units.
Studies in selected areas of cognition and learning. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 150. Psychology of Language. 4 Units.
Examines language using the tools of experimental psychology. From sounds to words to spoken and written sentences, explores how language is used in real time, and how its use reveals how it is represented in the mind.

Same as LINGUIS 155.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 151. Brainwaves in Language Research. 4 Units.
Provides a hands-on introduction to the use of electroencephalography (EEG) in language processing research. In addition to theoretical discussions, students design, deploy, and analyze a novel EEG experiment of their own during the quarter.

Prerequisite: PSYCH 150.

PSYCH 156A. Acquisition of Language II. 4 Units.
Focuses on native language learning, exploring the way in which infants and very young children unconsciously uncover the rich systematic knowledge of their native language. Examines both experimental and computational studies that quantitatively investigate the "how" of language acquisition.

Prerequisite: Recommended: PSYCH 56L or LINGUIS 51.

Same as LINGUIS 150.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 157M. Computational Methods for Language Research. 4 Units.
Focuses on computational methods useful for language research. Students become familiar with software and programming languages used for extracting information from electronic datasets and for creating basic simulations of linguistic cognition. No prior programming experience assumed.

Prerequisite: PSYCH 155 or LINGUIS 155 or PSYCH 156A or LINGUIS 150.

Same as LINGUIS 107M.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 247M.

PSYCH 158A. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 248A.

PSYCH 158B. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 248B.

PSYCH 158C. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 248C.

PSYCH 159. Special Topics in Semiotics and Language. 4 Units.
Studies in selected areas of language sciences. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 160A. Introduction to Cognitive Neuroscience. 4 Units.
Introduction to the neural basis of human perceptual, motor, and cognitive abilities. Topics include sensory perception, motor control, memory, language, attention, emotion, frontal lobe function, functional brain imaging, and neuropsychological disorders.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or BIO SCI 35 or BIO SCI N110.

Same as PSY BEH 192L, BIO SCI N166.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 160D. Brain Disorders and Behavior. 4 Units.
Examines the localization of human brain functions and the effects of neurological disorders on psychological functions such as perception, motor control, language, memory and decision-making.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B) or BIO SCI 35 or BIO SCI N110.

Same as BIO SCI N165.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 161. Language and the Brain . 4 Units.
Research analysis on biological bases of human linguistic capacity. Development, focusing on hemispheric specialization, plasticity; localization of specific linguistic functions in adults, with emphasis on study of aphasias; relation of linguistic capacity to general cognitive capacity, considering research on retardation.

Prerequisite: BIO SCI 35 or BIO SCI N110.

Same as BIO SCI N160, LINGUIS 158.

Restriction: Psychology and Biology majors have first consideration for enrollment.

PSYCH 161H. Hearing and the Brain. 4 Units.
An overview of brain mechanisms of hearing, including perception of simple sounds, speech, and music. Begins with sound itself, and looks at processing by the ear, auditory pathways, auditory cortex, and beyond. Also auditory development, learning, and clinical issues.

Prerequisite: PSYCH 160A or BIO SCI N110.

Same as BIO SCI N147.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 161P. Perceptual Neuroscience. 4 Units.
Examines the physiology of cortical networks underlying human perceptual experience.

Prerequisite: PSYCH 160A or PSY BEH 192L.

Same as PSY BEH 192P.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 162A. Neurobiology of Learning and Memory. 4 Units.
How the brain and behavior change as a result of experience, with an emphasis on identifying the neurochemical processes through which memory is stored and the parts of the brain that are involved.

Prerequisite: BIO SCI 35 or BIO SCI N110.

Same as BIO SCI N158.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 162B. Human Memory Disorders. 4 Units.
Focuses on models and methods of assessing human memory and its disorders. Exposure to conventional and new assessment devices provided.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 164A. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 264A.

PSYCH 164B. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 264B.

PSYCH 164C. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 264C.

PSYCH 165A. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 263A.

PSYCH 165B. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 263B.

PSYCH 165C. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 263C.

PSYCH 168E. Embodied Cognition. 4 Units.
Addresses concepts of embodiment in cognitive sciences. Introduces the notion of how the brain is closely coupled to the body and its interaction with the environment. Case studies of both natural and artificial systems are explored.

Prerequisite: PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or PSY BEH 9 or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C).

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 169. Special Topics in Cognitive Neuroscience . 4 Units.
Studies in selected areas of cognitive neuroscience. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 171. Psychology of a Diverse Society. 4 Units.
Examines the social and cultural bases of human behavior, including ethnicity, gender, gender orientation, class, and religion. Analysis of historical, political, and economic factors influencing a diverse society.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 172S. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.

Same as REL STD 112B, SOC SCI 130B, LPS 140B.

PSYCH 173A. Psychological Anthropology. 4 Units.
Cultural differences and similarities in personality and behavior. Child-rearing practices and consequent adult personality characteristics, biocultural aspects of child development and attachment, culture and behavior evolutionary models, politically linked personality, cognitive anthropology, psychology of narrative forms, comparative national character studies.

Prerequisite: ANTHRO 2A or PSYCH 7A or (PSYCH 9A and PSYCH 9B and PSYCH 9C) or (PSY BEH 11A and PSY BEH 11B and PSY BEH 11C)

Same as ANTHRO 132A.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 174A. Asian American Psychology. 4 Units.
Examines the social and psychological concerns of Asian Americans; e.g., coping with racial prejudice, maintaining bicultural identities, dealing with cross-cultural conflicts in interracial relationships, and trying to reconcile generational differences between immigrant parents and their American-born children.

Same as ASIANAM 141.

PSYCH 174E. African American Psychology. 4 Units.
Historical overview of the development of black psychology and the African American frame of reference. Topics include personality development, psychological assessment, issues in education, black mental health, and the role of the African American psychologist in the community.

Same as AFAM 153.

PSYCH 174F. Chicano/Latino Psychology. 4 Units.
Examines research and literature investigating Chicano/Latino ethnicity as a variable influencing behavior. Explores mental health needs and issues of Chicano/Latinos and discusses competent, sensitive methods of mental health service delivery.

Same as CHC/LAT 171.

PSYCH 174H. Chicano/Latino Families. 4 Units.
Introduction to the research, literature, and issues surrounding the topic of Chicano/Latino families including cultural history, contemporary issues, organization of family, traditions, lifestyles, values, beliefs, generational differences, gender issues, ethnic identity, evolution of demographic patterns, current economic and political standings.

Same as CHC/LAT 170, SOC SCI 165.

PSYCH 176A. Political Psychology. 4 Units.
Examines how psychological theory and research may be used to better understand political thought and behavior. Drawing on theories of learning, cognition, and personality, discusses the formation of political attitudes, the process of political decision-making, the nature of political leadership.

Same as POL SCI 137C.

Restriction: Psychology and Political Science majors have first consideration for enrollment.

PSYCH 177D. Deviance. 4 Units.
Perspectives on deviance and criminality in behavior, institution, community, and myth. The suitability of contemporary theories of deviant behavior.

Same as SOCIOL 156, CRM/LAW C107.

Restriction: Criminology, Law and Society, Social Ecology, Sociology, and Psychology majors have first consideration for enrollment.

PSYCH 177F. Forensic Psychology: Advanced Seminar. 4 Units.
The focus is on the psychology of criminal offending, particularly violent behavior. Examines violence, sexual offending, and mental disorder related to crime with regard to clinical assessment and treatment; mental health services within forensic institutions.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSY BEH 102C and (PSY BEH 178S or CRM/LAW C149).

Same as PSY BEH 156C, CRM/LAW C136.

Restriction: Psychology and Social Behavior, Social Ecology, Psychology, and Criminology, Law and Society majors have first consideration for enrollment.

PSYCH 177P. Developmental Psychopathology. 4 Units.
Research and theory of origins, course, and outcomes of disordered behavior. Continuity and change in patterns of behavior; environmental challenges and buffers; stress/competence in children; vulnerable/invincible children; children of mentally ill parents; families at risk; childhood antecedents of adult disorders.

Prerequisite: (PSY BEH 9 or PSY BEH 11C or PSYCH 7A or PSYCH 9C) and PSYCH 120A. Recommended: SOCECOL 10.

Same as PSY BEH 153C.

Restriction: Psychology and Social Behavior, Social Ecology, and Psychology majors have first consideration for enrollment.

PSYCH 178N. Social Psychology of Networks. 4 Units.
Review of network methods used in small group and organizational research. Discussion of social psychological literature relevant to the network of study of cognitive social structure, exchange/communication, identity negotiation, and social control. Case study of network datasets exemplifies research issues.

Same as SOCIOL 135.

Restriction: Sociology and Psychology majors have first consideration for enrollment.

PSYCH 179. Special Topics in Interdisciplinary Studies. 1-4 Units.
Studies in selected areas of interdisciplinary studies. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Psychology majors have first consideration for enrollment.

PSYCH 190. Senior Thesis. 4 Units.
Student writes senior thesis on a topic of psychology with guidance from a three-member committee comprised of Cognitive Sciences faculty. Senior thesis includes the following: research statement, literature review, experimental design, data collection and analysis, and a written final thesis.

Grading Option: In progress only.

Repeatability: May be taken for credit 3 times.

PSYCH 198. Directed Group Study. 1-4 Units.
Directed study with Cognitive Sciences faculty.

Repeatability: May be repeated for credit unlimited times.

PSYCH 199. Independent Study. 1-4 Units.
Independent research with Cognitive Sciences faculty.

PSYCH 201A. Cognitive Sciences Research Seminar. 1.3 Unit.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 201B. Cognitive Sciences Research Seminar. 1.3 Unit.
Weekly reports and colloquia by faculty, students, and visitors.

Prerequisite: PSYCH 201A.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 201C. Cognitive Sciences Research Seminar. 1.4 Unit.
Weekly reports and colloquia by faculty, students, and visitors.

Prerequisite: PSYCH 201B.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 202A. Proseminar in the Cognitive Sciences. 1 Unit.
Introduction to the conceptual foundations and basic research results in the cognitive sciences for first-year graduate students.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PSYCH 203A. Discrete Mathematics and Probability. 4 Units.
Logic and set theory are covered during the first three weeks, using an interactive computer system. The remaining seven weeks are devoted to probability theory and cover elementary concepts from samples spaces to Chebychev's Inequality and the moment generating function.

Restriction: Graduate students only.

PSYCH 203B. Introduction to Mathematical Statistics. 4 Units.
An introduction to statistical estimation and statistical inference. Topics include sufficiency and the Rao-Blackwell Theorem, completeness and the Lehmann-Scheffe Theorem. The method of maximum likelihood is explored in some detail. Inference in linear models covers regression and analysis of variance.

Restriction: Graduate students only.

PSYCH 203C. Algorithmic Statistics. 4 Units.
Discussion of the fundamentals of statistical inference and computational implementations of common statistical models.

Restriction: Graduate students only.

PSYCH 203D. Applied Mathematics for Cognitive Sciences Research. 4 Units.
Covers the basics of linear systems analysis, focusing on linear algebra, Fourier analysis, differential equations, and elementary signal processing. Applications in Cognitive Science and Cognitive Neuroscience research will be developed.

Prerequisite: PSYCH 205A.

Restriction: Psychology graduate students only.

PSYCH 204A. Seminar in Professional Development. 1 Unit.
Development of professional skills. Focuses on grant writing and submission process, responsible conduct of research, and ethics training.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 204B. Seminar in Professional Development. 1 Unit.
Development of professional skills. Focus on scientific presentations and preparation.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 204C. Seminar in Professional Development. 1 Unit.
Development of professional skills. Focuses on career opportunities, interests and information, and community outreach.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Psychology graduate students only.

PSYCH 205A. Computational and Research Methods with MATLAB. 4 Units.
Introduces rudiments of programming, statistical analysis and probability theory, graphic visualization, GUI design, spectral analysis, and simulation models using MATLAB, a software package for solving quantitative problems often encountered in experimental psychology.

Restriction: Graduate students only.

PSYCH 205B. Running Experiments Using MATLAB. 4 Units.
Provides an in-depth introduction to writing MATLAB programs to run auditory and visual experiments. Topics covered include program structure, stimulus generation, presentation, and data collection.

Prerequisite: PSYCH 205A.

PSYCH 205C. Computational Statistics. 4 Units.
Introduction to a number of computational statistics approaches including exploratory data analysis and modeling using a probabilistic framework with Bayesian graphical models. Emphasis will be on in-class programming using MATLAB.

Restriction: Graduate students only.

PSYCH 210A. Introduction to Cognitive and Brain Sciences I: Perception. 4 Units.
Discusses models of cognition and evidence linking cognition and the brain. Focus is on visual, auditory, and somatic perception and bottom-up mechanisms of attention.

Restriction: Graduate students only.

PSYCH 210B. Introduction to Cognitive and Brain Sciences II: Cognition. 4 Units.
Discusses models of cognition and evidence linking cognition and the brain. Focus is on emotion, top-down attention, goal-directed behavior, categorization, judgment, and decision-making.

Restriction: Graduate students only.

PSYCH 211. Attention and Perception. 4 Units.
Focuses on selective attention, the process of selecting a subset of available information for analysis and representation, and on how stimulus salience, behavioral goals, and expectations influence attentional deployment and perception. Also explores related cognitive processes and applications.

Restriction: Graduate students only.

PSYCH 212. Learning, Memory, and Knowledge Organization. 4 Units.
Addresses fundamental issues in human memory, inductive learning, and knowledge organization. Knowledge representation, storage, retrieval, acquisition, and relation to the environment are explored. Prominent computational approaches are reviewed.

Restriction: Graduate students only.

PSYCH 213. The Mind/Body Problem. 4 Units.
Course is multidisciplinary, drawing on information from the fields of quantum physics, computer vision, artificial intelligence, cognition, neurophysiology, philosophy, and psychophysics.

Restriction: Graduate students only.

PSYCH 214. Bayesian Cognitive Modeling. 4 Units.
Considers a range of statistical methods of data analysis and simple cognitive models using the Bayesian graphical modeling framework.

Restriction: Graduate students only.

PSYCH 215L. Language Acquisition. 4 Units.
Focuses on native language learning, exploring the way in which infants and very young children unconsciously uncover the rich systematic knowledge of their native language. Examines both experimental and computational studies that quantitatively investigate the "how" of language acquisition.

Restriction: Graduate students only.

PSYCH 215N. Neuroscience of Language. 4 Units.
Covers fundamental issues in the neuroscience of language processing. Topics include word and sentence-level psycholinguistics, and the neural basis of these language functions as revealed by neuropsychological and functional imaging studies.

Restriction: Graduate students only.

PSYCH 215S. Structure of Language. 4 Units.
Explores the structure of human languages, and the theoretical architectures that have been proposed to capture that structure. Special focus on the nature of linguistic facts, the structure of linguistic argumentation, and the psychological claims of linguistic theories.

Restriction: Graduate students only.

PSYCH 216. Introduction to Cognitive Neuroscience. 4 Units.
Explores the neural basis of higher cognitive functions such as perception, attention, language, memory, and executive function as understood from functional brain imaging, neuropsychological disorders, and other neuroscience techniques.

Restriction: Graduate students only.

Concurrent with PSYCH 160A.

PSYCH 217. Vision. 4 Units.
Examines visual sensation and perception using psychophysical and neuroscientific perspectives. Covers visual stimulus description and generation; the eye and retinal processing; LGN and cortical visual area function; specialized processing for form, depth, motion, and color perception; and neurological disorders.

Restriction: Graduate students only.

PSYCH 218. Hearing. 4 Units.
Examines auditory sensation and perception using psychophysical and neuroscientific perspectives. Covers physical aspects of sound; subcortical auditory processing; aspects of sensation and perception such as sensitivity, sound localization, and complex-sound recognition; neuroscientific studies of cortical function; and abnormal auditory processing.

Restriction: Graduate students only.

PSYCH 219. Cognitive Development I: Core Knowledge. 4 Units.
Explores the study of cognitive development in infancy and childhood. Emphasizes the role of this research in answering questions concerning the origins of human knowledge. Addresses topics of space, objects, agency, navigation, number, and conceptual change.

Restriction: Graduate students only.

PSYCH 220. Cognitive Development II: Conceptual Change. 4 Units.
The cognition of human infants is similar to that of other primates. But adult human knowledge is vastly different from that of any other animal. Examines the childhood conceptual changes that underlie adult human cognitive achievements.

Restriction: Graduate students only.

PSYCH 228A. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 148A.

PSYCH 228B. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 148B.

PSYCH 228C. Cognitive Development Research. 4 Units.
Provides experience in cognitive development research, centered around the child's acquisition of number words and concepts. Students conduct research and review and discuss each other's projects in weekly lab meetings with instructor and graduate students.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 148C.

PSYCH 229. Special Topics in Human Cognition. 1.3-4 Units.
Current research in brain/ behavior relationships, human memory, and learning theory is presented.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 231P. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as LPS 243, PHILOS 243.

PSYCH 233A. Observer Theory I. 4 Units.
Provides framework for mathematical analysis of perception/cognition and its relation to the physical world. Permits a unified treatment of perceptual and physical interactions and lays the foundation for a nondualistic, nonreductionistic science. Mathematical aspects include study of Markovian dynamic systems.

Restriction: Graduate students only.

PSYCH 234A. Mathematical Models of Cognitive Processes I . 4 Units.
Mathematical models of various cognitive processes developed since 1960, including learning, memory, perception, psycholinguistics, and problem solving. Models are formulated in different mathematical languages: calculus, algebra, logic, probability, and computer. Difficulties in testing and validating models discussed.

Restriction: Graduate students only.

PSYCH 235A. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 135A.

PSYCH 235B. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 135B.

PSYCH 235C. Memory and Decision-Making Research. 4 Units.
Covers a range of theoretical, empirical, and model-based memory and decision-making research topics, including reconstructive memory, decision-making in reinforcement learning problems, sequential sampling processes, hierarchical Bayesian methods, and the application of machine learning methods to corpora of human behavior.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 135C.

PSYCH 236. Multivariate Time Series Analysis. 4 Units.
Introduces multivariate time series analysis theory and methods emphasizing computational methods in spectral analysis, autoregressive modeling, information theory, principal and independent components analysis, and nonlinear dynamics. Applications to human neuroimaging data are extensively discussed.

Prerequisite: PSYCH 205A.

Restriction: Graduate students only.

PSYCH 237. Advanced Bayesian Cognitive Modeling. 4 Units.
Considers a range of advanced cognitive process models including models of signal detection, memory retention, category learning, stimulus representation, and reasoning using the Bayesian graphical modeling framework.

Prerequisite: PSYCH 214.

Restriction: Graduate students only.

PSYCH 238. Auditory Signal Processing and Experimental Design. 4 Units.
Topics include physics and measurement of sounds, digital signal processing (DSP), recording/processing of speech and music, generating complex sounds (e.g., FM and AM), use of sound level meter and artificial ear (coupler), digital filtering, signal mixing, autocorrelation and cross-correlation.

Prerequisite: PSYCH 205A.

PSYCH 239. Special Topics in Methodology and Models. 1.3-4 Units.
Current research in cognitive sciences methodologies, concepts, and models is presented.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 245A. Computational Models of Language Learning. 4 Units.
Focuses on computational models of native language learning, exploring how probabilistic learning and inference fare on difficult case studies within language acquisition. In all cases, grounds the learning models in available empirical data and considers their psychological plausibility.

Prerequisite: PSYCH 215L.

Restriction: Graduate students only.

PSYCH 247M. Computational Methods for Language Research. 4 Units.
Focuses on computational methods useful for language research. Students become familiar with software and programming languages used for extracting information from electronic datasets and for creating basic simulations of linguistic cognition. No prior programming experience assumed.

Prerequisite: PSYCH 215L or PSYCH 215S or PSYCH 215N or PSYCH 245A.

Restriction: Graduate students only.

Concurrent with PSYCH 157M and LINGUIS 107M.

PSYCH 248A. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 158A.

PSYCH 248B. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 158B.

PSYCH 248C. Language Sciences Research. 4 Units.
Provides in-depth experience in all facets of research in language. Research topics include language acquisition and adult processing. Methodologies include behavioral research methods, brain imaging techniques, and computational methods. Students engage in research and participate in a weekly seminar.

Repeatability: May be repeated for credit unlimited times.

Concurrent with PSYCH 158C.

PSYCH 249. Special Topics in Language Science. 1.3-4 Units.
Foundations and current research in theoretical, experimental, and computational linguistics.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 254. Human Information Processing. 4 Units.
Detailed introduction to speed-accuracy tradeoff experimental procedures; speed-accuracy tradeoff issues; quantitative modeling of temporal aspects of human information processing.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only or Honors Program in Psychology undergraduate students.

PSYCH 259. Special Topics in Human Performance. 1.3-4 Units.
Current research in the human issues involved with sensation, perception, and cognition.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 261N. Cortical Neuroscience. 4 Units.
Physiology of the cerebral cortex, theoretical neuroscience, and the neural basis of perception.

Prerequisite: PSYCH 216.

PSYCH 262. Functional Neuroanatomy. 4 Units.
It is impossible to truly understand human behavior without some understanding of the physical structure that enables behavior. Examines recent findings in functional neuroantomy through lectures and papers discussing links between particular behaviors and specific brain structures.

Restriction: Graduate students only.

PSYCH 263A. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with PSYCH 165A.

PSYCH 263B. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Restriction: Graduate students only.

Concurrent with PSYCH 165B.

PSYCH 263C. Visual Neuroscience Research. 4 Units.
Covers a range of cognitive neuroscience research topics with emphasis on cortical organization of visual circuits, object recognition, motion perception, visual attention, and decision making.

Restriction: Graduate students only.

Concurrent with PSYCH 165C.

PSYCH 264A. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with PSYCH 164A.

PSYCH 264B. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with PSYCH 164B.

PSYCH 264C. Neuroscience of Language Research. 4 Units.
Covers a range of neuroscience of language research topics: psycholinguistic and neuroscience foundations, methods, experimental design, and content areas such as speech perception/recognition, production, sensory-motor integration, lexical access, comprehension, working memory, sign language, and aphasia.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Concurrent with PSYCH 164C.

PSYCH 265. Introduction to Functional MRI. 4 Units.
Describes the fundamentals of imaging the human brain function using functional Magnetic Resonance Imaging (fMRI). Topics include basic fMRI physics, experimental design, and data acquisition and analysis.

Restriction: Graduate students only.

PSYCH 267. Cognitive Neuroscience of Music. 4 Units.
Introduction to cortical mechanisms involved in music perception and production.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

PSYCH 268A. Computational Neuroscience. 4 Units.
Introduction to computational neuroscience. Mathematical models of single neurons, neural circuits, thalamocortical systems, and cortical mass action can stimulate single-unit, local field potential, and EEG dynamics. These models are used to investigate mechanisms of sensation, motor control, attention, and consciousness.

Prerequisite: PSYCH 205A and (PSYCH 216 or PSYCH 261N).

PSYCH 268R. Cognitive Robotics. 4 Units.
Introduces concepts for studying cognitive function by embedding brain models on robotic platforms. Topics include robot construction, computer programming, and the notion of embodiment. Students construct simple robots and program these robots to perform different behaviors.

PSYCH 269. Special Topics in Cognitive Neuroscience. 1.3-4 Units.
Current research in cognitive neuroscience.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 271A. Cognitive Neuroscience Brownbag. 1.3 Unit.
Participants, who include faculty interested in auditory and visual perception/psychophysics, along with interested graduate students, make research presentations and discuss current publications. The seminar also serves as a forum for presentations by visiting researchers.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PSYCH 271B. Cognitive Neuroscience Brownbag. 1.3 Unit.
Participants, who include faculty interested in auditory and visual perception/psychophysics, along with interested graduate students, make research presentations and discuss current publications. The seminar also serves as a forum for presentations by visiting researchers.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PSYCH 271C. Cognitive Neuroscience Brownbag. 1.4 Unit.
Participants, who include faculty interested in auditory and visual perception/psychophysics, along with interested graduate students, make research presentations and discuss current publications. The seminar also serves as a forum for presentations by visiting researchers.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

PSYCH 289. Special Topics in Sensation and Perception. 1.3-4 Units.
Current research in the reception and processing of visual and auditory stimuli presented.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

PSYCH 290. Dissertation Research. 1-12 Units.
Dissertation research with Cognitive Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Psychology graduate students only.

PSYCH 299. Individual Study. 4-12 Units.
Individual research with Cognitive Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Department of Economics

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http://www.economics.uci.edu/
Jan K. Brueckner, **Department Chair**

Economics is concerned with the way individuals or societies allocate scarce resources and distribute goods and services. Any situation requiring choice among competing alternatives can be viewed as an economic problem. Economic courses enable students to study the way individuals make these choices (microeconomics), the way governments make these choices (public choice), and the aggregate consequences of these choices (macroeconomics). In addition, the Economics curriculum addresses international trade, money and banking, and economic development of the less developed nations.

Faculty members in the Department of Economics have research and teaching interests that span a broad range of fields. In addition to strengths in micro theory, macroeconomics, and econometrics (Bayesian and classical), the Department has expertise in many applied fields, including economic history, industrial organization, international economics, labor economics, public choice and public finance, transportation economics, and urban economics. Members of the Department maintain close ties with members of the Department of Political Science, the Department of Statistics, and The Paul Merage School of Business. Members of the Department maintain affiliations with the Center for Economics & Public Policy, Institute for Mathematical Behavioral Sciences, Institute of Transportation Studies, Institute on Global Conflict and Cooperation, Center for the Study of Democracy, and program in International Studies.

Undergraduate Program

The Department offers majors in Economics (p. 1776), Business Economics (p. 1778), and Quantitative Economics (p. 1777), and an optional specialization in International Issues and Economics (p. 1779) is available to students in all three majors. In addition, the Honors Program (p. 1780) in Economics is open to high-achieving students in all three majors. The Department also offers a minor in Economics.

NOTE: Students may complete only one of the three Economics majors.

Admission to the Majors

Freshmen: Preference will be given to those who rank among the highest using the selection criteria as stated in the Undergraduate Admissions section of this *Catalogue.*

Transfer-Student Applicants: Transfer applicants with the highest grades overall who satisfactorily complete course prerequisites will be given preference for admission. All applicants must complete one course in microeconomics, one course in macroeconomics, and two semesters/two quarters of approved first-year calculus.

Change of Major: Information about change-of-major requirements, procedures, and policies is available in the School of Social Sciences Undergraduate Student Affairs Office and at the UCI Change of Major Criteria (http://www.changeofmajor.uci.edu) website.

Requirements for the B.A. Degree

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 1561)**.**

Departmental Requirements for the Major in Economics

This major is designed for students seeking a broad education applicable to occupations in business, law, and government or as preparation for graduate school in the social sciences. School requirements must be met and must include 17 courses as specified below.

A. Lower-division:	
ECON 20A- 20B	Basic Economics I and Basic Economics II
ECON 15A- 15B	Probability and Statistics in Economics I and Probability and Statistics in Economics II
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 4	Mathematics for Economists
B. Upper-division:	
ECON 100A- 100B- 100C	Intermediate Economics I and Intermediate Economic II and Intermediate Economic III
ECON 122A	Applied Econometrics I
C. Six additional ECON courses, one of which may be lower-division.	
D. A maximum of three four-unit courses selected from ECON 190–199 may be counted toward the major.	

Sample Program — Economics Majors

Freshman		
Fall	**Winter**	**Spring**
ECON 20A	ECON 20B	Intro SOC SCI course
MATH 2A	MATH 2B	MATH 4
Lower division writing course	Lower division writing course	Gen. Ed.
	Gen. Ed.	Gen. Ed.
Sophomore		
Fall	**Winter**	**Spring**
ECON 15A	ECON 15B	ECON 100C
ECON 100A	ECON 100B	ECON 122A
SOC SCI 3A	Intro SOC SCI course	Gen. Ed.
Gen. Ed.	Gen. Ed.	Gen. Ed.
Junior		
Fall	**Winter**	**Spring**
UD ECON course	UD ECON course	UD ECON course
UD ECON course	Gen. Ed.	UD ECON course

Gen. Ed.	Electives	Electives
Electives	Electives	Electives
Senior		
Fall	**Winter**	**Spring**
UD ECON course	UD ECON course	UD ECON course
Electives	Electives	Electives
Electives	Electives	Electives
Electives	Electives	Electives

Departmental Requirements for the Major in Quantitative Economics

The Department strongly urges students to consider the major in Quantitative Economics, which best prepares them for careers in business and finance, for law school, for M.B.A. programs, and for graduate studies in the social sciences. School requirements must be met and must include 19 courses as specified below.

A. Lower-division:	
ECON 20A- 20B	Basic Economics I and Basic Economics II
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 3A	Introduction to Linear Algebra
or MATH 6G	Linear Algebra
MATH 4	Mathematics for Economists
B. Upper-division:	
ECON 105A- 105B- 105C	Intermediate Quantitative Economics I and Intermediate Quantitative Economics II and Intermediate Quantitative Economics III
ECON 123A- 123B	Econometrics I and Econometrics II
STATS 120A- 120B- 120C	Introduction to Probability and Statistics and Introduction to Probability and Statistics and Introduction to Probability and Statistics
C. Five additional Economics courses, including at least four four-unit upper-division courses and one that satisfies the upper-division writing requirement. The upper-division electives must include two quantitative electives selected from the list below: [1]	
ECON 107	Economics of Asymmetric Information
ECON 116A	Game Theory I
ECON 116B	Game Theory II
ECON 131A	The Economics of Risk and Uncertainty
ECON 135	Mathematics of Finance
D. A maximum of three four-unit courses selected from ECON 190–199 may be counted toward the major.	

1 Additional courses may be added to this list; up-to-date information is available at the Department of Economics (http://www.economics.uci.edu) website.

NOTE: Students who are double majoring in Quantitative Economics and Mathematics may (1) substitute MATH 2D-MATH 2E and MATH 3A for MATH 4, (2) substitute an upper-division probability and statistics sequence taught in the Mathematics Department for STATS 120A-STATS 120B-STATS 120C, and (3) substitute three upper-division Mathematics electives for upper-division Economics electives.

Sample Program — Quantitative Economics Majors

Freshman		
Fall	**Winter**	**Spring**
ECON 20A	ECON 20B	Intro SOC SCI course
MATH 2A	MATH 2B	MATH 4
Lower division writing course	Lower division writing course	MATH 6G
	Gen. Ed.	Gen. Ed.
Sophomore		
Fall	**Winter**	**Spring**
ECON 105A	ECON 105B	ECON 105C
STATS 120A	STATS 120B	STATS 120C
SOC SCI 3A	Intro SOC SCI course	Gen. Ed.

Gen. Ed.	Gen. Ed.	Gen. Ed.
Junior		
Fall	**Winter**	**Spring**
ECON 123A	ECON 123B	UD ECON course
UD ECON course	Gen. Ed.	UD ECON course
UD ECON course	UD ECON course	Electives
Gen. Ed.	Electives	Electives
Senior		
Fall	**Winter**	**Spring**
UD ECON course	UD ECON course	UD ECON course
Electives	Electives	Electives
Electives	Electives	Electives
Electives	Electives	Electives

Departmental Requirements for the Major in Business Economics

The Business Economics major is for students seeking a business orientation in their study of economics. It does not replicate the traditional undergraduate business school curriculum. Instead, it offers a more tightly focused curriculum that is guided by the rigorous logic and integrative perspective of economics. School requirements must be met and must include 20 courses as specified below.

A. Lower-division:	
ECON 20A- 20B	Basic Economics I and Basic Economics II
ECON 15A- 15B	Probability and Statistics in Economics I and Probability and Statistics in Economics II
ECON 25	The Economics of Accounting Decisions
MATH 2A- 2B	Single-Variable Calculus and Single-Variable Calculus
MATH 4	Mathematics for Economists
B. Upper-division:	
ECON 100A- 100B- 100C	Intermediate Economics I and Intermediate Economic II and Intermediate Economic III
ECON 122A- 122B	Applied Econometrics I and Applied Econometrics II
C. Seven additional Economics courses, including at least four four-unit upper-division courses. [1]	
Two of the electives must be selected from following business electives list:	
ECON 125	Business Forecasting
ECON 131A	The Economics of Risk and Uncertainty
ECON 132A	Introduction to Financial Investments
ECON 134A	Corporate Finance
ECON 135	Mathematics of Finance
ECON 142A	Industrial Organization I
ECON 142B	Industrial Organization II
ECON 145L	Economics of Law
ECON 161A	Money and Banking
ECON 161B	International Money
And two of electives must be selected from the following management electives list:	
ECON 140	Managerial Econonmics
ECON 147A	Corporate Governance
ECON 147B	Economics of Strategy
ECON 148	Business Decisions
ECON 115	Behaviorial Economics
ECON 151A	Labor Economics and Human Resources I
ECON 151B	Labor Economics and Human Resources II

ECON 165	Economics of International Business

D. A maximum of three four-unit courses selected from ECON 190–199 may be counted toward the major.

[1] It is strongly recommended that students satisfy the upper-division writing requirement with one of the Economics electives.

Sample Program — Business Economics Majors

Freshman		
Fall	**Winter**	**Spring**
ECON 20A	ECON 20B	Intro SOC SCI course
MATH 2A	MATH 2B	MATH 4
Lower division writing course	Lower division writing course	ECON 25
	Gen. Ed.	Gen. Ed.
Sophomore		
Fall	**Winter**	**Spring**
ECON 15A	ECON 15B	ECON 122A
ECON 100A	ECON 100B	ECON 100C
SOC SCI 3A	Intro SOC SCI course	Gen. Ed.
Gen. Ed.	Gen. Ed.	Gen. Ed.
Junior		
Fall	**Winter**	**Spring**
ECON 122B	UD ECON course	UD ECON course
UD ECON course	Gen. Ed.	Gen. Ed.
UD ECON course	Electives	Electives
Gen. Ed.	Electives	Electives
Senior		
Fall	**Winter**	**Spring**
UD ECON course	UD ECON course	UD ECON course
Electives	Electives	Electives
Electives	Electives	Electives
Electives	Electives	Electives

Specialization in International Issues and Economics

Students in any of the three Economics majors may complete the specialization in International Issues and Economics. Admission to the specialization requires approval in advance by the Economics Department. The admissions process begins with completing a form at the Department office. This approval should be applied for after the student has completed ECON 20A-ECON 20B, but no later than the end of the junior year.

The specialization requires the completion of the following:

A. Lower-division:

INTL ST 11	Global Cultures and Society
INTL ST 13	Global Economy (or ECON 13)
INTL ST 14	Introduction to International Relations

B. Three upper-division international Economics elective courses selected from the following:

ECON 157	Economic Development
ECON 161B	International Money
ECON 162	Poverty, Growth, and Development
ECON 164A	The Industrial Revolution in Western Europe
ECON 165	Economics of International Business

C. Three additional international general education elective courses selected from the following: [1]

HISTORY 21A	World: Innovations
HISTORY 21B	World: Empires and Revolutions
HISTORY 21C	World: Wars and Rights
INTL ST 112A	International Business
INTL ST 121	Social Ecology of Peace
INTL ST 122	Nuclear Environments
INTL ST 179	Regional Topics in International Studies (if focus is on international economy)
POL SCI 141B	International Political Economy

POL SCI 141C	International Political Economy of East Asia
POL SCI 141D	Immigration Politics in Western Europe

1 At most, only one lower-division elective may be taken.

Honors Program in Economics

Undergraduates in any of the three Economics majors may complete the Honors Program in Economics. Entry into the program requires a 3.4 GPA or better in upper-division Economics courses and an overall GPA of 3.2 or better. Undergraduates hoping to enter the program must apply no later than the spring quarter of their junior year. Students in the Honors Program must complete an honors thesis and the two-quarter Economics Honors Colloquium (ECON H190A-ECON 190BW; satisfies the upper-division writing requirement).

Economics Minor Requirements

Requirements for the minor in Economics are met by taking nine courses (36 units) as specified below:

A. Core courses (28 units):	
ECON 15A- 15B	Probability and Statistics in Economics I and Probability and Statistics in Economics II [1]
ECON 20A- 20B	Basic Economics I and Basic Economics II [2]
and select one of the following sequences:	
ECON 100A- 100B- 100C	Intermediate Economics I and Intermediate Economic II and Intermediate Economic III
or	
ECON 105A- 105B- 105C	Intermediate Quantitative Economics I and Intermediate Quantitative Economics II and Intermediate Quantitative Economics III
B. Electives (eight units): two upper-division ECON electives (excluding ECON 199). [3]	

NOTE: Prerequisites for the Economics core courses include MATH 2A-MATH 2B and MATH 4.

1 MGMT 7 may not be used to substitute for ECON 15A-ECON 15B. Furthermore, students will not received credit for MGMT 7 if taken after ECON 15A-ECON 15B.

2 Note that ECON 20A-ECON 20B is a requirement of both the undergraduate major in Business Administration and the Economics minor.

3 As noted in the Economics courses list (click on the "Courses" tab at the top of this page), some courses overlap with upper-division courses offered by The Paul Merage School of Business. Where there is overlap, students may use the course to count toward satisfying the upper-division requirements of the Business Administration major or the Economics minor, but not both.

Graduate Program

The Department of Economics offers a Ph.D. degree program in Economics. Drawing upon the School's strong quantitative tradition, it specializes in public choice (p. 1781), transportation economics (p. 1781), urban economics, econometrics, and applied microeconomics. Admission is highly selective and is limited to students whose interests mesh closely with those of the faculty. By requiring a high degree of overlap between faculty and student research interests, the program offers extensive faculty contact within a tutorial framework. Motivated and well-qualified students find the graduate program highly attractive because of its small size and its great flexibility. Self-discipline and an inquiring mind are prerequisites.

Admission

The deadline for application for admission is January 15 for fall quarter. Students are admitted for winter or spring quarters only under exceptional circumstances. Late applications are considered on a space-available basis. All applicants must take the Graduate Record Exam (GRE) prior to the application deadline. Applicants whose primary language is not English must also submit Test of English as a Foreign Language (TOEFL) scores. To be considered for any financial aid (including a teaching assistantship), students who are not citizens of countries where English is either the primary or dominant language as approved by the UCI Graduate Council must submit a passing score from the Test of Spoken English (TSE).

Requirements

All students must show competence in the core areas of microeconomics, macroeconomics, and econometrics. This is done by taking the three-quarter required course sequences in microeconomics, macroeconomics, and econometrics, with no grade lower than a B and with a grade point average across these courses of at least 3.25. The Department may also require students to pass a written qualifying exam in one or more of the core course sequences after taking the courses.

Students take the oral candidacy examination based on their research. A well-prepared student should take this oral examination at the end of the second year.

Students also must master two fields of economics by taking a two-course sequence (possibly including independent reading courses) and writing a research paper in each field. Students also must enroll for at least four quarters in the graduate colloquium, in which attendance at regular Economics faculty research colloquia is supplemented by discussion of the papers presented and additional reading. Students are encouraged to become conversant with areas of current economic research early in their graduate careers, in order to facilitate a timely transition from meeting course and field requirements to thinking through a dissertation research plan.

Two or three quarters before the expected completion of the dissertation, the dissertation committee will organize an oral examination of the candidate's dissertation prospectus. Ordinarily, the prospectus will describe in detail the dissertation, and will typically be accompanied by at least one completed chapter of the dissertation.

Students are expected to complete their dissertation by the end of their fifth year. The maximum time permitted for completion of the Ph.D. is six years.

Concentration in Transportation Economics

Students can also pursue a Ph.D. in Economics with a concentration in Transportation Economics. This option draws upon the transportation researchers on the campus within the School of Social Sciences, The Henry Samueli School of Engineering, The Paul Merage School of Business, and the School of Social Ecology. Students benefit from association with the Institute of Transportation Studies, which facilitates student research by providing research assistantships and interdisciplinary seminars on all modes of transportation.

Requirements for the concentration are the same as those described above with the following three exceptions:

1. Instead of the third quarter of microeconomics and macroeconomics, students may substitute specified courses such as Discrete Choice Econometrics (ECON 223A), Travel Demand Analysis I (ENGRCEE 220A), or Management Science (MGMTMBA 201B);
2. One of the student's two required fields of competence must be transportation economics; the other must be a related field such as urban economics, labor economics, industrial organization, or a transportation-related field from outside economics (such as travel demand and flow theory, urban and transportation policy analysis, environmental impacts of transportation, or urban and transportation planning) subject to the approval of the Director of Graduate Studies for Economics; and
3. Students must take at least one additional course from a list of designated courses in transportation and related subject areas.

Concentration in Public Choice

Students can also pursue a Ph.D. degree in Economics with a concentration in Public Choice. This is an interdisciplinary field, at the intersection of Economics and Political Science, which draws on quantitative tools to model the functioning of political institutions. Faculty from the Departments of Economics, Political Science, and Logic and Philosophy of Science and from The Paul Merage School of Business are involved in research that supports the concentration.

Students who elect this concentration are admitted under the normal procedures for the program in Economics and must fulfill all the requirements for the Economics degree with the following modifications:

1. One of the student's two required fields of competence must be public choice; included is a three-quarter core course in public choice, ECON 270A-ECON 270B-ECON 270C, which is jointly organized by faculty in the Departments of Economics and Political Science. (A background in economic theory is a prerequisite to this sequence.) The requirement for competence in a second field may be met with a one-quarter course, instead of two, if it provides sufficient fluency in the field; and
2. Students must obtain a background knowledge in political science equivalent to that provided by a one-year undergraduate survey course, if they do not already have it.

Program in Law and Graduate Studies (J.D./Ph.D.)

Highly qualified students interested in combining the study of law with graduate research and/or professional qualifications in Economics are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students in this program pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Ph.D. degree in Economics. Additional information is available from the PLGS Program Director's office, (949) 824-4158, or by e-mail to plgs@law.uci.edu. A full description of the program, with links to all relevant application information, can be found at the School of Law Concurrent Degree Programs (http://www.law.uci.edu/plgs) website.

Research Facilities

UCI is a major research university and has an excellent library that offers in electronic and print formats more than 3.2 million volumes, as well as special interlibrary loan arrangements with the other University of California libraries. The School of Social Sciences provides computer rooms, conference rooms, and offices for graduate students. The Economics Department has a small library with current journals and unpublished working papers from other universities. Students also have access to advanced computing resources as well as PC and UNIX laboratories.

Currently, there are four research units that provide excellent research opportunities for Economics graduate students: the Institute of Transportation Studies, the Center for Research on Information Technology and Organizations, the Institute for Mathematical Behavioral Sciences, and the Center for

Economics & Public Policy (CEPP), established in 2011, which seeks to improve analysis, formulation, and debate on economics-related public policy issues at the international, national, state, and local levels.

Faculty

Neerja Aggarwal, Ph.D. University of California, Irvine, *Lecturer of Economics*

Frank D. Bean, Ph.D. Duke University, *UCI Chancellor's Professor of Sociology; Economics* (international migration, demography, racial and ethnic relations, economic sociology, family)

D. Bell, Ph.D. University of California, Berkeley, *Professor Emeritus of Economics*

Marianne Bitler, Ph.D. Massachusetts Institute of Technology, *UCI Chancellor's Fellow* and *Professor of Economics; Education*

Daniel E. Bogart, Ph.D. University of California, Los Angeles, *Associate Professor of Economics*

William A. Branch, Ph.D. University of Oregon, *UCI Chancellor's Fellow* and *Professor of Economics*

David Brownstone, Ph.D. University of California, Berkeley, *Professor of Economics*

Jan K. Brueckner, Ph.D. Stanford University, *Department Chair and Professor of Economics; Planning, Policy, and Design*

Michael L. Burton, Ph.D. Stanford University, *Professor Emeritus of Anthropology; Economics*

Francis A. Cancian, Ph.D. Harvard University, *Professor Emeritus of Anthropology; Economics*

Jean-Paul Carvalho, Ph.D. Oxford University, *Assistant Professor of Economics; Logic and Philosophy of Science*

Jiawei Chen, Ph.D. Johns Hopkins University, *Associate Professor of Economics*

Natalia Chernyshoff, Ph.D. University of California, Davis, *Lecturer of Economics*

Damon Clark, Ph.D. Oxford University, *Assistant Professor of Economics*

Arthur S. De Vany, Ph.D. University of California, Los Angeles, *Professor Emeritus of Economics*

Yingying Dong, Ph.D. Boston College, *Assistant Professor of Economics*

John Duffy, Ph.D. University of California, *Professor of Economics*

Greg Duncan, Ph.D. University of Michigan, *UCI Distinguished Professor of Education; Economics; Psychology and Social Behavior* (economics of education, program evaluation, child development)

Paul Feldstein, Ph.D. University of Chicago, *Professor Emeritus of Paul Merage School of Business; Economics*

Gordon J. Fielding, Ph.D. University of California, Los Angeles, *Professor Emeritus of Economics*

Michelle Garfinkel, Ph.D. Brown University, *Professor of Economics*

Amihai Glazer, Ph.D. Yale University, *Professor of Economics*

Bernard N. Grofman, Ph.D. University of Chicago, *Jack Peltason Chair* and *Professor of Political Science; Economics*

David Hirshleifer, Ph.D. University of Chicago, *Paul Merage Chair in Business Growth* and *Professor of Paul Merage School of Business; Economics*

Ivan G. Jeliazkov, Ph.D. Washington University, *Associate Professor of Economics; Statistics*

Brian C. Jenkins, Ph.D. University of North Carolina at Chapel Hill, *Lecturer of Economics*

Linda Cohen Jennings, Ph.D. California Institute of Technology, *Professor of Economics; School of Law*

Philippe Jorion, Ph.D. University of Chicago, *Professor of Paul Merage School of Business; Economics*

Marek Kaminski, Ph.D. University of Maryland, College Park, *Associate Professor of Political Science; Economics*

Igor Kopylov, Ph.D. University of Rochester, *Associate Professor of Economics; Economics*

Raffaele Mari, M.A. San Diego State University, *Lecturer of Economics*

Michael T. McBride, Ph.D. Yale University, *Associate Professor of Economics; Logic and Philosophy of Science*

Martin C. McGuire, Ph.D. Harvard University, *UCI Endowed Chair* and *Professor Emeritus of Economics*

Richard B. McKenzie, Ph.D. Virginia Polytechnic Institute and State University, *Professor Emeritus of Economics; Paul Merage School of Business*

Fabio Milani, Ph.D. Princeton University, *Associate Professor of Economics*

David Neumark, Ph.D. Harvard University, *UCI Chancellor's Professor of Economics; Paul Merage School of Business*

Dale J. Poirier, Ph.D. University of Wisconsin-Madison, *Professor of Economics; Statistics*

Andrew Policano, Ph.D. Brown University, *Dean's Leadership Circle Endowed Professorship* and *Professor of Paul Merage School of Business; Economics*

Priya Ranjan, Ph.D. Columbia University, *Professor of Economics*

Gary Richardson, Ph.D. University of California, Berkeley, *UCI Chancellor's Fellow* and *Professor of Economics; European Languages and Studies* (economic history, macroeconomics, Great Depression, Industrial Revolution, property rights and economic development)

Guillaume Rocheteau, Ph.D. University of Paris, *UCI Chancellor's Fellow and Professor of Economics*

Jose Antonio Rodriguez Lopez, Ph.D. University of California, Berkeley, *Assistant Professor of Economics*

Kevin Roth, M.S. Cornell University, *Assistant Professor of Economics*

Donald G. Saari, Ph.D. Purdue University, *UCI Distinguished Professor of Economics; Logic and Philosophy of Science; Mathematics* (ergodic theory and dynamical systems, mathematics of complex social phenomena)

Jean-Daniel M. Saphores, Ph.D. Cornell University, *Professor of Civil and Environmental Engineering; Economics; Planning, Policy, and Design* (transportation economics, planning and policy, environmental and natural resource economics and policy, quantitative methods)

George Sarraf, Ph.D. Claremont Graduate University, *Lecturer of Economics*

Nilopa Shah, Ph.D. University of California, Irvine, *Lecturer of Economics*

Paul R. Shirey, Ph.D. University of California, Irvine, *Lecturer of Social Sciences; Economics*

Stergios Skaperdas, Ph.D. Johns Hopkins University, *Clifford S. Heinz Chair* and *Professor of Economics*

Brian Skyrms, Ph.D. University of Pittsburgh, *UCI Distinguished Professor of Logic and Philosophy of Science; Economics; Philosophy*

Kenneth A. Small, Ph.D. University of California, Berkeley, *Professor Emeritus of Economics*

Eric Swanson, Ph.D. Stanford University, *Professor of Economics*

Carole J. Uhlaner, Ph.D. Harvard University, *Associate Professor of Political Science; Economics*

Wilima Wadhwa, Ph.D. University of California, Irvine, *Lecturer of Economics*

Christian Werner, Ph.D. Berlin Free University, *Professor Emeritus of Economics*

Courses

ECON 1. Introduction to Economics. 4 Units.
An analysis of the problems society faces in organizing itself to provide goods and services. How decisions of government, business, and the individual relate to current economic problems such as unemployment, inflation, poverty, and environmental pollution.

Restriction: Non-Economics majors only. ECON 1 may not be taken for credit if taken concurrently or after ECON 20A or ECON 20B.

(III)

ECON 11. The Internet and Public Policy. 4 Units.
How the Internet works. Current public policy issues concerning the Internet. Introductory economics. Communications law. Interactions between information technology, economics, and law. Case studies about Internet and communications policy.

Same as I&C SCI 11.

(II or III).

ECON 12. Federal Reserve: Past, Present, and Future. 4 Units.
Studies central banking in the United States from colonial times to the present. Focuses on the past, present, and future of the Federal Reserve and precursors to that system, which was established in 1913.

ECON 13. Global Economy. 4 Units.
Acquaints students with the fundamental patterns of the global economy. Emphasizes the historical roots and political implications of economic choices.

Same as INTL ST 13.

Restriction: International Studies, Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(III, VIII)

ECON 15A. Probability and Statistics in Economics I. 4 Units.
An introduction to probability, statistics, and econometrics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Examples from economics. MGMT 7 may not be used to substitute for ECON 15A-ECON 15B.

Prerequisite: MATH 2A and MATH 2B and MATH 4.

Restriction: No credit for MGMT 7 if taken after ECON 15A and ECON 15B. Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Va)

ECON 15B. Probability and Statistics in Economics II. 4 Units.
An introduction to probability, statistics, and econometrics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Examples from economics. MGMT 7 may not be used to substitute for ECON 15A-ECON 15B.

Prerequisite: MATH 2A and MATH 2B and MATH 4.

Restriction: No credit for MGMT 7 if taken after ECON 15A OR 15B. Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Va)

ECON 17. An Economic Approach to Religion. 4 Units.
Introduction to how basic economic concepts such as demand, supply, consumption, production, competition, free-riding, innovation, regulation, and rent-seeking can be applied to understand observed religious behavior.

Same as REL STD 17.

(III)

ECON 20A. Basic Economics I. 4 Units.
The fundamentals of microeconomics. The behavior of firms and consumers: markets, supply/demand, utility maximization, resource allocation, and efficiency. Course may be offered online.

Overlaps with ECON 23.

(III)

ECON 20B. Basic Economics II. 4 Units.
The fundamentals of macroeconomics. Government behavior: monetary and fiscal policy, inflation, and unemployment. Effective fall 2006, the content of Economics 20B is macroeconomics. This course cannot be taken to repeat Economics 20B taken prior to fall 2006. Course may be offered online.

Prerequisite: ECON 20A or ECON 13.

(III)

ECON 23. Basic Economics for Engineers. 4 Units.
The fundamentals of microeconomics. The behavior of firms and of consumers: markets, supply/demand, utility maximization, resource allocation, and efficiency.

Overlaps with ECON 20A.

(III)

ECON 25. The Economics of Accounting Decisions. 4 Units.
Introduction to accounting concepts and principles, including the accounting model and accounting style, transaction analysis, and preparation of financial statements. An analysis of the similarities and differences between accounting and economic concepts (e.g., value, profits).

Prerequisite: ECON 20A.

Overlaps with MGMT 30A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 26A. Managerial Accounting. 4 Units.
An introduction to the fundamentals of management accounting, including the study of terms and concepts, comparisons of different costing systems, analysis of cost-volume profit relationships, preparation of information for planning, control, and evaluation of performance, and decision analysis.

Prerequisite: MATH 2A and MATH 2B and MATH 4.

Overlaps with MGMT 30B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 100A. Intermediate Economics I. 4 Units.
Determinants of supply and demand; operation of competitive and monopolistic markets; imperfections of the market system, explanations of unemployment, inflation, recessions; public policy for macroeconomic problems.

Prerequisite: ECON 20A and ECON 20B and MATH 2A and MATH 2B.

Overlaps with ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 100B. Intermediate Economic II. 4 Units.
Determinants of supply and demand; operation of competitive and monopolistic markets; imperfections of the market system, explanations of unemployment, inflation, recessions; public policy for macroeconomic problems.

Prerequisite: ECON 100A.

Overlaps with ECON 105B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 100C. Intermediate Economic III. 4 Units.
Determinants of supply and demand; operation of competitive and monopolistic markets; imperfections of the market system, explanations of unemployment, inflation, recessions; public policy for macroeconomic problems.

Prerequisite: ECON 100B.

Overlaps with ECON 105C.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 105A. Intermediate Quantitative Economics I . 4 Units.
An advanced and mathematical version of ECON 100A for students in the Quantitative Economics major.

Prerequisite: ECON 20A and ECON 20B and MATH 2A and MATH 2B and MATH 3A and MATH 4.

Overlaps with ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 105B. Intermediate Quantitative Economics II . 4 Units.
An advanced and mathematical version of ECON 100B for students in the Quantitative Economics major.

Prerequisite: ECON 105A.

Overlaps with ECON 100B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 105C. Intermediate Quantitative Economics III . 4 Units.
An advanced and mathematical version of ECON 100C for students in the Quantitative Economics major.

Prerequisite: ECON 105B.

Overlaps with ECON 100C.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 107. Economics of Asymmetric Information. 4 Units.
Focuses on the effects of asymmetric information in the markets for traditional economic goods and resources, such as labor, insurance, used cars, credit, and in auctions and bargaining problems. Prerequisite:.

Prerequisite: ECON 100A or ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 109. Special Topics in Economic Theory. 4 Units.
Studies in selected areas of Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 115. Behaviorial Economics. 4 Units.
Studies the behavioral and psychological biases in economics settings. Both individual decisions and games are discussed.

Prerequisite: ECON 20A and ECON 20B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 116A. Game Theory I. 4 Units.
Extensive form games with perfect information, and coalitional games. The key solution concepts are Nash Equilibrium, Backward Induction, and the Core. Substantive examples include public good production, oligopoly, electoral competition, auctions, holdup, market entry, and voting.

Prerequisite: ECON 15A and ECON 15B and (ECON 100A or ECON 105A).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 116B. Game Theory II. 4 Units.
Two-quarter sequence on game theory. Bayesian games, extensive form games with imperfect information, zero-sum games.

Prerequisite: ECON 116A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 117. Experimental Economics . 4 Units.
Students will learn what constitutes proper experimental design and what laboratory experiments teach us about human behavior and the economy. Students will participate in a sample experiment, evaluate the results, and discuss experiment design and larger issues.

Prerequisite: ECON 15B and ECON 100B.

ECON 122A. Applied Econometrics I. 4 Units.
Introduction to econometrics emphasizing practical applications in microeconomics and macroeconomics.

Prerequisite: ECON 15A and (ECON 15B or MATH 130B or MATH 133A or MATH 131C or STATS 120C) and ECON 20B.

Overlaps with ECON 123A, ECON 123B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 122B. Applied Econometrics II. 4 Units.
Introduction to econometrics emphasizing practical applications in microeconomics and macroeconomics.

Prerequisite: ECON 122A.

Overlaps with ECON 123B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 122CW. Data Analysis Writing. 4 Units.
Research writing course in econometrics focusing on individual research projects. Students employ econometric analysis to address an economic question in a 20-page paper and present their findings to the class in a short presentation.

Prerequisite: ECON 15A and ECON 15B and ECON 122A and ECON 122B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 123A. Econometrics I. 4 Units.
Specification, estimation, and testing of econometric models. Applications in various areas of microeconomics and macroeconomics.

Prerequisite: (MATH 2A and MATH 2B and MATH 4) or (MATH 3A and STATS 120A and STATS 120B and (STATS 120C or MATH 131C)) and ((ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C)).

Overlaps with ECON 122A, ECON 122B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 123B. Econometrics II. 4 Units.
Specification, estimation, and testing of econometric models. Applications in various areas of microeconomics and macroeconomics.

Prerequisite: ECON 123A

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 123C. Econometrics III. 4 Units.
Seminar course in which students do an original econometric research project.

Prerequisite: ECON 123B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 123CW. Econometrics III. 4 Units.
Seminar course in which students do an original econometric research project.

Prerequisite: ECON 123B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 124. Advances in Econometrics I. 4 Units.
Aims to supplement the training in econometrics for students who have completed either Economics 122A-B or 123A-B-C by covering chapters in the two texts used in these sequences which were not covered.

Prerequisite: (ECON 122A and ECON 122B) or (ECON 123A and ECON 123B).

ECON 125. Business Forecasting. 4 Units.
Students learn how to produce forecasts of the behavior of economic (and other) variables. The techniques examined are linear regression, nonlinear regression, and nonparametric kernel regression, AR, MA, ARMA, ARIMA, and Box-Jenkins.

Prerequisite: ECON 15A and ECON 15B and ECON 20A and ECON 20B.

Overlaps with MGMT 180.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 129. Special Topics in Quantitative Methods. 4 Units.
Studies in selected areas of Quantitative Methods. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 131A. The Economics of Risk and Uncertainty. 4 Units.
The theory of insurance and joint-ownership of risky enterprises; optimal procedures for the allocation of uncertain payoffs.

Prerequisite: ECON 15A and ECON 15B and ((ECON 100A and ECON 100B) or (ECON 105A and ECON 105B) or (MATH 131A and MATH 131B and STATS 120A and STATS 120B and STATS 120C) or (MATH 130B or MATH 133A or MATH 131C)).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 132A. Introduction to Financial Investments. 4 Units.
Modern theories of investment and their application to the study of financial markets. The relation between risk and return, diversification, asset pricing, efficient markets hypothesis, and the market valuation of stocks, bonds, options, and futures.

Prerequisite: (ECON 15A and ECON 15B and ECON 122A and ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C) or (MATH 131A and MATH 131B and STATS 120A and STATS 120B and STATS 120C) or (MATH 130B or MATH 133A or MATH 131C). Prerequisite or corequisite: ECON 100C or ECON 105C.

Overlaps with MGMT 141.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 134A. Corporate Finance. 4 Units.
Provides an overview of the modern theory and practice of corporate finance and focuses on two fundamental financial decisions; investment as well as financing. Beginning with discounted cash flow analysis, basic theory will be applied to the valuation of stocks.

Prerequisite: ((ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C)) and MATH 131A and MATH 131B and STATS 120A and STATS 120B and STATS 120C.

Overlaps with MGMT 109.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 135. Mathematics of Finance. 4 Units.
After reviewing tools from probability, statistics, and elementary differential and partial differential equations, concepts such as hedging, arbitrage, Puts, Calls, the design of portfolios, the derivation and solution of the Blac-Scholes, and other equations are discussed.

Prerequisite: MATH 3A.

Same as MATH 176.

Restriction: Mathematics, Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 139. Special Topics in Financial Economics. 4 Units.
Studies in selected areas of Financial Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 140. Managerial Econonmics. 4 Units.
A collection of concepts and methods for effective decision making. Explores how the tools of microeconomics, including game theory and industrial organization theory, can be used to make better managerial decisions, particularly those involving allocation of resources within firms.

Prerequisite: ECON 100A and ECON 100B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 141B. Public Economics II. 4 Units.
Theory of public goods, externalities, voting models, analysis of bureaucracy, the Tiebout model, income redistribution, intergovernmental grants.

Prerequisite: (ECON 100A and ECON 100B) or ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 142A. Industrial Organization I. 4 Units.
The theory of market structure. Imperfect markets, government policies and industry performance.

Prerequisite: (ECON 15A and ECON 15B and ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 142B. Industrial Organization II. 4 Units.
Regulation and antitrust theory and performance in industries.

Prerequisite: (ECON 15A and ECON 15B and ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 142CW. Industrial Organization III. 4 Units.
Research in industrial organization. Satisfies the honors research requirement.

Prerequisite: ECON 15A and ECON 15B and ECON 122A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 143. Energy Economics. 4 Units.
The economics of markets for oil, natural gas, electricity, renewable energy and their interactions with each other and the rest of the economy. Effects of government intervention, policy measures, economic policy issues arising between energy use and the environment.

Prerequisite: (ECON 100A and ECON 100B and ECON 100C) or ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 144A. Urban Economics I. 4 Units.
Why cities exist, economics of urban land-use, housing demand and tenure choice, traffic congestion.

Prerequisite: ECON 20A and ECON 20B and ECON 15A and ECON 15B. Recommended: ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 144B. Urban Economics II. 4 Units.
Housing policy analysis, urban public goods and services, crime, pollution, urban amenities.

Prerequisite: ECON 20A and ECON 20B. Recommended: ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 144CW. Urban Economics III. 4 Units.
Allows students to apply knowledge of urban economics in the conduct of individual research.

Prerequisite: ECON 20A and ECON 20B. Recommended: ECON 100A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 145. Health Economics. 4 Units.
Considers why some people are healthier than others, why health outcomes differ across countries, the problems of moral hazard and of adverse selection that appear in health insurance, and how hospitals and physicians behave.

Prerequisite: ECON 100A.

ECON 145E. Economics of the Environment. 4 Units.
Surveys economic aspects of natural resources, pollution, population, and the environment. Examines the causes of pollution; analysis of public policies regarding these problems. Emphasis on microeconomic aspects of environmental problems.

Prerequisite: ECON 15A and ECON 15B and ECON 122A and ((ECON 100A and ECON 100B) or ECON 105A).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 145FW. Economics of the Environment II. 4 Units.
Applications of the tools covered in ECON 145E to such topics as global warming, destruction of the ozone layer, and emissions trading. Emphasis on independent research papers. Syllabus and classes include writing technique.

Prerequisite: ECON 145E and ECON 15A and ECON 15B. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 145L. Economics of Law. 4 Units.
Examination of several economic concepts which are useful in understanding legal rules: externalities, the assignment of property rights, and Coase's theorem. Examples are drawn from the fields of pollution control, no-fault insurance, medical malpractice, and product liability.

Prerequisite: (ECON 100A and ECON 100B) or ECON 105A. Prerequisite or corequisite: ECON 100B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 147A. Corporate Governance. 4 Units.
Studies topics in the internal organization of firms, including rent seeking, incentive contracts, principal-agent problems, internal labor markets, contests, and herd behavior.

Prerequisite: ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 147B. Economics of Strategy. 4 Units.
Uses of tools of economics, game theory in particular, to develop an understanding of business decision making. Deals with questions such as how the firm decides what kind of business to be in, how large should it be, and others.

Prerequisite: (ECON 100A and ECON 100B and ECON 100C) or ECON 105A.

Overlaps with MGMT 110, MGMT 168.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 148. Business Decisions. 4 Units.
Surveys normative and descriptive models of decision-making behavior, with an emphasis on organizational and policy contexts. Topics include rational choice theory, biases and heuristics, framing effects, and overconfidence. Management fads, panics, and herd behavior are also discussed.

Prerequisite: (ANTHRO 10A and ANTHRO 10B and ANTHRO 10C) or (SOCIOL 10A and SOCIOL 10B and SOCIOL 10C) or (SOC SCI 10A and SOC SCI 10B and SOC SCI 10C) or (MATH 2A and MATH 2B and (STATS 7 or MGMT 7)).

Same as SOCIOL 138.

Restriction: Sociology majors have first consideration for enrollment.

ECON 149. Special Topics in Economics of Public and Private Organizations. 4 Units.
Studies in selected areas of Economics of Public and Private Organizations. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 149W. Special Topics in Economics of Public and Private Organizations. 4 Units.
Studies in selected areas of Economics of Public and Private Organizations. Topics addressed vary each quarter.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 151A. Labor Economics and Human Resources I. 4 Units.
Labor demand, labor supply, human capital, personnel economics, and other topics.

Prerequisite: ECON 15A and ECON 15B and ECON 100A and ECON 100B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 151B. Labor Economics and Human Resources II. 4 Units.
Labor market discrimination, compensating wage differentials, immigration, and other topics.

Prerequisite: ECON 151A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 152A. Economic Anthropology. 4 Units.
Economic systems in comparative perspective: production, distribution, and consumption in market and non-market societies; agricultural development in the third world.

Prerequisite: One course in general science, anthropology, economics, geography, or sociology.

Same as ANTHRO 125A.

Restriction: Economics, Quantitative Economics, Business Economics, and Anthropology majors have first consideration for enrollment.

ECON 153W. Political Institutions, Legal Systems, and Economic Development. 4 Units.
Studies a variety of empirical papers analyzing how institutions affect economic development. The topics include cross-country studies of institutions as well as narrower topics such as corruption, regulation of entry, political connections, and pork barrel politics.

Prerequisite: ECON 15A and ECON 15B and ECON 100A and ECON 100B and ECON 100C and ECON 122A. Satisfactory completion of the lower-division writing requirement.

(Ib)

ECON 154. Voting and Political Manipulation. 4 Units.
Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as INTL ST 156A, SOC SCI 121T, POL SCI 151H.

Restriction: International Studies, Political Science, Social Science and Economics majors have first consideration for enrollment.

ECON 157. Economic Development. 4 Units.
Considers the process of economic development across the globe and why some countries are rich and others poor. Discusses the major problems facing developing countries, such as population growth, education, capital formation, environmental protection, and international trade.

Prerequisite: ECON 20A and ECON 20B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 158. Economics of Education. 4 Units.
Arms students with tools, concepts, and evidence that can be used to analyze complex policy questions in education, enabling students to arrive at their own reasoned judgments about how to improve education.

Prerequisite: ECON 15A and ECON 100A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 158W. Economics of Education. 4 Units.
Arms students with tools, concepts, and evidence that can be used to analyze complex policy questions in education, enabling students to arrive at their own reasoned judgments about how to improve education.

Prerequisite: ECON 15A and ECON 100A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 159. Special Topics in Economics in Human Resources. 4 Units.
Studies in selected areas of Economics in Human Resources. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 161A. Money and Banking. 4 Units.
Basic elements of money and banking: institutional features and economics of financial markets and, in particular, the U.S. banking system; determinants of interest rates; the Federal Reserve and its role in money supply; effects of money on output and inflation.

Prerequisite: (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B). Prerequisite or corequisite: ECON 100C OR ECON 105C.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 161B. International Money. 4 Units.
Open economy macroeconomics and determination of exchange rates. Asset-market approach to the balance of payments. Internal and external balance in the economy. Macroeconomic policies under fixed and floating exchange rates. The international monetary system and institutions.

Prerequisite: ECON 100A and ECON 100B. Prerequisite or corequisite: ECON 100C.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 161D. Advanced Money and Banking. 4 Units.
Studies business cycles in the United States during the last century. The first portion of the course reviews the theoretical models employed to study economic fluctuations and empirical methods used to measure fluctuations.

Prerequisite: ECON 15A and ECON 15B and ((ECON 100A and ECON 100B and ECON 100C) OR (ECON 105A and ECON 105B and ECON 105C)).

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 162. Poverty, Growth, and Development. 4 Units.
Examines India as a case study for each of the topics studied: growth experience of India along with its poverty eradication record and aspects of poverty and the polices that have been undertaken to tackle poverty.

Prerequisite: ECON 15A and ECON 15B and ECON 100A and ECON 100B and ECON 100C.

ECON 164. American Economic History from Colonization to the Present. 4 Units.
Examines how the American economy evolved from colonization to the post-war era. Topics include relations with foreign countries, the emergence of manufacturing and big business, railroads, slavery, war, the Great Depression, the rise of fiscal and monetary policies.

Prerequisite: ECON 20A and ECON 20B.

ECON 164A. The Industrial Revolution in Western Europe. 4 Units.
How do economists explain the process of economic development during the past three centuries? How has the process of industrialization affected living standards? In focusing on these questions, students will learn how to apply economic theory and quantitative methods.

Prerequisite: ((ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C)) and ECON 122A and ECON 122B.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 164AW. The Industrial Revolution in Western Europe. 4 Units.
How do economists explain the process of economic development during the past three centuries? Has the process of industrialization affected living standards? Focusing on these questions, students will learn how to apply economic theory and quantitative methods.

Corequisite: ECON 100C.
Prerequisite: ECON 100C or ECON 105C. Prerequisite or corequisite: ECON 100C. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(Ib)

ECON 165. Economics of International Business . 4 Units.
Students learn to understand and analyze the principal economic issues in the international business arena. Covers topics such as trade theory, foreign direct investment, foreign exchange market, and strategy of international business.

Prerequisite: ECON 100C.

ECON 167. International Trade and Commercial Policy. 4 Units.
Determination of trade flows and the relative prices. Gains from trade, the terms of trade, and income distribution. Imperfect competition and international trade. The effect of tariffs, export subsidies, and import quotas. The effects of free and restricted trade.

Prerequisite: ECON 100A or ECON 105A.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 169. Special Topics in Development Economics. 4 Units.
Studies in selected areas of Development Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

ECON 190. Senior Thesis. 4 Units.
Students work with faculty to complete their honors thesis.

Repeatability: May be taken for credit 3 times.

ECON 190BW. Economics Honors Colloquium II. 4 Units.
Colloquium required for honors students in Economics, Quantitative Economics, and Business Economics. Introduces students to independent research. Helps students plan a research program. Students complete their thesis.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement. Must be enrolled in the honors program in Economics.

(Ib)

ECON H190A. Economics Honors Colloquium I. 4 Units.
Colloquium required for honors students in economics, quantitative economics, and business economics. Introduces students to independent research. Helps students plan a research program. Prepares students for thesis writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement. Must be enrolled in the honors program in economics.

ECON 192. Tutoring in Economics. 2 Units.
Enrollment limited to participants in the Economics Peer Tutoring Program. No more than eight units earned in this course may be counted toward the 180 units required for graduation. Satisfies no degree requirement other than contribution to the 180-unit total.

Repeatability: May be taken for credit 4 times.

ECON 197. Field Study. 4 Units.
Not listed in Catalogue.

Repeatability: Unlimited as topics vary.

Restriction: Authorization required or Enrollment by add card only

ECON 198. Directed Group Study. 4 Units.
Not listed in Catalogue.

Repeatability: Unlimited as topics vary.

Restriction: Authorization required or Enrollment by add card only

ECON 199. Independent Study. 1-5 Units.
Independent research with Economics faculty.

Repeatability: May be repeated for credit unlimited times.

ECON 200A. Graduate Colloquium for Economics I. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors. Supplemented by class discussion of these presentations and other material on current research methodology.

Repeatability: May be repeated for credit unlimited times.

Restriction: Economics graduate students only.

ECON 200B. Graduate Colloquium for Economics II. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors. Supplemented by class discussion of these presentations and other material on current research methodology.

Prerequisite: ECON 200A.

Repeatability: May be repeated for credit unlimited times.

Restriction: Economics graduate students only.

ECON 200C. Graduate Colloquium for Economics III. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors. Supplemented by class discussion of these presentations and other material on current research methodology.

Prerequisite: ECON 200B.

Repeatability: May be repeated for credit unlimited times.

Restriction: Economics graduate students only.

ECON 202. Probability and Statistics. 4 Units.
Provides lectures on probability theory and the beginning of mathematical statistics (continued in ECON 220A-ECON 221A) necessary to prepare students for the required econometrics sequence. Topics include probability, distributions, mathematical expectation, sampling, and point estimation.

Restriction: Graduate students only.

ECON 203A. Mathematics for Economists. 4 Units.
Gives students the mathematical background required for graduate work in economics. Topics covered include multivariate calculus, differential equations, and linear algebra.

Restriction: Graduate students only.

ECON 205A. Research Writing in Economics. 4 Units.
For Economics graduate students who are writing their required research paper in an applied field. How to write an original paper in economics. Guidance for specific papers.

Restriction: Economics graduate students only.

ECON 206. How to Write a Paper. 2 Units.
A course on writing. Also discusses how to make an oral presentation, how to go about doing research, and how academic journals operate. Grade based on two written assignments in which student edits and revises a paper.

ECON 210A. Microeconomic Theory I. 4 Units.
Theoretical microeconomics. Emphasis on the meaning and empirical interpretation of theoretical models. Topics include theory of the firm, theory of the market, theory of the consumer, duality theory, application to econometrics, general equilibrium and welfare economics, uncertainty, game theory.

Restriction: Graduate students only.

ECON 210B. Microeconomic Theory II. 4 Units.
Theoretical microeconomics. Emphasis on the meaning and empirical interpretation of theoretical models. Topics include theory of the firm, theory of the market, theory of the consumer, duality theory, application to econometrics, general equilibrium and welfare economics, uncertainty, game theory.

Prerequisite: ECON 210A.

Restriction: Graduate students only.

ECON 210C. Microeconomic Theory III. 4 Units.
Theoretical microeconomics. Emphasis on the meaning and empirical interpretation of theoretical models. Topics include theory of the firm, theory of the market, theory of the consumer, duality theory, application to econometrics, general equilibrium and welfare economics, uncertainty, game theory.

Prerequisite: ECON 210B.

Restriction: Graduate students only.

ECON 210D. Macroeconomic Theory I. 4 Units.
Advanced macroeconomic theory including alternative macroeconomic models, microeconomic foundations of macroeconomics, investment and growth theory, inflation and unemployment, rational expectations and macroeconomic policy, wealth effects, crowding out and fiscal policy, money and interest, open economy models.

Restriction: Graduate students only.

ECON 210E. Macroeconomic Theory II. 4 Units.
Advanced macroeconomic theory including alternative macroeconomic models, microeconomic foundations of macroeconomics, investment and growth theory, inflation and unemployment, rational expectations and macroeconomic policy, wealth effects, crowding out and fiscal policy, money and interest, open economy models.

Corequisite: ECON 211L.
Prerequisite: ECON 210D.

Restriction: Graduate students only.

ECON 210F. Macroeconomic Theory III. 4 Units.
Advanced macroeconomic theory including alternative macroeconomic models, microeconomic foundations of macroeconomics, investment and growth theory, inflation and unemployment, rational expectations and macroeconomic policy, wealth effects, crowding out and fiscal policy, money and interest, open economy models.

Prerequisite: ECON 210E.

Restriction: Graduate students only.

ECON 211L. Macroeconomics Theory II Lab. 2 Units.
Overview of stochastic processes; introduction to dynamic programming; two equilibrium concepts; Ricardian equivalence; real business cycle model; complete versus incomplete markets; asset pricing and the equity premium puzzle.

Corequisite: ECON 210E.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

ECON 219. Special Topics in Economic Theory. 2-4 Units.
Studies in selected areas of Economic Theory. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 220A. Statistics & Econometrics I. 4 Units.
Covers probability mathematical statistics necessary to prepare students for econometric study and empirical work. Topics include probability theory, distributions, sampling, and classical point estimation. A likelihood perspective is emphasized.

Restriction: Grad students only or Consent of instructor to enroll

ECON 220B. Statistics & Econometrics II. 4 Units.
Begins with Bayesian point estimation. Then covers interval estimation and hypothesis testing from both classical and Bayesian perspectives, followed by a general discussion of prediction. Finally, all these techniques are applied to the standard linear regression model under ideal conditions, and Generalized Least Squares (GLS) is introduced.

Prerequisite: ECON 220A

Restriction: Prerequisite required and (Grad students only or Consent of instructor to enroll)

ECON 220C. Statistics & Econometrics III. 4 Units.
Begins by relaxing the ideal conditions of the standard regession model. Potential topics include kernel density estimation, instrucmental variables (IV), two stage least squares (2SLS), panel data models, and simulation-based Bayesian methods, including Gibbs sampling, the bootstrap, econometric time series, discrete choice and count models, sample selection, and duration models. Covers both Bayesian and classical asymptotic methods.

Prerequisite: ECON 220B and SOC SCI 213A

Restriction: Prerequisite required and Grad students only

ECON 221A. Statistics and Econometrics Laboratory I. 2 Units.
Discussion of problems in statistics and econometrics, and their relationships to statistical and econometrics theory. Instruction in the use of computers for applied econometric work.

Corequisite: ECON 220A.

ECON 221B. Statistics and Econometrics Laboratory II. 2 Units.
Discussion of problems in statistics and econometrics, and their relationships to statistical and econometrics theory. Instruction in the use of computers for applied econometric work.

Corequisite: ECON 220B.

ECON 221C. Statistics and Econometrics Laboratory III. 2 Units.
Discussion of problems in statistics and econometrics, and their relationships to statistical and econometrics theory. Instruction in the use of computers for applied econometric work.

Corequisite: ECON 220C.

ECON 222. Replication and Applied Economics Writing. 4 Units.
Before the course begins, students choose a published empirical economics article and obtain the necessary data to replicate it. Students will replicate and extend the economic analysis and write a paper describing their work.

Prerequisite: ECON 220A and ECON 220B and ECON 220C.

ECON 223A. Discrete Choice Econometrics. 4 Units.
Specification, estimation, and testing of discrete choice models, with emphasis on cross-sectional and panel data models and applications. Students use computer packages to apply models and techniques to real data.

Prerequisite: ECON 220A and ECON 220B and ECON 220C.

ECON 224A. Time Series Econometrics. 4 Units.
Econometric analysis of time series data. Moving average and autoregressive series, regression analysis, Box-Jenkins techniques, computational methods, and causality conditions.

Prerequisite: ECON 220A and ECON 220B and ECON 220C.

ECON 229. Special Topics in Social Dynamics Seminar. 4 Units.
Studies in selected areas of Social Dynamics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 231A. Institutions in Historical Perspective I. 4 Units.
Investigates economic and political institutions across the world and throughout history. Focuses on institutions such as property rights, political regimes, regulations, legal systems, corporate organization, and social norms.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 231B. Institutions in Historical Perspective II. 4 Units.
Investigates economic and political institutions across the world and throughout history. Focuses on institutions such as property rights, political regimes, regulations, legal systems, corporate organization, and social norms.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 232. Business Cycles in Historical Perspective. 4 Units.
Investigates business cycles in the United States and worldwide during the last two centuries. Topics include causes and consequences of business fluctuations, monetary and fiscal policy, models of fluctuations, and empirical macroeconomics.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 233. European Economic History. 4 Units.
Focuses on European economic history between 1500 and 1910. Examines the causes of the Industrial Revolution and globalization. Particular topics: productivity growth, transport improvements, technological change, capital markets, property rights, international trade.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 234. American Economic History. 4 Units.
Focuses on American economic history from colonization onwards. Topics include the development of legal systems, transport systems, financial markets, industrialization, migration, immigration, technological change, and the consequences of slavery.

Prerequisite: ECON 210A and ECON 210B and ECON 210C and ECON 210D and ECON 210E and ECON 210F.

ECON 239. Special Topics in Financial Economics. 2-4 Units.
Studies in selected areas of Financial Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 241A. Industrial Organization I. 4 Units.
Analysis of the structure and economic performance of markets, and the impact of public policy and their efficiency and equity. Effects of information structure. Oligopoly, cartels, mergers, vertical integration, patents, innovation, antitrust, and regulation.

Prerequisite: ECON 100B and ECON 203A.

Restriction: Graduate students only.

ECON 241B. Industrial Organization II. 4 Units.
Analysis of the structure and economic performance of markets, and the impact of public policy and their efficiency and equity. Effects of information structure. Price flexibility and dispersion, auctions, search and industrial structure, intrafirm organization.

Prerequisite: ECON 241A and ECON 100B and ECON 203A.

Restriction: Graduate students only.

ECON 241C. Industrial Organization III. 4 Units.
Continuation of the graduate Industrial Organization (IO) sequence. Students are expected to have started a field paper in IO during the earlier quarters, and will finish a completed draft of it during this quarter.

Prerequisite: ECON 241B and ECON 100B and ECON 203A.

Restriction: Graduate students only.

ECON 243A. Game Theory. 4 Units.
A formal introduction to non-cooperative game theory. Topics include properties of Nash Equilibrium and equilibrium refinements, games with imperfect information, and games with incomplete information.

Prerequisite: ECON 210A and ECON 210B and ECON 210C.

Restriction: Graduate students only.

ECON 243B. Advanced Game Theory. 4 Units.
Provides advanced instruction in game theory. The topics covered will be (i) the theory of repeated games and (ii) evolutionary game theory. Applications include bargaining, collusion, reputation, social norms, and the evolution of preferences via natural selection and cultural transmission.

Prerequisite: ECON 243A.

Restriction: Graduate students only.

ECON 245. Empirical Methods in Applied Microeconomics. 4 Units.
Focuses on the empirical methods used in modern applied microeconomics. Teaches methods that can be applied to produce original research in applied fields using cross-sectional and panel data. Applications will be drawn heavily from labor, public, health and development economics.

ECON 249. Special Topics in Microeconomics. 2-4 Units.
Studies in selected areas of Microeconomics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

ECON 251A. Labor Economics I . 4 Units.
Analysis of the relationships between education and the labor market (human capital theory), between resources devoted to education and the return to education (the education production function) and between education and labor market inequality (the theory of skill-biased technical change).

Prerequisite: ECON 203A.

Restriction: Graduate students only.

ECON 251B. Labor Economics II. 4 Units.
Analysis of core topics in labor economics, with an emphasis on empirical methods. Topics may include minimum wages, discrimination, gender, aging and retirement, labor market networks, personnel economics, and employment policy.

Prerequisite: ECON 203A.

Restriction: Graduate students only.

ECON 251C. Labor Economics III . 4 Units.
Discussion of treatment effect/program evaluation in labor economics, emphasizing identification. Classical labor topics, including human capital, technology, wages, labor supply, and migration are discussed in the context of causal inference. A unified framework is used in analyzing identification strategies.

Prerequisite: ECON 203A.

Restriction: Graduate students only.

ECON 255. Microeconomics and Public Policy. 4 Units.
Introduces the fundamental principles of microeconomics that are required for applied policy analysis. Provides students with an intuitive understanding of the microeconomic approach, and familiarizes them with concepts used in applied public policy analysis.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 240.

Restriction: Graduate students only.

ECON 259. Special Topics in Labor Economics. 2-4 Units.
Studies in selected areas of Labor Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 260A. Monetary Economics I. 4 Units.
Focuses on the derivation and estimation of state-of-the-art Dynamic Stochastic General Equilibrium (DSGE) models, with particular emphasis on models useful for monetary policy.

ECON 260B. Monetary Economics II. 4 Units.
Surveys recent issues on monetary policy in uncertain environments. Examines settings where both the policy makers and the private sector are uncertain of future outcomes or the underlying economic structure.

ECON 261A. International Trade I. 4 Units.
Covers theoretical models, empirical methods, and policy issues in international trade. Following the conventional treatment of the Richardian model, the Heckscher-Ohlin model and the specific factors model, new trade models which incorporate scale economics and imperfect competition will be discussed.

Prerequisite: ECON 210A and ECON 210B.

ECON 261B. International Trade II. 4 Units.
Covers theoretical models, empirical methods, and policy issues in international trade. Following the conventional treatment of the Richardian model, the Heckscher-Ohlin model and the specific factors model, new trade models which incorporate scale economics and imperfect competition will be discussed.

Prerequisite: ECON 261A and ECON 210A and ECON 210B.

ECON 263A. Advanced Macroeconomics I. 4 Units.
Students build Dynamic Stochastic General Equilibrium (DSGE) macroeconomic models from microeconomic foundations. This approach emphasizes intertemporal optimization by firms and households and typically incorporates nominal rigidities such as sluggish price and/or wage adjustment.

ECON 263B. Advanced Macroeconomics II. 4 Units.
Extensively studies policy in dynamic models. Topics: rule versus discretionary-based policy and its implications for macroeconomic stability and multiple equilibria; the design of optimal monetary policy; economic policy with model uncertainty and when the economic model is unknown.

Prerequisite: ECON 263A.

ECON 269. Special Topics in Macroeconomics. 2-4 Units.
Studies in selected areas of Macroeconomics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 270A. Political Economy I. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Same as POL SCI 270A.

Restriction: Graduate students only.

ECON 270B. Political Economy II. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: POL SCI 270A.

Same as POL SCI 270B.

Restriction: Graduate students only.

ECON 270C. Political Economy III. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: POL SCI 270B.

Same as POL SCI 270C.

Restriction: Graduate students only.

ECON 272A. Public Economics I. 4 Units.
Covers welfare economics and the theory of optimal taxation. Also presents applications of the theory, including measurement of the distortionary cost of taxation and principles of environmental policy (instrument choice and the debate on the double dividend of environmental taxation).

Prerequisite: ECON 210A and ECON 210B and ECON 210C.

ECON 272B. Public Economics II. 4 Units.
Covers the theory of public goods and models of decentralized provision of such goods, including voluntary provision, voting, bureaucratic provision, and preference relevation mechanisms.

Prerequisite: ECON 210A and ECON 210B and ECON 210C.

ECON 272C. Public Economics III. 4 Units.
Covers two broad categories of government expenditure policies, redistribution programs and social insurance, from a theoretical and empirical perspective as well as the effects on individuals of the income tax system.

Prerequisite: ECON 210A and ECON 210B and ECON 210C.

ECON 279. Special Topics in Political Economy. 2-4 Units.
Studies in selected areas of Political Economy. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

ECON 281A. Urban Economics I. 4 Units.
Economic reasons for the existence of cities, analysis of urban spatial structure, urban sprawl, Third World urbanization, hedonic price analysis, housing tenure choice.

Prerequisite: ECON 210A.

ECON 281B. Urban Economics II. 4 Units.
Housing in the portfolio, land-use controls, rent control, homelessness, neighborhood effects, urban quality-of-life measurement, and subcenters.

Prerequisite: ECON 210A.

ECON 282A. Transportation Economics I. 4 Units.
Applies microeconomic concepts of demand, costs, pricing, investment, and project evaluation to analyze transportation activities. Empirical studies include travel demand using discrete models, and cost functions.

Restriction: Graduate students only.

ECON 282B. Transportation Economics II. 4 Units.
Policy analysis in presence of road transport externalities (such as environmental spill-overs), imperfect instruments, and other economic distortions such as imperfectly priced networks and imperfect competition. Connections of transportation economics with environmental economics, public finance, spatial economics and industrial organization.

Prerequisite: ECON 282A.

Restriction: Graduate students only.

ECON 285A. Colloquium for Transportation Science I. 2 Units.
Selected perspectives on transportation based on the study of human behavior. Organized by Interdisciplinary Program in Transportation Science. Research presentations by faculty, students, and visitors supplemented by class discussion.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECON 285B. Colloquium for Transportation Science II. 2 Units.
Selected perspectives on transportation based on the study of human behavior. Organized by Interdisciplinary Program in Transportation Science. Research presentations by faculty, students, and visitors supplemented by class discussion.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECON 285C. Colloquium for Transportation Science III. 2 Units.
Selected perspectives on transportation based on the study of human behavior. Organized by Interdisciplinary Program in Transportation Science. Research presentations by faculty, students, and visitors supplemented by class discussion.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

ECON 289. Special Topics in Urban and Transportation Economics. 2-4 Units.
Studies in selected areas of Urban and Transportation Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

ECON 290. Dissertation Research. 2-12 Units.
Dissertation research with Economics faculty.

Repeatability: May be repeated for credit unlimited times.

ECON 299. Independent Study. 2-4 Units.
Independent research with Economics faculty.

Repeatability: May be repeated for credit unlimited times.

Department of Linguistics

1231 Social & Behavioral Sciences Gateway; 949-824-7161
http://www.linguistics.uci.edu/
Mark P. Petracca, **Acting Department Chair**

Language is one of the most fundamental human instincts. It is an extraordinarily intricate system which all of us master as young children without special teaching, and which gives us the ability to communicate, tell stories, and express our deepest feelings. Linguistics is the scientific study of human language. It is concerned with understanding the nature of language and our knowledge of it, how we acquire it, and how that knowledge is put to use. It is connected to many other fields of study, including psychology, anthropology, sociology, biology, physics, mathematics, computer science, philosophy, and literature.

The Department offers an undergraduate minor and undergraduate courses.

Linguistics Minor Requirements

Requirements for the minor in Linguistics are met by taking seven linguistics courses (28 units) as specified below:

A.	
LINGUIS 3	Introduction to Linguistics
LINGUIS 10	Introduction to Phonology
LINGUIS 20	Introduction to Syntax
B.	
Four additional linguistics courses, three of which must be upper-division.	

Residence Requirement: At least three upper-division courses required for the minor must be completed successfully at UCI.

Faculty

Teresa A. Griffith, Ph.D. University of California, Irvine, *Lecturer of Linguistics*

Gregory S. Hickok, Ph.D. Brandeis University, *Professor of Cognitive Sciences; Linguistics*

Kent E. Johnson, Ph.D. Rutgers, The State University of New Jersey, *Associate Professor of Logic and Philosophy of Science; Linguistics*

Virginia Mann, Ph.D. Massachusetts Institute of Technology, *Professor of Cognitive Sciences; Education; Linguistics*

Keith Murphy, Ph.D. University of California, Los Angeles, *Assistant Professor of Anthropology; Linguistics*

Lisa Pearl, Ph.D. University of Maryland, College Park, *Associate Professor of Cognitive Sciences; Linguistics; Logic and Philosophy of Science*

Armin Schwegler, Ph.D. University of California, Berkeley, *Professor of Spanish and Portuguese; Linguistics*

Bernard H. Tranel, Ph.D. University of California, San Diego, *Professor of Linguistics*

Courses

LINGUIS 1. Languages of the World. 4 Units.
The world has over 6,000 languages, with an exuberant variety of sounds, words, grammars. Introduction to a representative(about eight), drawn from every continent. Students not expected to learn these languages, but rather to explore and study their structure and complexity.

(VIII)

LINGUIS 2. Discovering Language. 4 Units.
Explores language's pervasiveness and diversity; demonstrates ways linguistics illuminates language's crucial--albeit hidden--societal role. Issues: self- and group-identification, language death, language in legal and educational settings. Illustrations: spoken and signed languages, varieties of English, Native American languages.

(VII)

LINGUIS 3. Introduction to Linguistics. 4 Units.
Emphasis on the notion that language is a remarkable achievement of the human mind. Current insights into the nature of language. Survey of various subfields of linguistics. Introduction to linguistic analysis.

(III, Vb)

LINGUIS 10. Introduction to Phonology. 4 Units.
Basic concepts in phonetic description and phonological analysis.

Prerequisite: LINGUIS 3.

(III, Vb)

LINGUIS 20. Introduction to Syntax. 4 Units.
Basic concepts in syntactic description and grammatical analysis.

Prerequisite: LINGUIS 3.

(III, Vb)

LINGUIS 51. Acquisition of Language. 4 Units.
What children say, what they mean, and what they understand. Theories about the learning of language by one-, two-, and three-year olds. Comparison of kinds of data on which these theories are based.

Same as PSYCH 56L.

(III)

LINGUIS 68. Introduction to Language and Culture. 4 Units.
Explores what the study of language can reveal about ourselves as bearers of culture. After introducing some basic concepts, examines how cultural knowledge is linguistically organized and how language might shape our perception of the world.

Same as ANTHRO 2D.

(III)

LINGUIS 99. Special Topics in Linguistics. 4 Units.
Special Topics at lower-division level.

Repeatability: Unlimited as topics vary.

LINGUIS 100. Grammatical Theory. 4 Units.
Has both a phonology and a syntax component, and forms and bridge between lower-division course offerings and more advanced courses in phonology, syntax, and morphology. Emphasis on development of analytical skills, and evaluation of alternative proposals.

Prerequisite: LINGUIS 10 and LINGUIS 20.

LINGUIS 102. Formal Languages and Automata. 4 Units.
Formal aspects of describing and recognizing languages by grammars and automata. Parsing regular and context-free languages. Ambiguity, nondeterminism. Elements of computability; Turning machines, random access machines, undecidable problems, NP-completeness.

Prerequisite: (I&C SCI 23 or CSE 23 or I&C SCI 46 or CSE 46) and MATH 2A and MATH 2B and I&C SCI 6B and I&C SCI 6D. I&C SCI 23 with a grade of C or better. CSE 23 with a grade of C or better. I&C SCI 46 with a grade of C or better. CSE 46 with a grade of C or better.

Same as COMPSCI 162.

LINGUIS 107M. Computational Methods for Language Research. 4 Units.
Focuses on computational methods useful for language research. Students become familiar with software and programming languages used for extracting information from electronic datasets and for creating basic simulations of linguistic cognition. No prior programming experience assumed.

Prerequisite: PSYCH 155 or LINGUIS 155 or PSYCH 156A or LINGUIS 150.

Same as PSYCH 157M.

Restriction: Psychology majors have first consideration for enrollment.

Concurrent with PSYCH 247M.

LINGUIS 109. Special Topics in Computational Linguistics. 4 Units.
Topics in Computational Linguistics.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 111. Intermediate Phonology. 4 Units.
Fundamentals of phonological theory. Intensive practice in phonological analysis.

Prerequisite: LINGUIS 100.

Concurrent with LINGUIS 211.

LINGUIS 112. Advanced Phonolgy. 4 Units.
Overview of recent developments in phonological theory.

Prerequisite: LINGUIS 111.

Concurrent with LINGUIS 212.

LINGUIS 119. Special Topics in Phonetics/Phonology. 4 Units.
Topics in Phonetics/Phonology. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 121. Intermediate Syntax. 4 Units.
Examines various phenomena within a generative theory of syntax, focusing on the nature of syntactic rules, representations, and constraints. Introduces methods of experimental syntax, providing students hands-on opportunity to recognize the connection(s) between theory and experiential results.

Prerequisite: LINGUIS 20.

LINGUIS 124. Current Topics in Syntactic Theory. 4 Units.
Research seminar in syntax. Intensive study of a small number of well-defined topics which have had significant impact on the development of syntactic theory. May be repeated for credit as topic varies.

Repeatability: May be repeated for credit unlimited times.

Concurrent with LINGUIS 224.

LINGUIS 129. Special Topics in Syntax. 4 Units.
Topics in Syntax. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 139. Special Topics in Morphology. 4 Units.
Topics in Morphology. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 141. Topics in Philosophy of Language. 4 Units.
Selected topics in the philosophy of language, e.g., the nature of meaning, mechanisms of reference, speech acts.

Repeatability: Unlimited as topics vary.

Same as LPS 145, PHILOS 145.

LINGUIS 149. Special Topics in Semantics. 4 Units.
Topics in Semantics. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 150. Acquisition of Language II. 4 Units.
Focuses on native language learning, exploring the way in which infants and very young children unconsciously uncover the rich systematic knowledge of their native language. Examines both experimental and computational studies that quantitatively investigate the "how" of language acquisition.

Prerequisite: Recommended: PSYCH 56L or LINGUIS 51.

Same as PSYCH 156A.

Restriction: Psychology majors have first consideration for enrollment.

LINGUIS 155. Psychology of Language. 4 Units.
Examines language using the tools of experimental psychology. From sounds to words to spoken and written sentences, explores how language is used in real time, and how its use reveals how it is represented in the mind.

Same as PSYCH 150.

Restriction: Psychology majors have first consideration for enrollment.

LINGUIS 158. Language and the Brain . 4 Units.
Research analysis on biological bases of human linguistic capacity. Development, focusing on hemispheric specialization, plasticity; localization of specific linguistic functions in adults, with emphasis on study of aphasias; relation of linguistic capacity to general cognitive capacity, considering research on retardation.

Prerequisite: BIO SCI 35 or BIO SCI N110.

Same as BIO SCI N160, PSYCH 161.

Restriction: Psychology and Biology majors have first consideration for enrollment.

LINGUIS 159. Special Topics in Psycholinguistics. 4 Units.
Topics in Psycholinguistics. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 163B. The Structure of English. 4 Units.
An examination of American English phonology, morphology, and syntax. Useful for prospective teachers of English in elementary and secondary schools and for teachers of English as a second language.

Prerequisite: LINGUIS 3.

LINGUIS 164A. Topics in Romance Languages. 4 Units.
Topics in Romance Languages. May be repeated as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 164B. French Phonetics. 4 Units.
Study of the sound structure of French. Introduction to elements of general phonetics, contrastive (French/English) phonetics, and French phonetics and phonology. Designed to help students improve their pronunciation. Also serves as a preparatory course for language teaching.

Prerequisite: FRENCH 1C.

LINGUIS 169. Special Topics in Language Studies. 4 Units.
Topics in Language Studies. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 172. History of English. 4 Units.
External (historical and social) and internal (linguistic) changes which have affected the English language from its Germanic roots to the present day.

Prerequisite: LINGUIS 3.

LINGUIS 175. Language Origins: Evolution, Genetics, and the Brain. 4 Units.
Examines how human language(s) may have originated. Studies pertinent techniques (reconstruction) and addresses related questions, including Is our language faculty inborn (i.e., genetically encoded)? Can brain imaging and population genetics research help to unlock this mystery of human evolution?.

Same as HISTORY 135G, ANTHRO 152A, GLBLCLT 105.

LINGUIS 179. Special Topics in Historical Linguistics. 4 Units.
Topics in Historical Linguistics. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 189. Special Topics in Cognitive Semiotics. 4 Units.
Topics in Cognitive Semiotics. May be repeated for credit as topic varies.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

LINGUIS 198. Directed Group Study. 4 Units.
Directed study with Linguistics faculty. May be repeated for credit as topic varies.

Repeatability: Unlimited as topics vary.

LINGUIS 199. Independent Study. 4 Units.
Independent research with Linguistics faculty. May be repeated for credit as topic varies. Students may enroll for only one 199 each quarter.

Repeatability: May be repeated for credit unlimited times.

Department of Logic and Philosophy of Science

779 Social Science Tower; 949-824-1520
http://www.lps.uci.edu/
Kyle Stanford, **Department Chair**

The Department of Logic and Philosophy of Science (LPS) brings together faculty and students interested in a wide range of topics loosely grouped in the following areas: general philosophy of science; philosophy of the particular sciences; logic, foundations and philosophy of mathematics; and philosophy of mathematics in application. LPS enjoys strong cooperative relations with UCI's Department of Philosophy; in particular, the two units jointly administer a single graduate program which offers the Ph.D. in Philosophy. LPS also has strong interconnections with several science departments, including Mathematics and Physics, as well as the Francisco J. Ayala School of Biological Sciences, the Donald Bren School of Information and Computer Sciences, the Departments of Cognitive Sciences and Economics, and the graduate concentration in Mathematical Behavioral Sciences.

Graduate Program

The Department of Logic and Philosophy of Science and the Department of Philosophy jointly administer a Ph.D. program in Philosophy with two independent tracks: the Philosophy track and the LPS track. Both tracks begin from a common core of requirements in standard philosophical fields (e.g., history of philosophy, logic, ethics, metaphysics/epistemology) and branch off thereafter; both tracks offer the Ph.D. degree in Philosophy. Applicants are advised to apply to the unit whose faculty, areas of specialization and curriculum correspond best with their interests. Students are expected to reside in the same unit as their primary advisor, but faculty in both units are available for all other academic purposes (course work, independent studies, committee membership, and more). See the Department of Philosophy (p. 938) in the School of Humanities for a description of the Philosophy track.

The M.A. degree in Philosophy may also be awarded to Ph.D. students who complete the necessary requirements.

Admissions

Applicants for the LPS track must have a bachelor's degree, but there is no formal requirement as to the field of that degree. The most natural undergraduate majors for LPS graduate students would be philosophy, mathematics or the sciences, but those with other degrees who are interested in the LPS fields should feel free to apply.

Complete applications must include GRE scores, transcripts, letters of recommendation and a writing sample. The deadline for application is January 15.

Several forms of incoming fellowships are available on a competitive basis; these include a stipend, student fees, tuition and nonresident supplemental tuition (for out-of-state students). In subsequent years, some additional fellowship funding is available, but students in good standing are most often supported with teaching assistantships.

Requirements of the LPS Track

All required courses must be completed with a grade of B or better.

The **History of Philosophy Requirement** provides a broad perspective. Graduate courses in three out of the following four areas—Modern Rationalism, Modern Empiricism, Kant, and Twentieth Century—must be completed by the end of the seventh quarter in residence.

The **Logic Requirement** acquaints students with the fundamentals of modern logic: elementary set theory, metalogic, effective procedures and Gödel's incompleteness theorems. LPS 205A, LPS 205B, and LPS 205C must be completed by the end of the seventh quarter in residence.

The **Field Requirement** provides exposure to a range of philosophical disciplines. One graduate course in moral philosophy and one graduate course in metaphysics/epistemology must be completed by the end of the seventh quarter in residence. (These courses may not also be used to satisfy the History Requirement.)

The **Philosophy of Science Requirement** provides exposure to a range of philosophy of science, from general philosophy of science to the philosophies of particular sciences (e.g., physics, biology), to the philosophies of mathematics and logic. Three selected courses from LPS 240–247 must be completed by the end of the seventh quarter in residence. (These courses may be repeated as topics vary.) Courses used to satisfy the Philosophy of Science Requirement may also be used to satisfy the History or Field Requirements.

The **Tools of Research Requirement** provides some flexibility for students with various levels of interest in pursuing the philosophy of a particular science. So, for example, a student most interested in historical issues in the philosophy of mathematics might benefit most from the study of German, while a student most interested in the philosophy of quantum mechanics should take a series of graduate courses in physics. (Students wishing to specialize further in the philosophy of a particular science might wish to pursue more demanding options; see the Mathematics and Physics emphases, below.) To satisfy this requirement, a student must pass an examination on an appropriate foreign language or receive a grade of B or better in three appropriate graduate courses in a discipline or disciplines outside philosophy by the end of the ninth quarter in residence. Though the discipline(s) here must be outside philosophy, they might be taught by Philosophy or LPS faculty. The two-hour language examination will be administered by an LPS faculty member and will require the student to translate (with the aid of a dictionary) a passage or passages from philosophical or scientific authors.

The **Portfolio Requirement** ensures that students have acquired dissertation-level skills in the writing of philosophy: e.g., the ability to isolate, understand and evaluate arguments in the philosophical literature; the ability to assimilate secondary literature; the ability to formulate and defend an original philosophical thesis. The portfolio is designed to display these skills. To satisfy this requirement, a student must submit an extended writing sample, most often consisting of several individual papers, that demonstrates the skills necessary to write a Ph.D. dissertation. (A successful portfolio typically consists of several papers totaling around 80 pages. These may be revisions of term papers. Each paper should present and defend a definite thesis and should be accessible to faculty members unfamiliar with the literature in question. The papers in the portfolio need not be of publishable quality, but they must, collectively, demonstrate the specified skills.) Portfolios will be evaluated by the entire LPS faculty. (LPS track students may

request that relevant Philosophy Department faculty also be present at the evaluation meeting.) Portfolios must be submitted by the end of the fourth week of the seventh quarter.

The **Candidacy Examination** demonstrates that the student has a viable dissertation topic and an adequate grasp of related literature. To satisfy this requirement, a student must prepare and be examined on a reading list of canonical literature in the area of the dissertation and a brief (15–20 page) dissertation proposal. The reading list should in effect define the context of the proposed dissertation. The examination must be completed by the end of the tenth quarter in residence. The normative time for advancement to candidacy is 3.3 years.

Dissertation Defense. Students must pass a final oral examination focusing on the content of the dissertation administered by the Dissertation Committee. The normative time for completion of the Ph.D. is six years, and the maximum time permitted is seven years.

LPS Track Emphasis in Mathematics

In addition to the LPS track described above, students may elect to pursue the more demanding option of the Mathematics emphasis. Faculty in the UCI and UCLA Departments of Mathematics participate in the Mathematics emphasis. Students in the emphasis take courses and receive advising from these participating Mathematics professors, as well as from the faculty of LPS and the Philosophy Department. Mathematics emphasis students must satisfy the following requirement in addition to the usual LPS track requirements:

Mathematics Requirement. A student must receive a grade of B or better in six graduate courses in mathematics. (Some of these courses may also be used to satisfy the Tools of Research Requirement.)

LPS Track Emphasis in Physics

In addition to the LPS track described above, students may elect to pursue the more demanding option of the Physics emphasis. Physics emphasis students must satisfy the following requirement in addition to the usual LPS track requirements:

Physics Requirement. A student must receive a grade of B or better in three sections of LPS 241 whose topics are Philosophy of Quantum Mechanics, Geometry and Spacetime, and Probability and Determinism, as well as in three additional graduate courses in Physics or Mathematics. (Students in the Physics Emphasis may also use these courses to satisfy the Tools of Research Requirement, but not the Philosophy of Science Requirement.)

Salzburg Exchange Program

LPS and the Department of Philosophy jointly administer an Exchange Program with the University of Salzburg. The program has two parts. The Scholarly Exchange provides opportunities for faculty and graduate students in LPS and Philosophy to visit Salzburg and for faculty and graduate students from Salzburg to visit one or the other of the UCI units. The Program also sponsors joint conferences, held alternately in Irvine and in Salzburg; these are co-sponsored by Salzburg and the UCI Interdisciplinary Program in the History and Philosophy of Science.

To be eligible for the Salzburg Exchange, a graduate student must have advanced to candidacy. The selected student spends one semester in Salzburg, usually teaching one course in the general area of the thesis topic. An upper-division course may be taught in English, but lower-division courses must be taught in German. (Some previous visitors have learned serviceable German by attending a Goethe institute during the preceding summer.) Typically, a Salzburg visitor will receive a Salzburg Fellowship intended to cover travel expenses, and a stipend; those who teach while in Salzburg will also receive a salary intended to cover living expenses (including health and dental insurance).

Applications from LPS graduate students (including a curriculum vita and syllabi for courses that might be taught) should be sent to the LPS Salzburg Exchange Director by November 1.

Program in Law and Graduate Studies (J.D./Ph.D.)

Highly qualified students interested in combining the study of law with graduate research and/or professional qualifications in Logic and Philosophy of Science are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students in this program pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Ph.D. degree in Logic and Philosophy of Science. Additional information is available from the PLGS Program Director's office, (949) 824-4158, or by e-mail to plgs@law.uci.edu. A full description of the program, with links to all relevant application information, can be found at the School of Law Concurrent Degree Programs (http://www.law.uci.edu/plgs) website.

Faculty

Francisco J. Ayala, Ph.D. Columbia University, *Donald Bren Professor* and *University Professor of Ecology and Evolutionary Biology; Logic and Philosophy of Science*

Jeffrey A. Barrett, Ph.D. Columbia University, *Professor of Logic and Philosophy of Science; Philosophy*

Jean-Paul Carvalho, Ph.D. Oxford University, *Assistant Professor of Economics; Logic and Philosophy of Science*

Matthew Foreman, Ph.D. University of California, Berkeley, *Professor of Mathematics; Logic and Philosophy of Science* (ergodic theory and dynamical systems, logic and foundations)

Steven A. Frank, Ph.D. University of Michigan, *Professor of Ecology and Evolutionary Biology; Logic and Philosophy of Science*

Jeremy Heis, Ph.D. University of Pittsburgh, *Associate Professor of Logic and Philosophy of Science; Philosophy*

Donald D. Hoffman, Ph.D. Massachusetts Institute of Technology, *Professor of Cognitive Sciences; Logic and Philosophy of Science*

Simon Huttegger, Ph.D. University of Salzburg, *UCI Chancellor's Fellow* and *Associate Professor of Logic and Philosophy of Science*

Kent E. Johnson, Ph.D. Rutgers, The State University of New Jersey, *Associate Professor of Logic and Philosophy of Science; Linguistics*

Arthur D. Lander, Ph.D. University of California, San Francisco, *Donald Bren Professor* and *Professor of Developmental and Cell Biology; Biomedical Engineering; Logic and Philosophy of Science; Pharmacology* (systems biology of development, pattern formation, growth control)

Penelope J. Maddy, Ph.D. Princeton University, *UCI Distinguished Professor of Logic and Philosophy of Science; Mathematics; Philosophy* (philosophy of mathematics and logic, meta-philosophy)

David B. Malament, Ph.D. The Rockefeller University, *Professor Emeritus of Logic and Philosophy of Science*

Michael T. McBride, Ph.D. Yale University, *Associate Professor of Economics; Logic and Philosophy of Science*

James L. McGaugh, Ph.D. University of California, Berkeley, *Research Professor and Professor Emeritus of Neurobiology and Behavior; Logic and Philosophy of Science*

Richard Mendelsohn, Ph.D. Massachusetts Institute of Technology, *Adjunct Professor of Logic and Philosophy of Science*

Louis E. Narens, Ph.D. University of California, Los Angeles, *Professor of Cognitive Sciences; Logic and Philosophy of Science*

Riley D. Newman, Ph.D. University of California, Berkeley, *Professor Emeritus of Physics and Astronomy; Logic and Philosophy of Science; Physics and Astronomy*

Cailin O'Connor, B.A. Harvard University, *Assistant Professor of Logic and Philosophy of Science*

Lisa Pearl, Ph.D. University of Maryland, College Park, *Associate Professor of Cognitive Sciences; Linguistics; Logic and Philosophy of Science*

Donald G. Saari, Ph.D. Purdue University, *UCI Distinguished Professor of Economics; Logic and Philosophy of Science; Mathematics* (ergodic theory and dynamical systems, mathematics of complex social phenomena)

Barbara W. Sarnecka, Ph.D. University of Michigan, *Associate Professor of Cognitive Sciences; Logic and Philosophy of Science*

Jonas Schultz, Ph.D. Columbia University, *Professor Emeritus of Physics and Astronomy; International Studies; Logic and Philosophy of Science*

Brian Skyrms, Ph.D. University of Pittsburgh, *UCI Distinguished Professor of Logic and Philosophy of Science; Economics; Philosophy*

P. Kyle Stanford, Ph.D. University of California, San Diego, *Professor of Logic and Philosophy of Science; Philosophy*

Sean P. Walsh, Ph.D. University of Notre Dame, *Assistant Professor of Logic and Philosophy of Science; Mathematics* (philosophy of mathematics, philosophy of logic and mathematical logic)

James O. Weatherall, Ph.D. Stevens Institute of Technology, *Associate Professor of Logic and Philosophy of Science*

Kai Wehmeier, Ph.D. University of Münster, *Director, Center for the Advancement of Logic, its Philosophy, History, and Applications and Professor of Logic and Philosophy of Science; Philosophy*

Norman M. Weinberger, Ph.D. Case Western Reserve University, *Professor Emeritus of Neurobiology and Behavior; Logic and Philosophy of Science*

Daniel Whiteson, Ph.D. University of California, Berkeley, *Associate Professor of Physics and Astronomy; Logic and Philosophy of Science*

Martin Zeman, Ph.D. Humboldt University of Berlin, *Professor of Mathematics; Logic and Philosophy of Science* (logic and foundations)

Courses

LPS 29. Critical Reasoning. 4 Units.
Introduction to analysis and reasoning. The concepts of argument, premise, and conclusion, validity and invalidity, consistency and inconsistency. Identifying and assessing premises and inferences. Deductive versus inductive reasoning, and introduction to the probability calculus. Evaluating definitions. Informal fallacies.

Same as PHILOS 29.

(II, Vb)

LPS 30. Introduction to Symbolic Logic. 4 Units.
An introduction to the symbolism and methods of the logic of statements, including evaluation of arguments by truth tables, the techniques of natural deduction and semantic tableaux.

Same as PHILOS 30.

(Vb)

LPS 31. Introduction to Inductive Logic. 4 Units.
Philosophical questions concerning the foundations of scientific inference, e.g., the traditional problem of induction, the Goodman paradox, the concept of cause, Mill's method of inductive reasoning, probability calculus, different interpretations of probability, and their interaction in inductive reasoning.

Same as PHILOS 31.

(II, Va)

LPS 40. The Nature of Scientific Inquiry. 4 Units.
Investigates the nature, scope, and status of scientific knowledge and the methods used to acquire it. Uses concrete historical examples from a variety of scientific fields to identify distinctive features of the scientific enterprise and explore their significance.

(II)

LPS 60. The Making of Modern Science. 4 Units.
Surveys the history of science and mathematics since the Scientific Revolution, examining central developments both chronologically and thematically, as well as investigating their significance for contemporary philosophical debates about the role and status of current scientific theories.

Same as HISTORY 60.

(IV)

LPS H80. Scientific Realism and Instrumentalism. 4 Units.
Explores competing views of the character and status of theoretical knowledge in science, including challenges to and defenses of the view that contemporary scientific theories offer straightforwardly accurate descriptions of how things stand in otherwise inaccessible domains of nature.

(II)

LPS 100W. Writing Philosophy. 4 Units.
Discussion of those aspects of writing of special importance in philosophy, e.g., philosophical terminology, techniques for evaluating arguments, philosophical definitions and theories. At least 4,000 words of assigned composition based on philosophical readings.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PHILOS 100W.

Restriction: Upper-division students only.

(Ib)

LPS 102. Introduction to the Theory of Knowledge. 4 Units.
A study of one or more of the basic issues in epistemology, e.g., the role of perception in the acquisition of knowledge, the nature of evidence, the distinction between belief and knowledge, and the nature of truth and certainty.

Same as PHILOS 102.

LPS 104. Introduction to Logic. 4 Units.
Introduction to sentence logic, including truth tables and natural deduction; and to predicate logic, including semantics and natural deduction.

Same as PHILOS 104.

LPS 105A. Elementary Set Theory. 4 Units.
An introduction to the basic working vocabulary of mathematical reasoning. Topics include: sets, Boolean operations, ordered n-tuples, relations, functions, ordinal and cardinal numbers.

Same as PHILOS 105A.

LPS 105B. Metalogic. 4 Units.
Introduction to formal syntax (proof theory) and semantics (model theory) for first-order logic, including the deduction, completeness, compactness, and Löewenheim-Skolem theorems.

Prerequisite: PHILOS 105A.

Same as PHILOS 105B.
Overlaps with MATH 150.

LPS 105C. Undecidability and Incompleteness. 4 Units.
Introduction to the formal theory of effective processes, including recursive functions, Turing machines, Church's thesis, and proofs of Göedel's incompleteness theorem for arithmetic, and Church's undecidability theorem for first-order logic.

Prerequisite: PHILOS 105B.

Same as PHILOS 105C.
Overlaps with MATH 152.

LPS 106. Topics in Logic . 4 Units.
Selected topics in mathematical or philosophical logic.

Prerequisite: LPS 105B or PHILOS 105B.

Repeatability: Unlimited as topics vary.

Same as PHILOS 106.

LPS 108. Topics in Induction, Probability, and Decision Theory. 4 Units.
Selected topics in induction, probability, and decision theory.

Repeatability: Unlimited as topics vary.

Same as PHILOS 108.

LPS 113. Topics in Modern Philosophy. 4 Units.
Focuses on the works of central philosophical figures of modern Philosophy (e.g., Descartes, Leibniz, Hobbes, Locke, Hume, Kant) or on the treatment of one or more central philosophical problems by a number of these figures.

Repeatability: Unlimited as topics vary.

Same as PHILOS 113.

LPS 115. Topics in History of Analytic Philosophy. 4 Units.
Review of central theories or figures in the history of analytic philosophy. Emphasis on writings of Frege, Russell, Schlick, Carnap, and Quine. Topics include the nature of meaning and truth, the synthetic/analytic distinction, and scientific knowledge.

Repeatability: Unlimited as topics vary.

Same as PHILOS 115.

LPS 120. Topics in Metaphysics. 4 Units.
Examines central philosophical questions concerning our own fundamental nature and that of the world around us (e.g., causation and necessity, determination, free will, personal identity, the mind-body problem).

Repeatability: Unlimited as topics vary.

Same as PHILOS 120.

LPS 121. Topics in the Theory of Knowledge . 4 Units.
One or more topics in the theory of knowledge, e.g., the nature of rational justification, of perceptual knowledge, of a priori knowledge.

Repeatability: Unlimited as topics vary.

Same as PHILOS 121.

LPS H125. What Is Time? . 4 Units.
Engages the question "what is time?" by drawing on physics, philosophy, fiction, film, and psychology. The course is organized around understanding and addressing the tension between time as represented in physics and our immediate temporal experience.

Restriction: Campuswide Honors Program students only.

LPS 140. Topics in Philosophy of Science. 4 Units.
Selected topics in contemporary philosophy of science, e.g., the status of theoretical entities, the confirmation of theories, the nature of scientific explanation.

Repeatability: Unlimited as topics vary.

Same as PHILOS 140.

LPS 140B. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.

Same as REL STD 112B, PSYCH 172S, SOC SCI 130B.

LPS 141A. Topics in Philosophy of Physics. 4 Units.
Selected topics in the philosophy of physics, e.g., the interpretation of quantum mechanics, the nature of spacetime, the problem of quantum field theories.

Repeatability: Unlimited as topics vary.

Same as PHILOS 141A.

LPS 141B. Geometry and Spacetime. 4 Units.
An examination of the foundations of the special theory of relativity, with emphasis on the geometry of Minkowski spacetime, and its relation to both Euclidean and non-Euclidean (hyperbolic) plane geometries.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

Same as PHILOS 141B.

LPS 141C. Philosophy of Quantum Mechanics. 4 Units.
An examination of the standard von Neumann-Dirac formulation of quantum mechanics. The quantum measurement problem is discussed along with several proposed solutions, including GRW, many-worlds, man-minds, and Bohm's theory.

Same as PHILOS 141C.

LPS 141D. Probability and Determinism. 4 Units.
An examination of a cluster of interrelated issues concerning probability, determinism, logic, and the foundations of quantum mechanics.

Prerequisite: MATH 2D and (MATH 3A or MATH 6G).

Same as PHILOS 141D.

LPS H141. Honors Philosophy of Quantum Mechanics. 4 Units.
An examination of the standard von Neumann-Dirac formulation of quantum mechanics. The quantum measurement problem is discussed along with several proposed solutions, including GRW, many-worlds, man-minds, and Bohm's theory.

Overlaps with LPS 141C.

Restriction: Campuswide Honors Program students only.

LPS 142. Writing/Philosophy of Biology. 4 Units.
Philosophy of biology, e.g., scientific method in biology, the structure of evolutionary theory, teleology, ethics, and evolution. Course work includes one 4,000-word and four 1,000-word papers.

LPS 142W. Writing/Philosophy of Biology. 4 Units.
Philosophy of biology, e.g., scientific method in biology, the structure of evolutionary theory, teleology, ethics, and evolution. Course work includes one 4,000-word and four 1,000-word papers.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as PHILOS 142W, BIO SCI E142W.

Restriction: Juniors only.

(Ib)

LPS 143. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as PHILOS 143, PSYCH 123P.

Restriction: Psychology and Philosophy majors have first consideration for enrollment.

LPS 144. Topics in Philosophy of Social Science. 4 Units.
Selected topics in the philosophy of the social sciences, e.g., is their goal to understand behavior or to predict and control it?; are they normative and the natural sciences not?; do they incorporate philosophical doctrines about language and mind?.

Repeatability: Unlimited as topics vary.

Same as PHILOS 144.

LPS 145. Topics in Philosophy of Language. 4 Units.
Selected topics in the philosophy of language, e.g., the nature of meaning, mechanisms of reference, speech acts.

Repeatability: Unlimited as topics vary.

Same as PHILOS 145, LINGUIS 141.

LPS 146. Topics in Philosophy of Logic. 4 Units.
Selected topics in the philosophy of logic, e.g., the nature of logical truth and our knowledge of it, the status of propositions, definite descriptions, and existential presuppositions.

Repeatability: Unlimited as topics vary.

Same as PHILOS 146.

LPS 147. Topics in Philosophy of Mathematics. 4 Units.
Selected historical and contemporary topics in the philosophy of mathematics, e.g., mathematical truth and ontology, mathematical knowledge, the nature and role of proof, the workings of mathematics in application.

Repeatability: Unlimited as topics vary.

Same as PHILOS 147.

LPS 199. Independent Study. 1-4 Units.
Independent research with Logic and Philosophy of Science faculty.

Repeatability: May be taken for credit for 12 units.

LPS 200. Topics in Logic and Philosophy of Science. 4 Units.
Studies in selected areas of Logic and Philosophy of Science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

LPS 205A. Set Theory. 4 Units.
The basic working vocabulary of mathematical reasoning. Topics include: sets, Boolean operations, ordered n-tuples, relations, functions, ordinal and cardinal numbers.

Same as PHILOS 205A.

LPS 205B. Metalogic. 4 Units.
Formal syntax (proof theory) and semantics (model theory) for first-order logic, including the deduction, completeness, compactness, and Loewenheim-Skolem theorems.

Prerequisite: PHILOS 205A or LPS 205A.

Same as PHILOS 205B.

LPS 205C. Undecidability and Incompleteness. 4 Units.
Formal theory of effective processes, including recursive function, Turing machines, Church's thesis, and proofs of Goedel's incompleteness theorem for arithmetics, and Church's undecidability for first-order logic.

Prerequisite: PHILOS 205B or LPS 205B.

Same as PHILOS 205C.

LPS 206. Topics in Logic . 4 Units.
Studies in selected areas of logic. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 206.

LPS 213. Topics in Modern Philosophy. 4 Units.
Studies in selected areas of modern philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 213.

LPS 215. Topics in Analytic Philosophy. 4 Units.
Studies in selected areas of analytic philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 215.

LPS 220. Topics in Metaphysics. 4 Units.
Studies in selected areas of metaphysics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 220.

LPS 221. Topics in Epistemology. 4 Units.
Studies in selected areas of epistemology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 221.

LPS 232. Topics in Political and Social Philosophy. 4 Units.
Studies in selected areas of political and social philosophy. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 232.

LPS 240. Topics in Philosophy of Science. 4 Units.
Studies in selected areas of philosophy of science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 240.

LPS 241. Topics in Philosophy of Physics. 4 Units.
Studies in selected areas of philosophy of physics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 241.

LPS 242. Topics in Philosophy of Biology. 4 Units.
Studies in selected areas of philosophy of biology. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 242.

LPS 243. Topics in Philosophy of Psychology. 4 Units.
Selected topics in the philosophy of psychology, e.g., the nature of psychological explanation, reductionism, issues in cognitive, behavioral, and neuroscience.

Repeatability: Unlimited as topics vary.

Same as PHILOS 243, PSYCH 231P.

LPS 244. Topics in Philosophy of Social Science. 4 Units.
Studies in selected areas of philosophy and social science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 244.

LPS 245. Topics in Philosophy of Language. 4 Units.
Studies in selected areas of philosophy of language. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 245.

LPS 246. Topics in Philosophy of Logic. 4 Units.
Studies in selected areas of philosophy of logic. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 246.

LPS 247. Topics in Philosophy of Mathematics. 4 Units.
Studies in selected areas of philosophy of mathematics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Same as PHILOS 247.

LPS 289. Logic and Philosophy of Science Workshop. 1-4 Units.
A two- or three-quarter-long workshop on selected topics in logic and philosophy of science.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

LPS 298. Independent Study. 4-12 Units.
Independent research with Logic and Philosophy of Science Faculty.

Repeatability: May be taken for credit for 12 units.

LPS 299. Directed Research. 1-12 Units.
Directed study with Logic and Philosophy of Science Faculty.

Repeatability: May be repeated for credit unlimited times.

LPS 399. University Teaching. 4-12 Units.
Required of and limited to Teaching Assistants.

Repeatability: May be taken for credit for 12 units.

Department of Political Science

5229 Social Science Plaza B; 949-824-5361
http://www.polisci.uci.edu/
Keith L. Topper, **Department Chair**

The Department of Political Science offers a wide variety of courses at the introductory, lower-division and more specialized upper-division levels. Courses in both micropolitics (individual and group politics) and macropolitics (politics at the state and international levels) are offered. The curriculum is organized into five areas: American politics and society, political theory, international relations, comparative politics and public law. The department also offers an Honors Program in Political Science for juniors and seniors, culminating in a senior honors thesis.

The department is composed of a strong and diverse faculty especially interested in analyzing central questions of political science related to such topics as policy-making, political structures, participation, conflict, change and development, power and authority, and interstate relations. The faculty has particular strength in interdisciplinary approaches, in comparative analysis, and in the application of quantitative data to political science issues.

Undergraduate Program

Requirements for the B.A. Degree in Political Science

All students must meet the University Requirements (p. 71)**.**
All students must meet the School Requirements (p. 1561)**.**

Departmental Requirements for the Major

School requirements must be met and must include 12 courses (48 units) as specified below:

I. Select four lower-division (one or two digit) POL SCI courses below. One must be the introductory course for the module selected under II below.	
POL SCI 6A	Introduction to Political Science: Political Analysis
POL SCI 6B	Introduction to Political Science: Macropolitics
POL SCI 6C	Introduction to Political Science: Micropolitics
POL SCI 21A	Introduction to American Government
POL SCI 31A	Introduction to Political Theory
POL SCI 41A	Introduction to International Relations
POL SCI 51A	Introduction to Politics Around the World
POL SCI 61A	Introduction to Race and Ethnicity in Political Science
POL SCI 71A	Introduction to Law
Complete any one additional lower-division POL SCI course (not used above) (4 units)	
II. Seven upper-division POL SCI courses (28 units) chosen from among the POL SCI modules numbered 120–179. Three of these courses must be from one module.	
American Politics and Government (POL SCI 120-129)	
Political Theory and Methods (POL SCI 130-139)	
International Relations (POL SCI 140-149)	
Comparative Politics (POL SCI 150-159)	
Public Law (POL SCI 170-179)	

Honors Program in Political Science

The Honors Program in Political Science is open to all senior political science majors who meet the minimum academic qualifications (3.5 GPA in political science courses and 3.2 GPA overall). Students submit an application to the department office before the end of their junior year. In addition to satisfying the requirements for the major in political science, honors program participants must complete additional course work as specified below.

During the year prior to the year in which the thesis will be written, a prospective honors program student should identify a Department of Political Science faculty member who is willing to supervise the student's thesis. Students are ordinarily expected to take an upper-division political science course or a POL SCI 199 Independent Study course with the advisor prior to their senior year.

During their senior year, students must enroll in the Honors Thesis Workshop (POL SCI H182A), offered during the fall quarter. This course is in addition to the 7 upper division courses required for the regular major. Honors students also enroll in three quarters of the senior thesis course (POL SCI 190) with their advisor, which are independent study courses for writing the thesis. The POL SCI 190 courses do not count toward the upper division political

sciences courses required for the major although they are counted as "other" upper division social science courses towards graduation requirements. Students write their senior thesis, which is designed and completed under their faculty advisor's supervision. Upon successful completion of the program, including approval of their senior honors thesis by the faculty advisor and a GPA of at least 3.5 in their political science courses, the students will graduate with honors in Political Science and their transcripts note that they were in the Honors Program in Political Science.

Political Science Minor Requirements

Requirements for the minor in Political Science are met by taking seven political science courses (28 units) as specified below:

A. Select one of the following:	
POL SCI 6A	Introduction to Political Science: Political Analysis
POL SCI 6B	Introduction to Political Science: Macropolitics
POL SCI 6C	Introduction to Political Science: Micropolitics
B. Three upper-division POL SCI courses, chosen from one POL SCI module.	
C. Select three coures from the following:	
POL SCI 6A	Introduction to Political Science: Political Analysis
POL SCI 6B	Introduction to Political Science: Macropolitics
POL SCI 6C	Introduction to Political Science: Micropolitics
POL SCI 20–79	
POL SCI 120–179	

Graduate Program

The Department of Political Science offers a Ph.D. degree program in Political Science. The department has attained a reputation for producing the very best innovative and interdisciplinary scholarship. Faculty are engaged in the study of such key questions as the politics of advanced and democratizing societies, international cooperation and peace, the politics of racial and ethnic minority groups, and the origins of altruism and morality and their impact on world politics.

Graduate students can pursue concentrations in public choice (p. 1817) and political psychology (p. 1817) and specializations in democracy studies, international relations, and race and minority politics. The Ph.D. program offers big payoffs to graduate students, in fact, because of the extended range of inquiry an interdisciplinary program affords.

Political science faculty members are regular participants in and help direct several research units on campus. The Center for the Study of Democracy, an Organized Research Unit at UCI, sponsors research and education aimed at improving the democratic process in the United States and expanding democracy around the world. The UCI Interdisciplinary Center for the Scientific Study of Ethics and Morality explores questions concerning the origins and causes of morality. The Center for Global Peace and Conflict Studies (CGPACS), housed in the School of Social Sciences, is a multidisciplinary program dedicated to promoting scholarly, student and public understanding of international conflict and cooperation. The Institute for Mathematical Behavioral Sciences, also located in the School of Social Sciences, offers opportunities for participation in ongoing faculty research, notably with faculty members engaged in fields of public choice and political economy.

Admissions

The deadline for application for fall quarter admission is January 15. Students are admitted for winter or spring quarters only under exceptional circumstances. Additional information is available in the general section on admission to social science graduate programs. Please note especially the required examinations.

Requirements

During the first two years in the doctoral program, students must complete three of the following five seminars: Field Seminar in American Politics, Field Seminar in Comparative Politics, Field Seminar in International Relations, Field Seminar in Political Theory, and Foundations of Political Science. Prior to advancement to Ph.D. candidacy, doctoral students must complete two fields of study, one of which must come from the following list: American Politics, Comparative Politics, International Relations, or Political Theory. Each student must complete a second field, which may come (1) from one of the four listed above; (2) from an area of faculty strength, such as democracy studies, political psychology, public choice, race and ethnicity, or public law; or (3) from a specialized area of interdisciplinary study. If the student chooses the specialized area of interdisciplinary study (3), this area must be approved by the student's advisor and the graduate committee. Students must complete three–five courses in their first field and three–five courses in their second field. The precise number is to be determined in each field by the field faculty. The field seminar in each field counts as one of the required courses.

Students are expected to have successfully completed course work resulting in knowledge of basic introductory statistics. Students who do not have this preparation must acquire the equivalent background during their first or second year in graduate school. Undergraduate statistics courses are considered to be remedial, and thus will not count toward graduate course credit needed for the Ph.D. Competence in a foreign language is required. Students may substitute mastery of an advanced research skill or an advanced qualitative skill in place of a foreign language. To acquire such a quantitative skill (which could involve course work in such disciplines as economics, mathematics and computer science, or statistics), students must

complete at least one year of upper-level, undergraduate course work in mathematics, economics, or computer science or one year in graduate-level statistics beyond the required minimum of two quarters of introductory statistics. To acquire a qualitative skill, students must complete at least one year of graduate-level course work in qualitative or interpretative research methods. A student electing to meet the foreign language requirement should select a foreign language which is useful for research in his or her dissertation or in which there is a substantial body of scholarly literature.

Reviews and Examinations

Students ordinarily are expected to maintain a grade point average of 3.5 or better. At the completion of the first year, a review of performance in the graduate program will be conducted for each student by the political science faculty.

Students must complete two qualifying papers. The first qualifying paper must be completed and approved by the end of the winter quarter of a student's second year in the program; the second qualifying paper must be completed and approved by the winter quarter of a student's third year in the program. There must be two faculty readers on each qualifying paper, and only one faculty reader may serve as a reader on both papers. Upon successful completion of these papers and demonstration of competence in a foreign language, mastery of an advanced quantitative skill, or an advanced qualitative skill, a candidacy committee is appointed to oversee the qualifying examination and the formal advancement to candidacy. Students are expected to advance to candidacy by the end of their eighth quarter in the Ph.D. program. All students must pass the advancement to candidacy examination by the end of the tenth quarter in the Ph.D. program.

After the student advances to candidacy, the doctoral committee, usually composed of three members of the candidacy committee, reviews a dissertation prospectus and supervises work toward completion of the dissertation. Within six months of the oral qualifying examination (the formal advancement to candidacy), students are expected to meet with their doctoral committee, in order to discuss with the members a dissertation prospectus.

The normative time for completion of the Ph.D. is six years, and the maximum time permitted is seven years.

Concentration in Public Choice

Public choice is an interdisciplinary field, at the intersection of political science and economics, which draws on sophisticated quantitative tools to model the functioning of political institutions. Public choice examines such areas as theories of voter and party choice; the theory of constitutions; the theory of committees and elections; models of regulation; problems of public goods and externalities; rent-seeking models; and issues in social choice, social welfare, and demand revelation.

This concentration is administered by an interdisciplinary committee of faculty from the Departments of Political Science and Economics. Students who elect this concentration are admitted under the normal procedures for the program in political science and must fulfill all the requirements for the political science degree, with the following modifications:

1. Students must complete the three-quarter core sequence in public choice, which is taught jointly by political science and economics faculty. This sequence is usually taken in the student's second or third year.
2. Students must complete three additional graduate-level, four-unit courses in related fields with the consent of their graduate advisor, chosen from a set of courses designated by the interdisciplinary committee. The courses chosen are to be tailored to the individual interests and academic background of the student and usually will include at least two economics courses (such as Econometrics, Game Theory, and Law and Economics) and one political science course (such as those on electoral systems, party systems, constitutions, courts).
3. Students are expected to write their dissertation on a topic related to public choice. Usually the dissertation advisor will be a political science member of the interdisciplinary committee.

Concentration in Political Psychology

The last two decades have seen an explosion of interest in the field of political psychology. UCI's graduate concentration is part of this development, but enjoys a rather distinctive place. The concentration offers students a broader education than is typically available at other institutions. In this vein, the program aims to provide (1) a strong background in both political science and psychology; (2) an emphasis on theoretical and conceptual issues as well as empirical and methodological ones; and (3) a familiarity with research being done outside of the United States as well as within it.

In this context, a number of research concerns central to the participating faculty are considered, including social change and democratization, ideology, altruism, social and political identity, public policy, community building, mass media effects, voting behavior, and international integration. Believing in academic community, the concentration's sponsoring faculty offer a host of activities including colloquia, reading groups and joint research opportunities to facilitate contact between students and faculty and among the students themselves.

Requirements. The purpose of the concentration is to provide a course of study which supplements the Ph.D. degree in political science. Therefore, students are required to complete all degree requirements for the Ph.D. stipulated by the Department of Political Science. As part of or in addition to these requirements, students must take five courses: Introduction to Political Psychology I and II (POL SCI 285A and POL SCI 285B), and three graduate psychology courses which provide a strong background in psychology (selected from an approved group which includes courses such as Personality in Development, Society and Pathology, Personality Assessment, Proseminar in Cognitive Science, and Human Information Processing). These courses are taught in the Department of Cognitive Sciences in the School of Social Sciences and the Department of Psychology and Social Behavior in the School of Social Ecology.

Program in Law and Graduate Studies (J.D./Ph.D.)

Highly qualified students interested in combining the study of law with graduate research and/or professional qualifications in political science are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students in this program pursue a coordinated curriculum leading to a J.D. degree from the School of Law in conjunction with a Ph.D. degree in political science. Additional information is available from the PLGS program director's office, (949) 824-4158, or by e-mail to plgs@law.uci.edu. A full description of the program, with links to all relevant application information, can be found at the School of Law Concurrent Degree Programs (http://www.law.uci.edu/plgs) website.

Faculty

Edwin Amenta, Ph.D. University of Chicago, *Professor of Sociology; Political Science* (political sociology, historical and comparative sociology, social movements, social policy)

Mohammad Amjad, Ph.D. University of California, Riverside, *Lecturer of Political Science*

Matthew N. Beckmann, Ph.D. University of Michigan, *Associate Professor of Political Science*

Graeme T. Boushey, Ph.D. University of Washington, *Assistant Professor of Political Science*

Daniel R. Brunstetter, Ph.D. University of California, Davis, *Associate Professor of Political Science; European Languages and Studies* (political theory, international relations, French political thought)

Alejandro E. Camacho, LL.M. Georgetown University, *Professor of School of Law; Political Science*

David O. Carter, J.D. University of California, Los Angeles, *Lecturer of Political Science*

Erwin Chemerinsky, J.D. Harvard University, *Dean of the School of Law, Raymond Pryke Endowed Chair in First Amendment Law* and *Professor of School of Law; Political Science*

Russell Dalton, Ph.D. University of Michigan, *Professor of Political Science; European Languages and Studies; Political Science*

James N. Danziger, Ph.D. Stanford University, *Professor Emeritus of Political Science*

Louis Desipio, Ph.D. University of Texas at Austin, *Professor of Chicano/Latino Studies; Political Science*

David Easton, Ph.D. Harvard University, *UCI Distinguished Professor of Political Science*

David Feldman, Ph.D. University of Missouri-Columbia, *Professor of Planning, Policy, and Design; Political Science*

Martha S. Feldman, Ph.D. Stanford University, *Roger W. and Janice M. Johnson Chair in Civic Governance and Public Management* and *Professor of Planning, Policy, and Design; Paul Merage School of Business; Political Science; Sociology*

Mark J. Fisher, M.D. University of Cincinnati, *Professor of Neurology; Anatomy and Neurobiology; Political Science*

David J. Frank, Ph.D. Stanford University, *Professor of Sociology; Education; Political Science* (globalization, sexuality, the natural environment, higher education)

Lewis A. Froman, Ph.D. Northwestern University, *Professor Emeritus of Political Science*

Howard A. Gillman, Ph.D. University of California, Los Angeles, *Provost and Interim Chancellor* and *Professor of Political Science; Criminology, Law and Society; History; School of Law*

Sara Goodman, Ph.D. Georgetown University, *Assistant Professor of Political Science*

Bernard N. Grofman, Ph.D. University of Chicago, *Jack Peltason Chair* and *Professor of Political Science; Economics*

Richard L. Hasen, J.D. University of California, Los Angeles, *UCI Chancellor's Professor of School of Law; Political Science*

Marek Kaminski, Ph.D. University of Maryland, College Park, *Associate Professor of Political Science; Economics*

Pamela A. Kelley, J.D. Yale University, *Lecturer of Political Science*

Claire J. Kim, Ph.D. Yale University, *Associate Professor of Asian American Studies; Culture and Theory; Political Science*

Cecelia M. Lynch, Ph.D. Columbia University, *Professor of Political Science*

Anthony J. McGann, Ph.D. Duke University, *Associate Professor of Political Science*

Carrie Menkel-Meadow, J.D. University of Pennsylvania, *UCI Chancellor's Professor of Political Science; School of Law*

David S. Meyer, Ph.D. Boston University, *Professor of Sociology; Planning, Policy, and Design; Political Science* (social movements, public policy, peace and war, social justice)

Kristen R. Monroe, Ph.D. University of Chicago, *UCI Chancellor's Professor of Political Science*

Patrick M. Morgan, Ph.D. Yale University, *Professor Emeritus of Political Science*

Kevin E. Olson, Ph.D. Northwestern University, *Associate Professor of Political Science; Culture and Theory* (contemporary European political theory, cultural politics, politics of diversity, popular sovereignty, citizenship, nineteenth- and twentieth-century political theory)

Jack W. Peltason, Ph.D. Princeton University, *Professor Emeritus of Political Science*

Mark P. Petracca, Ph.D. University of Chicago, *Associate Professor of Political Science; Planning, Policy, and Design*

Bojan M. Petrovic, Ph.D. University of California, Irvine, *Lecturer of Social Sciences; Political Science*

M. Ross Quillian, Ph.D. Carnegie Mellon University, *Professor Emeritus of Political Science*

Shawn W. Rosenberg, M.S. Oxford University, *Professor of Political Science; Psychology and Social Behavior* (political psychology, deliberative democracy, ideology, social theory, social and development psychology)

Kamal Sadiq, Ph.D. University of Chicago, *Associate Professor of Political Science*

William R. Schonfeld, Ph.D. Princeton University, *Professor Emeritus of Political Science*

Carl E. Schwarz, Ph.D. University of California, Santa Barbara, *Lecturer of Political Science; International Studies*

Sherilyn K. Sellgren, MB.A. University of California, Irvine, *Lecturer of Political Science*

Caesar D. Sereseres, Ph.D. University of California, Riverside, *Associate Professor of Political Science*

Charles Smith, Ph.D. University of California, San Diego, *Associate Professor of Political Science*

Etel Solingen, Ph.D. University of California, Los Angeles, *Thomas T. and Elizabeth C. Tierney Chair in Global Peace and Conflict Studies* and *Professor of Political Science*

Dorothy J. Solinger, Ph.D. Stanford University, *Professor of Political Science*

Rein Taagepera, Ph.D. University of Delaware, *Professor Emeritus of Political Science*

Gary B. Thom, Ph.D. Yale University, *Professor Emeritus of Political Science*

Keith Topper, Ph.D. University of California, Los Angeles, *Associate Professor of Political Science; Culture and Theory* (political theory, critical theory, poststructuralism, theories of power, language and politics, theory and politics of interpretation, politics of culture, philosophy of the social sciences)

Carole J. Uhlaner, Ph.D. Harvard University, *Associate Professor of Political Science; Economics*

Robert M. Uriu, Ph.D. Columbia University, *Associate Professor of Political Science*

Martin P. Wattenberg, Ph.D. University of Michigan, *Professor of Political Science*

Christopher A. Whytock, J.D. Georgetown University, *Professor of School of Law; Political Science*

Courses

POL SCI 6A. Introduction to Political Science: Political Analysis. 4 Units.
Presents various modes of understanding politics. Emphasis on basic approaches to political analysis, their uses in constructing theories, and their application to particular national political systems.

(III, VIII)

POL SCI 6B. Introduction to Political Science: Macropolitics. 4 Units.
An overview of macro-political inquiry, emphasizing the various determinants of political life in a political community. We also explore the origins and challenges of democratic governance focusing on the tension between liberty and equality in a democratizing nation.

(III)

POL SCI 6C. Introduction to Political Science: Micropolitics. 4 Units.
Introduction to political behavior of individuals and groups within national systems. Three questions addressed: How do individuals come to understand the political world? How do individuals behave within this world? How do groups and individuals engage in the political process.

(III)

POL SCI 10A. Probability and Statistics in Political Science I. 4 Units.
Introduction to the variety of statistical applications in the social sciences. Descriptive statistics. Measures of central tendency and dispersion. Percentile ranks. Standardization and normal approximation. Basic probability theory focuses on application to statistical inference and binomial distribution. Laboratory required.

Prerequisite: SOC SCI 3A.

Overlaps with ANTHRO 10A, ECON 15A, PSYCH 10A, SOCECOL 13, SOC SCI 9A, SOCIOL 10A.

Restriction: Lower-division students only.

(Va)

POL SCI 10B. Probability and Statistics in Political Science II. 4 Units.
Introduction to statistical inference, sampling distribution, standard error. Hypothesis tests for proportions and means. Inferential techniques for nominal variables including chi-square, study measures of strengths, significance of relationships between variables, assumptions, data requirements, and types of error in significance tests.

Prerequisite: POL SCI 10A.

Overlaps with ANTHRO 10B, ECON 15B, PSYCH 10B, SOCECOL 13, SOC SCI 9B, SOC SCI 10B.

(Va)

POL SCI 10C. Probability and Statistics in Political Science III. 4 Units.
Focus on correlation, regression, and control for effects of variables. One-way and two-way factorial analysis of variance. A priori and a posteriori comparisons. Introduction to repeated measures design and non-parametric statistics. Discusses use of statistics in newspapers and popular magazines.

Prerequisite: POL SCI 10B.

Overlaps with ANTHRO 10C, PSYCH 10C, SOCECOL 13, SOC SCI 9C, SOC SCI 10C, SOCIOL 10C.

(Vb)

POL SCI 21A. Introduction to American Government. 4 Units.
Introduction to American political processes and institutions. Topics include elections, political participation, parties, interest groups, the Presidency, Congress, the bureaucracy, and the judiciary. Course may be offered online.

(III)

POL SCI 29. Special Topics in American Politics. 4 Units.
Studies in selected areas of American politics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 31A. Introduction to Political Theory. 4 Units.
Types of questions: What is politics? What are the theoretical and philosophical bases for different types of political arrangements? How do these perspectives get translated into reality? Among others, the works of Rousseau, Locke, Mill, and Marx are read.

(III)

POL SCI 39. Lower-Division Special Topics in Political Theory. 4 Units.
Studies in selected areas of political theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 41A. Introduction to International Relations. 4 Units.
Analysis of political relations between and among nations with emphasis on explanations of conflict and cooperation. The role of ideologies and their relation to international problems are also examined. Course may be offered online.

Same as INTL ST 14.

Restriction: International Studies and Political Science majors have first consideration for enrollment.

(III, VIII)

POL SCI 43D. Global Security and Cooperation. 4 Units.
Examination of global conflict and cooperation since World War II, and future prospects. The Cold War, nuclear arms race, regional conflicts, arms proliferation and control, deterrence theory, psychology of conflict, governmental and nongovernmental efforts to promote global peace and cooperation.

(VIII)

POL SCI 44A. Global Issues and Institutions. 4 Units.
Surveys recent developments in the nature of global interdependence. Examines the major political, economic, and military conflicts of this century and recent problems of population growth, environmental decay, ethnic/national antagonism and violence, and post-Cold War politics.

(III, VIII)

POL SCI 49. Lower-Division Special Topics in International Relations. 4 Units.
Studies in selected areas of international relations. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 51A. Introduction to Politics Around the World. 4 Units.
Introduces comparative politics. Compares political systems in a variety of countries. Includes elections, parties, parliaments, presidents, protest movements, and other aspects of national politics. Addresses how to make meaningful comparisons across countries.

(III, VIII)

POL SCI 61A. Introduction to Race and Ethnicity in Political Science. 4 Units.
Examines major theories that attempt to explain the roles of race and ethnicity in U.S. politics. Course may be offered online.

Same as CHC/LAT 64.

(III, VII)

POL SCI 69. Lower Division Special Topics in Minority Politics. 4 Units.
Studies in selected areas of minority politics. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 71A. Introduction to Law. 4 Units.
An introduction to the study of judicial politics. Questions include: what is law?; what is a court?; who are the judges? Analysis of a wide range of judicial decisions illustrates the political importance of courts in the U.S. and elsewhere.

(III)

POL SCI 79. Lower-Division Special Topics in Law. 4 Units.
Studies in selected areas of law. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 120. Public Opinion. 4 Units.
Theories concerning sources of public opinion, processes by which it is altered, organization of citizens' belief systems, and role of public opinion in government policy. Students analyze survey data as a research project.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 120W. Public Opinion. 4 Units.
Theories concerning sources of public opinion, processes by which it is altered, organization of citizens' belief systems, and role of public opinion in government policy. Students analyze survey data as a research project.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 121A. The American Presidency. 4 Units.
Presents a comprehensive survey of the American presidency and considers the question of political power.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 121C. U.S. Elections and Voting Behavior. 4 Units.
Examines how voters evaluate political parties, candidates, and issues in electoral campaigns to reach their decisions. Numerous controversies concerning the degree of issue voting, sophistication of candidate evaluations, and the decline of political parties are discussed.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 121E. Public Policy Analysis. 4 Units.
Examines different approaches to the analysis of public policy, what constitutes good policy, the role of government, and citizen participation in policy-making. Suggests a policy-design perspective which builds upon other frameworks but concentrates on goals, implementation structures, tools, and rationales.

Prerequisite: SOCECOL E8 and (PP&D 4 or PP&D 166).

Same as PP&D 169.

Restriction: Urban Studies, Social Ecology, and Public Health Policy majors have first consideration for enrollment.

POL SCI 121F. Presidents Since World War II. 4 Units.
Reviews the actions and character of presidents from Harry Truman through Bill Clinton. Each week a different president is examined from a variety of perspectives. Students are expected to write a substantial original research paper.

Prerequisite: POL SCI 21A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 122A. American Metropolitan Politics. 4 Units.
Explores the politics of urban and suburban America, including the policy making process; the exercise of political power; local politics, federalism and the problems of metropolitanism; and major policy problems facing urban areas.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 122B. California Politics. 4 Units.
Examines the structure and function of California government, traces historical development of political power, with constantly changing casts of power-brokers and seekers. Explores California exceptionalism and the roles played by the electorate, legislature, executive, and organized interests in policy making.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 122BW. California Politics. 4 Units.
Examines the structure and function of California government, traces historical development of political power, with constantly changing casts of power-brokers and seekers. Explores California exceptionalism and the roles played by the electorate, legislature, executive, and organized interests in policy making.

Prerequisite: Satisfactory completion of the Lower-Division writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 122C. The American Electorate. 4 Units.
Provides an overview of how polls are conducted, and how they can be manipulated by question wording, sampling techniques, interviewing procedures, and context. Public attitudes toward Congress are examined. Students analyze survey data on their own as a research project.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 123A. Parties and Political Organizations. 4 Units.
A consideration of the role that parties and other political organizations play in the American political process. Also looks at the development and significance of PACs, interest groups, and social movements as vehicles for democratic participation.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 124A. The Politics of Protest. 4 Units.
Examines the Civil Rights, Black Power, and women's movements in relationship to the Asian American movement. Uses social movement theories to illuminate the cases, and the cases to critique and revise the theories.

Same as ASIANAM 144.

(VII)

POL SCI 124B. Latinos in U.S. Politics. 4 Units.
Comparing the political issues facing Latino groups by examining their migration histories, voting behavior, nonelectoral participation, and policy issues. Latino issues are examined on the national, state, and local levels, including formal representation, immigration, affirmative action, and language policy.

Same as CHC/LAT 151.

(VII)

POL SCI 124C. Comparative Minority Politics. 4 Units.
Examines the political experiences of Blacks, Latinos, and Asian Americans in the United States from roughly 1950 to the present. Focuses on how each group has pursued political empowerment via both conventional political channels and social movements.

Same as AFAM 151, CHC/LAT 147, ASIANAM 132.

POL SCI 124E. African American Politics. 4 Units.
Examines politics of African Americans in order to gain a broader perspective of the American political process. Major developments in African American politics (including the civil rights movement, Black presidential bids), continuing problem of racism, responsiveness of key governing institutions.

Same as AFAM 152.

POL SCI 125A. The United States Congress. 4 Units.
Does the Congress do a good job of representing the American citizenry? Is it the most appropriate mechanism for the creation, resolution, and implementation of public policy.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 125AW. The United States Congress. 4 Units.
Does the Congress do a good job of representing the American citizenry? Is it the most appropriate mechanism for the creation, resolution, and implementation of public policy.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 125B. Congress:The New Institutionalist Approach. 4 Units.
Study of the U.S. Congress emphasizing how rules and institutions (filibuster, veto, the committee system, party caucuses) structure how the Congressional game is played. Combines theoretical study of procedures with the practical study of actual bills.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 126C. U.S. Immigration Policy. 4 Units.
Examines selected immigration policy debates since the nineteenth century, rationale and consequences of immigration law since 1965, problems of administration, implementation and enforcement, impact of immigration policy on foreign relations, and contemporary debate regarding the future of U.S. policy.

Same as CHC/LAT 163.

(VII)

POL SCI 126D. Urban Politics and Policy. 4 Units.
Examines economic limits of cities and welfare policy. Addresses such issues as why are the poor concentrated in the central cities? Which anti-poverty programs will work best in cities? Which level of government can best combat poverty in the U.S.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 126F. Politics of Animal Rights. 4 Units.
Examines animal rights/welfare movement's efforts to transform moral, practical, and legal standing of nonhuman animals in contemporary U.S. Explores intersection of racism, sexism, and speciesism informed by theories of race and ethnicity, including Asian American Studies.

Same as ASIANAM 168.

Restriction: Political Science majors and Asian American Studies majors have first consideration for enrollment.

POL SCI 129. Special Topics in American Politics and Society. 4 Units.
Studies in selected areas of American politics and society. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 130A. Game Theory and Politics I. 4 Units.
Introduction to game theory and a survey of its political applications. Examples of topics covered include voting in small committees, legislatures, and mass elections; interest group activities and environmental issues; institutional design, and the evolution of cooperative behavior.

Same as INTL ST 105A, SOC SCI 103A, SOCIOL 134.

Restriction: Social Policy and Public Service, Sociology, Political Science, and International Studies majors have first consideration for enrollment.

POL SCI 130B. Game Theory and Politics II. 4 Units.
More advanced game theory and its political applications, beginning where Game Theory and Politics I ends. Examples of topics covered include revolutions; arms race; spatial models of party competition; political manipulation; political coalitions and their power.

Prerequisite: POL SCI 130A or ECON 116A.

Same as INTL ST 105B, SOC SCI 103B.

Restriction: Social Policy and Public Service, International Studies, and Political Science majors have first consideration for enrollment.

POL SCI 131C. Modern Political Theory. 4 Units.
Examines major thinkers and intellectual movements in the political thought of the 17th and 18th centuries.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 131F. Twentieth Century Political Theory. 4 Units.
Examines major thinkers and intellectual movements in the political thought of the 20th Century.

Prerequisite: POL SCI 31A.

POL SCI 134F. Social and Political Theory. 4 Units.
Focus is on recent major work in social and political theory. An in-depth analysis of a relatively small body of writing. Authors discussed include Jurgen Habermas, Anthony Giddens, and Richard Rorty.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 134J. Sexism and Power. 4 Units.
Sexism seen as a socially constructed power which creates and maintains gender differences as relations and practices of structured inequalities. Males and females are objects constructed in a powered language dominated and controlled by males to their positional/distributional advantage.

Same as SOCIOL 168.

Restriction: Upper-division students only. Sociology and Political Science majors have first consideration for enrollment.

POL SCI 134JW. Sexism and Power. 4 Units.
Sexism seen as a socially constructed power which creates and maintains gender differences as relations and practices of structured inequalities. Males and females are objects constructed in a powered language dominated and controlled by males to their positional/distributional advantage.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOCIOL 168W.

Restriction: Upper-division students only. Sociology and Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 135A. Origins of Liberalism. 4 Units.
Examines the ideals, social forces, and historical events that gave rise to liberal political theory. Topics include patriarchal authority, the divine right of kings, religious toleration, slavery, colonialism, political economy, the evolution of law, and tensions between liberty and equality.

Prerequisite: POL SCI 31A

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 135B. Just War Revisited. 4 Units.
Examines the evolution of the doctrine of the just war across the history of Western political thought, the importance of changes in the doctrine and whether it applies today; examines international relations case studies to determine today's relevancy.

Same as INTL ST 131A.

POL SCI 136A. Logical Models in Social Sciences. 4 Units.
Science asks two questions. "How things are?" leads to measurement and statistical analysis. But we see only what we look for. "How things should be, on logical grounds?" leads to quantitative logical models which tell us what to look for.

Same as SOCIOL 112.

POL SCI 136B. Cannibals and Conquistadores: The Philosophy of the Other. 4 Units.
Examines critically the notion of the "other" by looking at the philosophical challenges difference poses in the context of the European discovery of the New World. Seeks to understand the naissance of the concept of human rights and tolerance.

POL SCI 136D. Middle East Narratives. 4 Units.
Explores various narratives of peoples living in the Middle East: Bedouins, Jews, Muslims, Christians, Druze, Baha'i; looks at how their identities were formed and altered over time through empire, religion, exodus, war, democracy, diasporas; focus is philosophical and historical.

Same as INTL ST 174.

POL SCI 137B. Types of Political Representation. 4 Units.
Political representation plays an important role in democratic systems, but is elusive once examined closely. Students delve into the concept and relate different views to political life. Half of the course is spent on writing instruction.

Restriction: Recommended: Upper-Division students. Political Science majors have first consideration for enrollment.

POL SCI 137BW. Types of Political Representation. 4 Units.
Political representation plays an important role in democratic systems, but is elusive once examined closely. Students delve into the concept and relate different views to political life. Half of the course is spent on writing instruction.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Recommended: Upper-Division students. Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 137C. Political Psychology. 4 Units.
Examines how psychological theory and research may be used to better understand political thought and behavior. Drawing on theories of learning, cognition, and personality, discusses the formation of political attitudes, the process of political decision-making, the nature of political leadership.

Same as PSYCH 176A.

Restriction: Psychology and Political Science majors have first consideration for enrollment.

POL SCI 138A. The Moral of the Story: Introductory Seminar in Ethics. 4 Units.
Introduces major theories and classic texts in ethics, from Plato and Aristotelian virtue ethics to utilitarianism and Kant and contemporary moral psychology.

POL SCI 138C. Ethics of Difference. 4 Units.
Examines differences traditionally judged politically salient—race, ethnicity, religion, gender. Personal interviews with an elderly person encourage students to understand the social construction of difference and to reexamine their own attitudes by putting themselves in the place of another.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 138CW. Ethics of Difference. 4 Units.
Examines differences traditionally judged politically salient—race, ethnicity, religion, gender. Personal interviews with an elderly person encourage students to understand the social construction of difference and to reexamine their own attitudes by putting themselves in the place of another.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 139. Special Topics in Political Theory and Methods. 4 Units.
Studies in selected areas of political theory and methods. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 141B. International Political Economy. 4 Units.
Examination of problems in global political-economic relations through competing conceptual lenses or grand theories: mercantilism, liberalism, and Marxism. Surveys North-North and North-South issues relating power and wealth.

Same as INTL ST 114A.

(VIII)

POL SCI 141C. International Political Economy of East Asia. 4 Units.
Integration of theoretical perspectives in international political economy with the study of economic development in East Asia, with special emphasis on regional integration.

(VIII)

POL SCI 141D. Immigration Politics in Western Europe. 4 Units.
Examines the politics of immigration in Western Europe. Considers historical, economic, political, and social dimensions of immigration as well as the nature of ensuing conflict. Students investigate a variety of immigrant-related policies, including asylum, citizenship, and integration.

Same as INTL ST 178A.

POL SCI 141E. U.S. Foreign Policy Toward Asia. 4 Units.
U.S. policy toward the countries of East Asia: bilateral and regional security relationships, U.S. economic relations with the major Asian countries, the development of regional institutions, and human rights.

Same as INTL ST 142G.

POL SCI 142B. The International Relations of East Asia. 4 Units.
Surveys various aspects of relations between the nations of East Asia. Topics include the historical development of the region; current political and security relations, including the impact of the American military presence.

Same as INTL ST 142D.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 142D. U.S. Foreign Policy I: Globalism and Cold War. 4 Units.
Looks at changing international perspectives, policy responses, and military strategies of presidential administrations from Truman to Reagan. In assessing the motives and objectives of U.S. foreign policy leaders during the “Cold War” era, the concept of “national interest” is examined.

Same as INTL ST 142A.

Restriction: International Studies and Political Science majors have first consideration for enrollment.

POL SCI 142E. U.S. Foreign Policy II: Cold War Decline & After. 4 Units.
Deals with U.S. foreign policy from the post-Vietnam War era through the collapse of the Cold War and into the emergence of the post-Cold War era, roughly from 1972 to the present.

Same as INTL ST 142B.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 142F. U.S. Foreign Policy III: National Security Decision-Making. 4 Units.
Concept of "national security" from 1947-1990s is reviewed. Organizational and psychological factors that influence decision-making, the dangers of "groupthink," and the issue of accountability are analyzed. National security agenda (military, economic, environmental, and social) for the 1990s is discussed.

Same as INTL ST 142C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 142G. U.S. Coercive Diplomacy. 4 Units.
Examines the theory of compellence and the U.S. practice of coercive diplomacy--the power to change behavior of other governments. Specific case examples: the Cuban missile crisis, bombing of North Vietnam, the Nicaraguan Contras, Desert Shield/Desert Storm, and Libya.

Same as INTL ST 142E.

Restriction: Upper-division students only. Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 142H. Human Rights and Foreign Policy. 4 Units.
Analyzes theories, patterns, and cases of human rights foreign policy. How do countries pursue the values and standards of human rights in their foreign relations. How does the U.S. fit into worldwide trends? Examines historical and contemporary cases.

Same as INTL ST 142F.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 143F. Intelligence in International Politics. 4 Units.
Intelligence agencies, activities, and functions—their impact on international politics; how governments and societies seek to control intelligence agencies and activities; and how intelligence agencies work—their techniques, resources, technology, problems, successes, and failures.

Same as INTL ST 141A.

Restriction: Political Science and International Studies majors have first consideration for enrollment.

POL SCI 143G. Homeland Security . 4 Units.
Examines the 9/11 origins of the concept of homeland security; assess the evolution, structure, and operations of the Department of Homeland Security; critically examines the evolution of threat assessment to the U.S. and the utilization of risk management methodologies.

Same as INTL ST 141B.

POL SCI 144A. Approaches to International Relations. 4 Units.
Reviews theoretical and methodological approaches to the study of international relations using contending perspectives to analyze power and influence, capabilities, interdependence, reciprocity, international regimes, anarchy, cooperation, imperialism, and hegemony.

Same as INTL ST 140A.

Restriction: Upper-division students only. Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 145A. Ethics in an Age of Terror and Genocide. 4 Units.
Original sources document personal impact of wars on genocides, from World War II to the Bosnian and Rwandan genocides and current wars in Iraq and Afghanistan. Students train for and conduct personal interviews with someone who lived through a war.

POL SCI 146A. Ethics and International Relations. 4 Units.
Introduces students to the dynamic field of ethics and international relations. A variety of traditional and emerging perspectives are examined, skeptical views are discussed in detail, and arguments are illustrated with current cases.

Same as PP&D 140, INTL ST 154D.

POL SCI 146B. Religion and World Politics. 4 Units.
Examines the relationship between religion and world politics historically and today, focusing on connections with peace/war, democracy, human rights, secularism(s), and globalization. Covers major debates, scholarship, concepts, and theories through class exercises, exams, and essays.

Prerequisite: POL SCI 41A or INTL ST 11 or INTL ST 12 or REL STD 5A or REL STD 5B or REL STD 5C.

Same as REL STD 115, INTL ST 151B.

POL SCI 149. Special Topics in International Relations. 4 Units.
Studies in selected areas of international relations. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 150A. Seminar on Regime Change in East Asia. 4 Units.
Examines nine factors relevant to regime change, studying one factor each week in class. Students write four short (two-page) analytic papers, and one eight-ten-page research paper on one country.

Prerequisite: POL SCI 6A and POL SCI 6B and POL SCI 6C.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 150AW. Seminar on Regime Change in East Asia. 4 Units.
Examines nine factors relevant to regime change, studying one factor each week in class. Students write four short (two-page) analytic papers, and one eight-ten-page research paper on one country.

Prerequisite: POL SCI 6A and POL SCI 6B and POL SCI 6C. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 151A. East Asian Politics. 4 Units.
Explores the recent history and political systems of China, Japan, and Korea, comparing the three countries with each other and with occasional reference to the United States, British, and French systems.

Same as INTL ST 176B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 151B. Introduction to Chinese Politics. 4 Units.
Background to the Chinese revolution, rise of the communist party; and institutions, ideology, and structure of Communist party rule from 1949-present.

Same as INTL ST 176C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 151C. Chinese Politics: Policy, Leadership, and Change. 4 Units.
Examines major policies from 1949 to the present, and considers the changing role of the Communist Party and its shifting treatment of various social groups; the era of Mao Zedong, reforms under Deng, and post-Deng politics.

Same as INTL ST 176D.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 151E. Are Chinese Politics Changing?. 4 Units.
There’s been speculation about whether the Chinese political system is fundamentally changing. This upper-division writing seminar reviews new books on this topic and considers the question from a range of angles. Four two-page papers and one 8–10-page paper required.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 151EW. Are Chinese Politics Changing?. 4 Units.
There's been speculation about whether the Chinese political system is fundamentally changing. This upper-division writing seminar reviews new books on this topic and considers the question from a range of angles. Four two-page papers and one 8–10-page paper required.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 151F. Korean Politics and Society. 4 Units.
Examination of contemporary political/social structures and process of Korea (South and North). Historical and cultural influences on current political systems and policies. Also included are economic development, national security, unification issues, and foreign relations.

POL SCI 151G. Electoral Systems. 4 Units.
Worldwide overview of electoral laws by which votes are converted into assembly seats. Systematic analysis of these laws and their effect on political process/stability. Single-, two-, and multi-party systems. Proportional representation versus plurality rule. Majoritarian and consensus patterns of government.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 151H. Voting and Political Manipulation. 4 Units.
Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as INTL ST 156A, SOC SCI 121T, ECON 154.

Restriction: International Studies, Political Science, Social Science and Economics majors have first consideration for enrollment.

POL SCI 152C. German Politics and Society. 4 Units.
Concentrates on twentieth-century German politics and society, focusing on the contemporary political system of democratic West Germany. Study of the historical legacies of Weimar and the Nazi period, the postwar division between the two states and their reunification.

Same as INTL ST 176G.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 152F. West European Politics. 4 Units.
Explores four main themes: (1) thinking scientifically about politics; (2) understanding the linkages between different political structures and spheres of activity; (3) evaluating some theories about politics; (4) learning about three countries: Britain, France, and Germany.

Same as INTL ST 176I.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 152G. European Politics. 4 Units.
An introduction to the politics of Europe including the smaller countries and the former Warsaw Pact. Includes case study of three or four countries, as well as contemporary issues such as globalization, immigration, population decline, and European integration.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 153A. Latin American Politics. 4 Units.
Introduces the main concepts and theoretical approaches underlying the study of Latin American politics, examines recent political dynamics, and explores the challenges the region faces in the twenty-first century and how countries will attempt to address them.

Same as INTL ST 176K, CHC/LAT 151A.

Restriction: Political Science majors, Chicano/Latino Studies majors, and International Studies majors have first consideration for enrollment.

POL SCI 153B. Canadian Politics. 4 Units.
Addresses the basic structures and processes of contemporary Canadian government and politics. Additional topics may include regionalism, federalism, western alienation and oil, Canadian solutions to social welfare policy questions, developments in Quebec, and other issues associated with French-English relations.

Same as INTL ST 176L.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 153E. Human Rights. 4 Units.
Examines the causes and consequences of human rights violations with a focus on Latin America. What are human rights? When and where are they violated? What political mechanisms are available to deal with human rights problems? How effective are they.

Same as INTL ST 154B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 153G. Cuban Society and Revolution. 4 Units.
Explores the causes, development, and legacy of the 1959 Revolution. Themes include economic dependency, democracy, race, gender, culture, and the always volatile relations between Cuba and the United States.

Same as INTL ST 177E, HISTORY 166C, CHC/LAT 157.

POL SCI 154C. Comparative Politics: Four Nations, Three Continents. 4 Units.
Studies four countries in a comparative fashion: their respective political histories and cultural traditions; actual differences among their superficially similar party, parliamentary, and executive institutions; contemporary economic policy. The countries represent three continents and varying levels of economic development.

Same as INTL ST 144A.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 154F. Peoples and Cultures of Post-Soviet Eurasia. 4 Units.
Examines the cultures and political conflicts of the more than 130 indigenous ethnic groups in the European and Asian territories of the former U.S.S.R. Emphasis is on the theoretical issues of ethnicity, nationalism, and conflict management.

Same as INTL ST 162B, ANTHRO 164P.

(VIII)

POL SCI 154G. Conflict Resolution in Cross-Cultural Perspective. 4 Units.
Examines theories of conflict management. Analyzes how conflict is mitigated in diverse cultures: at the interpersonal level, between groups, and on the international scale. Students discuss readings, hear from conflict management practitioners, and simulate negotiations.

Same as ANTHRO 136D, SOC SCI 183E, INTL ST 183E.

(VIII)

POL SCI 155A. New Democracies. 4 Units.
Examines what democracy is; considers competing theories about its causes; explores multiple democratic institutions; discusses several types of democracy; and analyzes various aspects of democratic quality and stability, focusing on Eastern Europe, Latin America, and sub-Saharan Africa.

Same as INTL ST 124B.

POL SCI 155C. Organizations. 4 Units.
How bureaucracies, formal organizations, and voluntary associations work, how/why they grow, and where they are going. History and structure of organizational rationality; dynamics of organized groups; behavior in organizations; limits of bureaucratization and attempts to overcome these limits through decentralization.

Same as SOCIOL 141.

Restriction: Sociology and Political Science majors have first consideration for enrollment.

POL SCI 155F. Political Economy of Japan. 4 Units.
Surveys postwar developments in the politics and political economy of Japan. Topics include the political and institutional context of policy making; pressures for change which Japan's political economy has faced in the last decade; Japan's past and present foreign policies.

Same as INTL ST 114D.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

POL SCI 156A. Political Participation. 4 Units.
The ways in which people in various political systems take part in politics, especially in activities directed toward affecting outcomes. Who is active, what they do, why they do it, and what difference it makes.

POL SCI 156B. Participation and Representation. 4 Units.
Examines the concepts "political participation" and "political representation" and the interconnection between these concepts. Addresses both the theoretical issues and debates raised by these concepts and considers how they are studied empirically.

Restriction: Upper-division students only. Political Science majors have first consideration for enrollment.

POL SCI 156C. Citizen Politics. 4 Units.
Study of the role of public opinion in the political process. Reviews some key research approaches and findings on which our current understanding of public opinion is based. Provides an opportunity to conduct research and to analyze public opinion surveys.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 156CW. Citizen Politics. 4 Units.
Study of the role of public opinion in the political process. Reviews some key research approaches and findings on which our current understanding of public opinion is based. Provides an opportunity to conduct research and to analyze public opinion surveys.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 156D. Protests, Movements, and Revolutions. 4 Units.
A survey of models of collective action drawn from sociology, economics, psychology, and political science. Focus on areas such as social movements, strikes, crowd psychology, cults, fads, fashions, public opinion, and symbolic and mythical elements in collective culture.

Prerequisite: SOCIOL 1 or POL SCI 6A or ECON 1.

Same as SOCIOL 174.

Restriction: Political Science and Sociology majors have first consideration for enrollment.

POL SCI 157A. Nationalism. 4 Units.
Nationalism, one of the most potent social and political forces of the twentieth century, is explored. Seeks to understand the sources and nature of various forms of nationalism.

POL SCI 157AW. Nationalism. 4 Units.
Nationalism, one of the most potent social and political forces of the twentieth century, is explored. Seeks to understand the sources and nature of various forms of nationalism.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

POL SCI 158C. Afghanistan. 4 Units.
Provides an examination of Afghanistan's traditional social organization, economy, political organization, and relationship among ethnic groups as a basis for discussing the consequences of domestic political turmoil and foreign interventions over the last 20 years. Current situation and future addressed.

Same as SOC SCI 188I, INTL ST 162.

POL SCI 158D. Introduction to Contemporary Middle East Politics. 4 Units.
An overview of basic issues that shape the politics of the Middle East and North Africa. Themes include implication of the colonization era, nation-state formation, inter-Arab relations, nationalism, Arab-Israel conflict, Islamic resurgence, and more.

Same as SOC SCI 188A, INTL ST 165.

POL SCI 159. Special Topics in Comparative Politics. 4 Units.
Studies in selected areas of comparative politics. Topics addressed vary each quarter.

Repeatability: May be repeated for credit unlimited times.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 169. Conflict Management. 4 Units.
Special Instance.

POL SCI 171A. Law and Society. 4 Units.
Law and its various roles in society. The nature and meaning of law; legality and power in the American system; law as a mechanism for social change; the role of law in dispute processing, social control, compliance with judicial decisions.

Prerequisite: POL SCI 71A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 171AW. Law and Society. 4 Units.
Law and its various roles in society. The nature and meaning of law; legality and power in the American system; law as a mechanism for social change; the role of law in dispute processing, social control, compliance with judicial decisions.

Prerequisite: POL SCI 71A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 171B. Jurisprudence. 4 Units.
A survey of legal philosophies. Explores jurisprudence from the ancient Greeks to the present, including natural law philosophy; legal positivism and realism; sociological jurisprudence; and liberal, radical, and conservative thought.

Prerequisite: POL SCI 71A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 171C. Comparative Constitutional Politics. 4 Units.
Examines the impact of constitutional courts on politics and policy-making in Canada, France, Germany, and the United States. Cases may focus on the constitutional politics of free speech, abortion, rights to property, and the conduct of foreign relations.

Prerequisite: POL SCI 71A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 171CW. Comparative Constitutional Politics. 4 Units.
Examines the impact of constitutional courts on politics and policy-making in Canada, France, Germany, and the United States. Cases may focus on the constitutional politics of free speech, abortion, rights to property, and the conduct of foreign relations.

Prerequisite: POL SCI 71A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 171D. American Constitutional Law. 4 Units.
American constitutional interpretation of cases involving separation of powers, federal-state relations, rights of property, free expression, privacy, criminal due process, political participation, and equality. Includes legal research methods, development of judicial review, legal reasoning, and impact of Supreme Court decisions.

Prerequisite: POL SCI 71A.

Overlaps with CRM/LAW C122.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 171F. Law in the Twenty-First Century. 4 Units.
Examines the complex relationship between law, the social sciences, and modern society. Lectures explore such issues as the interplay between technology and constitutional rights, the impact of science on law, and the evolving roles of attorneys and judges.

Same as SOC SCI 172D.

Restriction: Political Science and Social Science majors have first consideration for enrollment.

POL SCI 171G. Legal Implications of the Drug Trade. 4 Units.
Examines United States policy to combat domestic and international narcotics trafficking. Analyzes the national drug policy and program implementation by federal and state agencies. Considers the effects of these policies on our individual constitutional rights and the criminal justice system.

POL SCI 172A. International Law. 4 Units.
Examination of the origin, changing structure, application of international law, and the role of legal norms in regulating the behavior of states and maintaining international order.

Prerequisite: POL SCI 71A.

Same as INTL ST 145A.

(VIII)

POL SCI 172B. International Law and the U.S. Legal System. 4 Units.
Explores how international law and U.S. law interact, focusing on recent cases and controversies. Topics include: treaty and customary law as U.S. law; international human rights litigation in U.S. courts; war powers; detentions in the war on terror; and torture.

Prerequisite: POL SCI 71A or POL SCI 172A.

POL SCI 172C. Constitution and Rights. 4 Units.
How are constitutions crafted, maintained, and changed? Does constitutionalism support or undermine democracy? What difference do rights and constitutional courts make? Explores these questions through a comparative examination of the theory and practice of constitutionalism in developing democracies.

Prerequisite: POL SCI 71A.

Same as INTL ST 145C.

POL SCI 172D. Courts in New Democracies . 4 Units.
Examines the conceptual, theoretical, and empirical foundations of the study of courts and politics in new democracies, introducing students to a variety of contemporary debates about how political dynamics shape courts, and how courts shape politics.

Prerequisite: POL SCI 71A.

Same as INTL ST 145D.

POL SCI 174A. Civil Liberties. 4 Units.
Political analysis of selected Supreme Court cases involving claims under the Bill of Rights and the Fourteenth Amendment. Topics include: race, sex, and other forms of discrimination; criminal justice; privacy; freedom of speech and related claims.

Prerequisite: POL SCI 71A.

Overlaps with CRM/LAW C122.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 174B. Contemporary Constitutional Rights. 4 Units.
Addresses the interpretation and application of the United States' fundamental rules. These rules tell us something about the goals of society, and the means chosen to achieve them by allocating rights, duties, costs, and benefits among its members.

Prerequisite: POL SCI 71A.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 174C. U.S. Supreme Court. 4 Units.
Overview and analysis of the role played by the U.S. Supreme Court in the American political system. Judicial review, appointment of justices, judicial activism and judicial restraint, process of case selection, court deliberation, land decision-making, impact of Supreme Court decisions.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI 174CW. U.S. Supreme Court. 4 Units.
Overview and analysis of the role played by the U.S. Supreme Court in the American political system. Judicial review, appointment of justices, judicial activism and judicial restraint, process of case selection, court deliberation, land decision-making, impact of Supreme Court decisions.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Political Science majors have first consideration for enrollment.

(Ib)

POL SCI 179. Special Topics in Public Law. 4 Units.
Studies in selected areas of public law. Topics addressed vary each quarter.

Prerequisite: POL SCI 71A.

Repeatability: Unlimited as topics vary.

Restriction: Political Science majors have first consideration for enrollment.

POL SCI H182A. Honors Thesis Workshop. 4 Units.
A weekly seminar/workshop to facilitate the exchange of ideas and research strategies among students and to review their progress in writing the thesis.

Restriction: Open only to students in the Political Science Senior Thesis program.

POL SCI 183. Public Affairs Internship. 4 Units.
Supervised internship and study in political, governmental, nonprofit, or related organizations for students participating in the Department's Public Affairs Internship Program. Enrollment dependent upon availability of intern positions.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

POL SCI 190. Senior Thesis. 4 Units.
Thesis research with Political Science faculty.

Repeatability: May be taken for credit 3 times.

POL SCI 190W. Senior Thesis. 4 Units.
Thesis research with Political Science faculty.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Repeatability: May be taken for credit 3 times.

(Ib)

POL SCI 197. Field Study. 1-4 Units.
Field study with Political Science faculty.

Repeatability: Unlimited as topics vary.

POL SCI 198. Directed Group Study. 1-4 Units.
Directed group study with Political Science faculty.

Repeatability: Unlimited as topics vary.

POL SCI 199. Independent Study. 1-4 Units.
Independent study or research with a Political Science faculty member.

Repeatability: May be repeated for credit unlimited times.

POL SCI 209A. Study of Democracy Colloquium. 1.33 Unit.
Skills critical to professional success. Students learn and practice professional presentation skills, develop substantive knowledge in the field by attending talks and panels, and interact with scholars and professionals in the field.

Restriction: Graduate students only. POL SCI 209A may not be taken for credit if taken after SOCIOL 229.

POL SCI 209B. Study of Democracy Colloquium. 1.33 Unit.
This colloquium teaches students skills critical to professional success. Students learn and practice professional presentation skills and develop substantive knowledge in the field by attending talks and panels and interacting with scholars and professionals in the field.

Restriction: Graduate students only. POL SCI 209B may not be taken for credit if taken after SOCIOL 229 Democracy.

POL SCI 209C. Study of Democracy Colloquium . 1.34 Unit.
This colloquium teaches students skills critical to professional success. Students learn and practice professional presentation skills and develop substantive knowledge in the field by attending talks and panels and interacting with scholars and professionals in the field.

Restriction: Graduate students only. POL SCI 209C may not be taken for credit if taken after SOCIOL 229 Democracy.

POL SCI 210A. Colloquium. 1.3 Unit.
Doctoral training requires more than learning substantive debates and research methods; it also requires students learn professional practices, routines, and expectations. This year-long workshop offers students a mix of professional development, outside speakers, and casual conversations with departmental faculty.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

POL SCI 210B. Colloquium. 1.3 Unit.
Doctoral training requires more than learning substantive debates and research methods; it also requires students learn professional practices, routines, and expectations. This year-long workshop offers students a mix of professional development, outside speakers, and casual conversations with departmental faculty.

Prerequisite: POL SCI 210A.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

POL SCI 210C. Colloquium. 1.4 Unit.
Doctoral training requires more than learning substantive debates and research methods; it also requires students learn professional practices, routines, and expectations. This year-long workshop offers students a mix of professional development, outside speakers, and casual conversations with departmental faculty.

Prerequisite: POL SCI 210B.

Grading Option: Satisfactory/unsatisfactory only.

Restriction: Graduate students only.

POL SCI 211A. Foundations of Modern Political Science. 4 Units.
Provides an introduction to foundational debates and controversies in contemporary political science, exploring these issues through the prism of nineteenth, twentieth and twenty-first century scholars who have profoundly shaped the contours of contemporary political science.

Restriction: Graduate students only.

POL SCI 211B. Micropolitics. 4 Units.
Provides students with comprehensive introduction to the substance and methods of the study of political behavior. Focuses on the level of individual behavior, but the relation to macrosocial analysis is considered.

Restriction: Graduate students only.

POL SCI 211C. Macropolitics. 4 Units.
Examines some of the major research issues in political science involving macro-level questions: systemic processes, political institutions, or system outputs.

Restriction: Graduate students only.

POL SCI 212A. Public Opinion. 4 Units.
Introduction to the study of U.S. public opinion. Provides an overview of the theories regarding opinion formation, the methodologies employed, and the role of public opinion in democratic governments.

Restriction: Graduate students only.

POL SCI 212B. Ethics Workshop. 4 Units.
Students find an important question in ethics, search literature to assess topic's importance, post question to be researched, propose method of analysis and type of data, analyze data, and note how their works contribute to knowledge in the field.

POL SCI 219. Special Topics in Politics and Society. 4 Units.
Current research in politics and society.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

POL SCI 221A. Public Policy . 4 Units.
Explores different approaches to public policy analysis, the diverse conceptions of the goals and objectives that should be served by policy, and the appropriate role of the policy analyst. Policy consequences are traced to indirect and subtle incentives and disincentives.

Repeatability: May be taken for credit 2 times.

Same as PUB POL 221.

Restriction: Master of Public Policy graduate students have first consideration for enrollment.

POL SCI 222A. Collaborative Governance and Public Management. 4 Units.
Introduction to inclusive management. To make effective use of public resources, public managers are inventing ways of managing that alter relationships within organizations, between organizations, between sectors, and with the public. Requires rethinking fundamentals such as leadership and motivation.

Same as PP&D 283.

Restriction: Graduate students only.

POL SCI 223A. Theories of Power and Empowerment. 4 Units.
Studies different ways of thinking about power and its uses. Explores theories of power that inform various notions of empowerment, including resistance, participatory democracy, and workplace empowerment.

Same as PP&D 279, SOCIOL 271, MGMTPHD 297R.

Restriction: Graduate students only.

POL SCI 229. Advanced Research Methods: Varied Topics. 4 Units.
Topics in advanced research methods. Topics will vary.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

POL SCI 231A. Political Epistemology. 4 Units.
Focuses on fundamental issues of knowledge in the study of politics, especially interconnections and tensions between politics and knowledge. Counts as the Field Seminar in Political Theory.

Restriction: Graduate students only.

POL SCI 232A. Introduction to Voting Theory. 4 Units.
Introduction to voting modules. Substantive topics include majority rule, voting methods and their properties, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Restriction: Graduate students only.

POL SCI 234A. Research Methods in Political Science. 4 Units.
An introduction to standard research techniques in political science. Issues of epistemology, research design, and approaches to empirical analysis.

Prerequisite: Upper-division or graduate-level statistics.

Restriction: Graduate students only.

POL SCI 239. Special Topics in Political Theory. 4 Units.
Current research in political theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

POL SCI 241B. Seminar in International Relations Theory. 4 Units.
Overview of the major theories guiding research and scholarship in international relations. Focus on major conceptual approaches (realism, neoliberalism, marxism) and levels of analysis (systemic, state, and subnational), as well as on methodological/epistemological debates engulfing the field.

Restriction: Graduate students only.

POL SCI 241D. Norms in International Relations. 4 Units.
Evaluates various theoretical and empirical approaches to understanding the emergence, diffusion, and effects of international norms.

Restriction: Graduate students only.

POL SCI 245A. U.S. Ethnic Politics. 4 Units.
Assesses theories of ethnic political attitudes and behaviors in U.S. politics and examines methodological approaches to testing theories of ethnic politics. The primary focus is contemporary ethnic politics with attention to ethnic politics in American political development.

Same as CHC/LAT 235.

Restriction: Graduate students only.

POL SCI 252A. The State in Comparative Perspective. 4 Units.
Seminar examining the state from theoretical, empirical, comparative perspectives. How the state came into being, the state's role in the economy, toward society and internationally, and in policy-making in Western Europe, East Asian newly industrialized countries, the Third World.

Restriction: Graduate students only.

POL SCI 252F. Political Culture and Democracy. 4 Units.
Examines the political culture literature and its relationship to democratic development. What are the cultural prerequisites of democracy, what aspects of political culture facilitate democratic politics and governmental performance, and what forms and reforms a political culture.

Restriction: Graduate students only.

POL SCI 253B. Regime Change in East Asia. 4 Units.
Regime change from authoritarianism to democracies (Japan, South Korea, Taiwan); gradual political change (China). Uses theories from comparative literature on regime transition; combines theory with historical institutions, political culture, prior regimes, elements in the transition process in the four countries.

Restriction: Graduate students only.

POL SCI 254A. Introduction to Game Theory. 4 Units.
Introduction to non-cooperative games. The prisoner's dilemma, Nash equilibrium, sequential games, subgame perfection. Applications include collective action, agenda-setter models, spatial competition of political parties, models of revolution and arms race.

Restriction: Graduate students only.

POL SCI 260B. Political Participation. 4 Units.
Examines theoretical approaches to the explanation of the pattern of participation and consideration of the results of empirical studies of such activity by mass publics (mainly in Europe and North America). Addresses issues in both comparative politics and political behavior.

Restriction: Graduate students only.

POL SCI 270A. Political Economy I. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Same as ECON 270A.

Restriction: Graduate students only.

POL SCI 270B. Political Economy II. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: POL SCI 270A.

Same as ECON 270B.

Restriction: Graduate students only.

POL SCI 270C. Political Economy III. 4 Units.
Political Economy lies at the intersection of economics and political science. Course studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: POL SCI 270B.

Same as ECON 270C.

Restriction: Graduate students only.

POL SCI 273A. Advanced Qualitative Methods: Analyzing Qualitative Data. 4 Units.
Introduces students to the theory and practice of analyzing qualitative data. Students must have already learned about data collection and research design for qualitative research and they must have qualitative data they can analyze in the course.

Same as PP&D 213, SOCIOL 223, MGMTPHD 297K.

Restriction: Graduate students only.

POL SCI 285A. Introduction to Political Psychology I. 4 Units.
Reviews theoretical questions regarding the relationship between the analytical and normative and the polity. Considers relationships between the analytical and normative concerns of psychology and political science, addressing empirical literatures on political socialization, ideology and public opinion, identity and nationality.

POL SCI 285B. Introduction to Political Psychology II. 4 Units.
Discusses the complex set of relationships among the three disciplines of politics, psychology, and economics, focusing on human decision-making processes and political choice.

Restriction: Graduate students only.

POL SCI 290. Dissertation Research. 1-12 Units.
Dissertation research with Political Science faculty.

Repeatability: Unlimited as topics vary.

POL SCI 299. Independent Study. 1-12 Units.
Independent research with Political Science faculty.

Repeatability: Unlimited as topics vary.

Department of Sociology

4215 Social Science Plaza B; 949-824-7637
http://www.sociology.uci.edu/
Matt Huffman, **Department Chair**

Sociology involves the study of societies and human groups. It examines social conflict and cooperation, inequality and the social organization of families, communities, workplaces and nations. The program at UCI covers the breadth of the discipline while giving students opportunities to conduct independent research, participate in an Honors Program, and to take advantage of departmental opportunities in such areas as business, economy and organizations; diversity and inequality; global and international sociology; and social problems and public policy. All students take basic courses on social institutions, theory and methods. Students then take more specialized courses such as race and ethnicity, social psychology, sociology of gender, or political sociology. Courses are enriched by ongoing faculty research on such topics as the work and family of immigrants to the U.S., economic change in Asia, the relation between women and men in different social classes and ethnic groups, and attitudes on sexual behavior.

In addition to developing students' ability to critically analyze and understand social patterns, the major is relevant to professional careers in education, social work, urban planning, law, business, public health, non-governmental organization and government service. It also provides training for advanced graduate work in sociology and related fields.

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Undergraduate Program

Requirements for the B.A. Degree in Sociology

All students must meet the University Requirements (p. 71)**.**
All students must meet the School Requirements (p. 1561)**.**

Departmental Requirements for the Major

School requirements must be met and must include 12 courses (48 units) as specified below:

A. Complete:	
SOCIOL 1	Introduction to Sociology
and	
SOCIOL 2	Globalization and Social Change
or SOCIOL 3	Social Problems
B. Complete one course in methods and one in theory:	
SOCIOL 110	Research Methods
SOCIOL 120	Sociological Theory
C. Complete one course in research design and implementation:	
SOCIOL 180A	Sociology Majors Seminar
D. Select five of the following core courses, no more than two of which may be lower-division:	
SOCIOL 31	Self-Identity and Society
SOCIOL 41	Small Group Dynamics
SOCIOL 43	City and Community
SOCIOL 44	Births, Deaths, and Migration
SOCIOL 56	Religion and Society
SOCIOL 62	Families and Intimate Relations
SOCIOL 63	Race and Ethnicity
SOCIOL 68A	Ethnic and Immigrant America
SOCIOL 133	Sociology of Generosity
SOCIOL 135	Social Psychology of Networks
SOCIOL 138	Business Decisions
SOCIOL 141	Organizations
SOCIOL 144	Politics, Power, and Society
SOCIOL 145	Occupations and Professions
SOCIOL 150	Sociological Lens on Religion
SOCIOL 158C	Money, Work, and Social Life
SOCIOL 161	Sociology of Sex and Gender
SOCIOL 164W	Aging and Society
SOCIOL 166	Immigration and Inequality
SOCIOL 167A	Racial and Ethnic Relations in the United States
SOCIOL 171	Environment and Society
SOCIOL 173	Social Inequality
SOCIOL 174	Protests, Movements, and Revolutions
SOCIOL 175B	China in the Global Age
E. Two additional Sociology courses, one of which must be upper-division.	

Honors Program in Sociology

The Honors Program in Sociology is open to outstanding Sociology majors during their junior or senior year. To gain admission to the program, potential honors students normally take Sociology courses in theory (SOCIOL 120), methods (SOCIOL 110), statistics (SOCIOL 10A-SOCIOL 10B-SOCIOL 10C or equivalent) and at least two Sociology core courses. Students who receive an average grade of 3.5 or better in these courses are eligible for the honors program. In addition, honors students should have a grade point average of 3.2 or better in all courses taken at UCI. Majors who are transfers may petition for entry into the program based on their grades from their former schools.

During their junior or senior year, honors program students write a thesis, designed and carried out under faculty supervision. projects normally entail some empirical analysis of sociological data. Students meet regularly in a two-quarter honors seminar to design and carry out these projects, to

exchange ideas, and to help analyze each other's work (SOCIOL H188A-SOCIOL 188BW satisfies Sociology major requirement C: Honors students do *not* have to take SOCIOL 180A). In addition, honors students are required to attend at least six Sociology colloquia and subsequent meetings to discuss relevant sociological issues. Upon successful completion of the program, including approval of an honors thesis by the faculty mentor and honors instructor and receiving a grade of B+ or higher in SOCIOL 188BW, students graduate with honors in Sociology.

Sociology Minor Requirements

Requirements for the minor are met by taking seven Sociology courses (28 units) as specified below:

A. Complete:	
SOCIOL 1	Introduction to Sociology
and	
SOCIOL 2	Globalization and Social Change
or SOCIOL 3	Social Problems
B. Complete one course in methods and one in theory:	
SOCIOL 110	Research Methods
SOCIOL 120	Sociological Theory
C. In addition, students must either satisfy the School mathematics and computer science requirement (School requirement 1), or take three courses (12 units) or equivalent in a single acceptable foreign language.	
D. Select three of the following core courses, no more than two of which may be lower-division:	
SOCIOL 31	Self-Identity and Society
SOCIOL 41	Small Group Dynamics
SOCIOL 43	City and Community
SOCIOL 44	Births, Deaths, and Migration
SOCIOL 56	Religion and Society
SOCIOL 62	Families and Intimate Relations
SOCIOL 63	Race and Ethnicity
SOCIOL 68A	Ethnic and Immigrant America
SOCIOL 133	Sociology of Generosity
SOCIOL 135	Social Psychology of Networks
SOCIOL 138	Business Decisions
SOCIOL 141	Organizations
SOCIOL 144	Politics, Power, and Society
SOCIOL 145	Occupations and Professions
SOCIOL 150	Sociological Lens on Religion
SOCIOL 158C	Money, Work, and Social Life
SOCIOL 161	Sociology of Sex and Gender
SOCIOL 164W	Aging and Society
SOCIOL 166	Immigration and Inequality
SOCIOL 167A	Racial and Ethnic Relations in the United States
SOCIOL 171	Environment and Society
SOCIOL 173	Social Inequality
SOCIOL 174	Protests, Movements, and Revolutions
SOCIOL 175B	China in the Global Age

Graduate Program

The Department of Sociology offers a Ph.D. degree program in Sociology. Particular emphases include social networks, gender, race/ethnicity, labor, social movements, family, migration, population, political economy, and states and global transformation. The program provides structured training in sociological theory, statistics, and qualitative and quantitative research methods. While the core of the program is sociological, it may also include an interdisciplinary component, incorporating links to anthropology, education, law, political science, history, criminology and urban planning. Small entering cohorts ensure personalized attention for each student and guarantee access to professors, allowing for close mentorship relationships. Program faculty take diverse theoretical and methodological approaches to a variety of substantive issues, are committed to empirical research addressing central sociological issues, and are open to intellectual cross-pollination from cognate disciplines.

Graduate students have the opportunity to participate in a variety of interdisciplinary research units, including the Center for the Study of Democracy; the Center for Global Peace and Conflict Studies; the Center for Research on Immigration, Population and Public Policy; and the Center for Demographic

and Social Analysis. The Sociology Department maintains ties with Gender and Sexuality Studies and various ethnic studies programs, such as Asian American studies, Chicano/Latino studies, and African American studies. Research and funding opportunities are also available through UC-wide programs like Pacific Rim Studies and the Humanities Research Institute located on the UCI campus.

Admission

Students in the program come from diverse educational, ethnic, geographical, and social backgrounds. The deadline for applications to receive full funding consideration for fall admission is January 15. Students are admitted for winter and spring quarter only under exceptional circumstances. Admission is based on application materials and evidence of scholarly potential, including grade point average, GRE scores, statement of purpose, and letters of recommendation.

Requirements

Students must complete a two-quarter proseminar, a course in research design, a three-quarter statistics sequence, one seminar each in classical and contemporary theory, an advanced sociological methodology course, and nine Sociology seminars selected in consultation with the student's advisor, in order to build competency in two areas of specialization in the discipline. Course work prepares students to complete an independent research project, which is presented in oral and written form during the winter quarter of their second year. Students must pass a formal evaluation at the end of their second year involving assessment of course work and the second-year research project and evaluation of teaching or research experience. Knowledge of one foreign language is required.

All required course work must be completed prior to advancement to candidacy. The normative time to advance to candidacy is four years. The advancement-to-candidacy examination is based on field examinations in two broad areas of sociology and an oral defense of a dissertation research prospectus, contextualized in the appropriate literature and including a discussion of data collection and methods of analysis. In preparation, students usually take at least the required one quarter of the Dissertation Seminar course during the third year. After advancing to candidacy, students are expected to work in close consultation with their advisor and dissertation committee. Committee approval of a satisfactory dissertation follows a final oral defense of the document. The normative time for completion of the Ph.D. is six years, and the maximum time permitted is eight years.

Program in Law and Graduate Studies (J.D./Ph.D.)

Highly qualified students interested in combining the study of law with graduate research and/or professional qualifications in Sociology are invited to undertake concurrent degree study under the auspices of UC Irvine's Program in Law and Graduate Studies (PLGS). Students in this program pursue a coordinated curriculum leading to a J.D. from the School of Law in conjunction with a Ph.D. in Sociology. Additional information is available from the PLGS director's office, (949) 824-4158, or by e-mail to plgs@law.uci.edu. A full description of the program, with links to all relevant application information, can be found at the School of Law Concurrent Degree Programs (http://www.law.uci.edu/plgs) website.

Faculty

Edwin Amenta, Ph.D. University of Chicago, *Professor of Sociology; Political Science* (political sociology, historical and comparative sociology, social movements, social policy)

Jacob P. Avery, Ph.D. University of Pennsylvania, *Assistant Professor of Sociology* (poverty and inequality, culture and interaction, city and community, human service organizations, sociology of knowledge, ethnography)

Stanley Bailey, Ph.D. University of California, Los Angeles, *Associate Professor of Sociology* (race and ethnicity, religion, immigration, Latin America)

Nina Bandelj, Ph.D. Princeton University, *Associate Professor of Sociology; European Languages and Studies* (economic sociology, culture, organizations, social networks, political economy, globalization, social change, central and eastern Europe)

Frank D. Bean, Ph.D. Duke University, *UCI Chancellor's Professor of Sociology; Economics* (international migration, demography, racial and ethnic relations, economic sociology, family)

Christine Beckman, Ph.D. Stanford University, *Associate Professor of Paul Merage School of Business; Sociology*

Catherine I. Bolzendahl, Ph.D. Indiana University, *Associate Professor of Sociology* (gender, the welfare state, political sociology, comparative sociology, family, quantitative methodology)

Susan K. Brown, Ph.D. University of Washington, *Associate Professor of Sociology* (immigration, inequality, urban sociology)

Carter Butts, Ph.D. Carnegie Mellon University, *Professor of Sociology; Electrical Engineering and Computer Science; Statistics* (mathematical sociology, social networks, quantitative methodology, human judgment and decision making, economic sociology)

Kitty C. Calavita, Ph.D. University of Delaware, *Professor Emerita of Criminology, Law and Society; Sociology* (sociology of law, criminology, social deviance, immigration, inequality)

Gilverto Q. Conchas, Ph.D. University of Michigan, *Associate Professor of Education; Sociology*

John D. Dombrink, Ph.D. University of California, Berkeley, *Professor of Criminology, Law and Society; Sociology* (crime and criminal justice, deviance and social control)

George Farkas, Ph.D. Cornell University, *Professor of Education; Education; Sociology*

Katherine Faust, Ph.D. University of California, Irvine, *Professor of Sociology* (social networks, animal social organization, population processes and social networks, research methods)

Martha S. Feldman, Ph.D. Stanford University, *Roger W. and Janice M. Johnson Chair in Civic Governance and Public Management* and *Professor of Planning, Policy, and Design; Paul Merage School of Business; Political Science; Sociology*

Cynthia Feliciano, Ph.D. University of California, Los Angeles, *Associate Professor of Sociology; Chicano/Latino Studies; Education* (race/ethnicity/minority relations, migration and immigration, education)

Glenda M. Flores, Ph.D. University of Southern California, *Assistant Professor of Chicano/Latino Studies; Sociology*

David J. Frank, Ph.D. Stanford University, *Professor of Sociology; Education; Political Science* (globalization, sexuality, the natural environment, higher education)

Samuel L. Gilmore, Ph.D. Northwestern University, *Lecturer of Sociology*

John Hipp, Ph.D. University of North Carolina at Chapel Hill, *UCI Chancellor's Fellow* and *Professor of Criminology, Law and Society; Sociology* (community context of crime, household decisions and neighborhood change, research methods)

Ann Hironaka, Ph.D. Stanford University, *Associate Professor of Sociology* (political sociology, war and peace, environmental sociology, ethnic and racial conflict)

Matthew L. Huffman, Ph.D. University of California, Santa Barbara, *Professor of Sociology; Paul Merage School of Business* (race/gender inequality, organizations, labor markets)

James R. Hull, Ph.D. University of North Carolina at Chapel Hill, *Lecturer with Potential Security of Employment of Social Sciences; Sociology*

Valerie Jenness, Ph.D. University of California, Santa Barbara, *Dean of the School of Social Ecology* and *Professor of Criminology, Law and Society; Sociology* (links between deviance and social control (especially law), the politics of crime control and criminalization, social movements and social change, corrections and public policy)

Charis E. Kubrin, Ph.D. George Washington University, *Professor of Criminology, Law and Society; Sociology* (crime, neighborhood effects and social processes, race/ethnicity and violence, immigration and crime)

Jee-Young J. Lee, Ph.D. Columbia University, *Professor of Sociology; Asian American Studies* (immigration, race/ethnicity, social inequality, Asian American studies)

Shampa Mazumdar, Ph.D. Northeastern University, *Lecturer of Sociology*

James W. Meeker, Ph.D. State University of New York at Buffalo, *Professor of Criminology, Law and Society; Sociology* (sociology of law, criminal justice, research methodology, statistics, access to civil justice)

David S. Meyer, Ph.D. Boston University, *Professor of Sociology; Planning, Policy, and Design; Political Science* (social movements, public policy, peace and war, social justice)

Charles T. O'Connell, Ph.D. University of California, Los Angeles, *Lecturer of International Studies; Sociology*

Andrew Penner, Ph.D. University of California, Berkeley, *Assistant Professor of Sociology* (gender, inequality, education, family, race)

Francesca Polletta, Ph.D. Yale University, *Professor of Sociology* (social movements, democracy, culture, sociology of law, race and ethnicity, social theory)

Henry N. Pontell, Ph.D. State University of New York at Stony Brook, *Professor of Criminology, Law and Society; Sociology* (white-collar and corporate crime, criminology, criminal justice, deviance and social control, sociology of law)

Charles C. Ragin, Ph.D. University of North Carolina at Chapel Hill, *UCI Chancellor's Professor of Sociology* (comparative and historical sociology, social inequality, political sociology, quantitative methodology, qualitative methodology)

Maria G. Rendon, Ph.D. Harvard University, *Assistant Professor of Planning, Policy, and Design; Sociology*

Belinda B. Robnett-Olsen, Ph.D. University of Michigan, *Professor of Sociology; African American Studies; Culture and Theory* (social movements, race and ethnicity, gender, social change, African Americans)

Rocio Rosales, Ph.D. University of California, Los Angeles, *Assistant Professor of Sociology*

Ruben G. Rumbaut, Ph.D. Brandeis University, *Professor of Sociology; Criminology, Law and Society; Education* (international migration, immigration laws, criminalization, incarceration, inequality)

Evan Schofer, Ph.D. Stanford University, *Professor of Sociology* (comparative political sociology, sociology of education, quantitative methods and statistics, globalization, sociology of the environment, organizations, sociology of science)

Tonya L. Schuster, Ph.D. University of California, Riverside, *Lecturer of Sociology; Program in Public Health*

Carroll S. Seron, Ph.D. New York University, *Professor of Criminology, Law and Society; School of Law; Sociology* (sociology of law, sociology of professions, law and society, sociology of legal profession, methods and police misconduct)

David A. Smith, Ph.D. University of North Carolina at Chapel Hill, *Professor of Sociology; Planning, Policy, and Design* (world systems analysis, urbanization, development, comparative-historical sociology, dependent development in east asia)

David A. Snow, Ph.D. University of California, Los Angeles, *UCI Distinguished Professor of Sociology* (collective behavior, protest and social movements, framing processes, social psychology and culture, homelessness and social problems, qualitative methods)

Judith Stepan-Norris, Ph.D. University of California, Los Angeles, *Professor of Sociology* (labor unions, sociology of work, political sociology, American society, research methods, historical-comparative methods, class formation)

Yang Su, Ph.D. Stanford University, *Associate Professor of Sociology* (social movements and collective action, political sociology, China's political transition)

Naomi Sugie, Ph.D. Princeton University, *Assistant Professor of Criminology, Law and Society; Sociology* (sociology of crime and punishment, inequality, families, criminal justice policy, methods, new technologies for data collection)

Bryan Sykes, Ph.D. University of California, Berkeley, *Assistant Professor of Criminology, Law and Society; Sociology* (demography, criminology, research methods, health, social inequality, statistics)

Shauhin A. Talesh, J.D. University of Connecticut, *Acting Professor of School of Law; Criminology, Law and Society; Sociology* (civil procedure, consumer law, insurance, business organizations, empirical legal studies, law and society)

Denis Trapido, Ph.D. Stanford University, *Assistant Professor of Paul Merage School of Business; Sociology*

Judith Treas, Ph.D. University of California, Los Angeles, *Professor of Sociology* (gender, inequality, family, aging and life course, social demography)

Kristin E. Turney, Ph.D. University of Pennsylvania, *Assistant Professor of Sociology; Criminology, Law and Society* (social inequality, family demography, population health, incarceration and punishment, intergenerational transmission of disadvantage, child well-being)

Linda T. Võ, Ph.D. University of California, San Diego, *Associate Professor of Asian American Studies; Culture and Theory; Planning, Policy, and Design; Sociology* (race and ethnic relations, immigrants and refugees, gender relations, community and urban studies)

Feng Wang, Ph.D. University of Michigan, *Professor of Sociology* (contemporary demographic, economic, and social processes, social inequality in state socialisms, contemporary China)

Geoff Ward, Ph.D. University of Michigan, *Associate Professor of Criminology, Law and Society; Sociology* (race relations, courts and sentencing, juvenile justice, social movements, justice workers)

Courses

SOCIOL 1. Introduction to Sociology. 4 Units.
Considers major sociological concepts, theories, and research findings illuminating processes of interpersonal interaction, social differentiation and stratification, integration and conflict, and change, with attention to variation in class, race/ethnic, gender, multicultural, and cross-national perspectives and experiences.

(III, VII)

SOCIOL 2. Globalization and Social Change. 4 Units.
Examines globalization and international issues from the perspective of sociology and related fields. Issues include economic globalization and global inequality, international environmental problems, international politics, trends in global culture, and global conflict.

(III, VIII)

SOCIOL 3. Social Problems. 4 Units.
Focuses on how institutional and organizational features of societies generate problems for people. Particular attention directed at a set of problems related to political and economic inequality: poverty, racism, sexism, urban and population problems, the environment, the criminal justice system.

(III, VII)

SOCIOL 10A. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Same as ANTHRO 10A.
Overlaps with PSYCH 10A, SOCECOL 13, SOC SCI 10A, POL SCI 10A, SOC SCI 9A.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Va)

SOCIOL 10B. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Prerequisite: SOCIOL 10A.

Same as ANTHRO 10B.
Overlaps with PSYCH 10B, SOCECOL 13, SOC SCI 10B, POL SCI 10B, SOC SCI 9B.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Va)

SOCIOL 10C. Probability and Statistics. 4 Units.
An introduction to probability and statistics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Emphasizes examples from sociology, anthropology, and related social science disciplines.

Prerequisite: SOCIOL 10B.

Same as ANTHRO 10C.
Overlaps with PSYCH 10C, SOCECOL 13, SOC SCI 10C, POL SCI 10C, SOC SCI 9C.

Restriction: Anthropology and Sociology majors have first consideration for enrollment.

(Vb)

SOCIOL 19. Special Topics: Methods. 4 Units.
Studies in selected areas of methods. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 29. Special Topics: Theory. 4 Units.
Studies in selected areas of theory. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be repeated for credit unlimited times.

SOCIOL 31. Self-Identity and Society. 4 Units.
Studies sociological contributions to theory and research in social psychology, with focus on the social influences on personality, attitudes, beliefs, and behavior; socialization, human groups, and social interaction.

Same as PSYCH 78A.
Overlaps with SOCIOL 61A.

(III)

SOCIOL 39. Special Topics: Social Psychology. 4 Units.
Studies in selected areas of social psychology. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 41. Small Group Dynamics. 4 Units.
Deals with models for understanding behavior in small groups, including coalition formation, socialization, group norms and decision rules, leadership, conformity, group structure, and communication processes.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 43. City and Community. 4 Units.
Examines nature, causes, and consequences of urbanization along with changing scale and complexity, demographic/ecological city growth patterns, quality of life in urban areas, processes of decision-making, and bearing of sociological investigation on public policy concerns in contemporary urban society.

Overlaps with PP&D 40.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 44. Births, Deaths, and Migration. 4 Units.
Introduction to the analysis of human population including fertility, mortality dispersion, sex distribution. Attention is focused on the effects of these variables on, e.g., over-population, social disorganization, and the stability of social institutions.

(VIII)

SOCIOL 49. Special Topics: Structures. 4 Units.
Studies in selected areas of structures. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 51. Asian American Family & Community. 4 Units.
Briefly examines the history of different Asian American groups and provides an in-depth analysis of issues related to family composition, mate selection, changing gender roles, and intergenerational conflict.

(VII)

SOCIOL 55. Media and Society. 4 Units.
Examines social implications of changes in American mass media since World War II, including demise of big-city newspapers, rise of broadcast television, fragmentation of radio and magazine markets. Explores potential implications on culture and institutions of emerging technologies.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 56. Religion and Society. 4 Units.
A critical and personal examination of the varieties of religious and spiritual experiences human beings are undergoing in contemporary society. The role of conscious understanding and unconscious conditioning regarding religion and spirituality.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 59. Special Topics: Social Institutions and Culture. 4 Units.
Studies in selected areas of social institutions and culture. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 62. Families and Intimate Relations. 4 Units.
Sociological theories/research on marriage, kinship, intimacy, and divorce. Emphasis on comparing family patterns in different social classes, ethnic groups, and societies, and on relating family life to the economy and other social institutions. Topics include gender roles, child-rearing, historical change.

(III)

SOCIOL 63. Race and Ethnicity. 4 Units.
Focuses on racial and ethnic relations in the United States and compares them with those found in other societies. Analyzes the conditions that favor either cooperation and integration or rivalry, tension, and conflict. Appraises strategies for reducing and resolving conflicts.

Same as SOC SCI 70A.

(VII)

SOCIOL 64. Sociology of Sexuality. 4 Units.
Explores how and why sexuality matters in society, affecting our expectations, experiences, and opportunities. Provides the conceptual and theoretical tools to analyze the personal and institutional consequences of different social constructions of sexuality.

SOCIOL 65. Cultures in Collision: Indian-White Relations Since Columbus . 4 Units.
An introduction to theories, terms, concepts, and methods used by anthropologists and sociologists to understand Native American cultures. How racial construction of an Indian "other" emerged, how anthropology contributed to Indian invisibility, and the persistence of Indian identity are examined.

Same as ANTHRO 85A.

(VII)

SOCIOL 68. Gender and Race Inequality in the Workplace. 4 Units.
Analysis of current state and trends in major inequality measures including the wage gap, occupational segregation, and access to managerial positions. Theories that purport to explain such differences, and the related empirical evidence, are also covered.

SOCIOL 68A. Ethnic and Immigrant America. 4 Units.
Focusing on Asian, Latino, and Black immigrant groups, examines the second generation's experience of straddling two cultures and growing up American. Covers topics such as assimilation, bilingualism, race relations, education, bicultural conflicts, interracial marriage, and multiracial identities.

Same as CHC/LAT 65.

(VII)

SOCIOL 69. Special Topics: Age, Gender, Race, and Ethnicity. 4 Units.
Studies in selected areas of age, gender, race, and ethnicity. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOCIOL 79. Special Topics: Societies and Social Inequality. 4 Units.
Studies in selected areas of societies and social inequality. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOCIOL 110. Research Methods. 4 Units.
Methods of data collection and analysis used by sociologists. Experimental methods, surveys, and interviews, field research and participant observation, demographic methods, historical and comparative approaches. Course may be offered online.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 110W. Research Methods. 4 Units.
Methods of data collection and analysis used by sociologists. Experimental methods, surveys, and interviews, field research and participant observation, demographic methods, historical and comparative approaches. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 112. Logical Models in Social Sciences. 4 Units.
Science asks two questions. "How things are?" leads to measurement and statistical analysis. But we see only what we look for. "How things should be, on logical grounds?" leads to quantitative logical models which tell us what to look for.

Same as POL SCI 136A.

SOCIOL 119. Special Topics: Methods. 4 Units.
Studies in selected areas of methods. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 120. Sociological Theory. 4 Units.
What a theory of society is and is not. Historical and contemporary models, perspectives, and schools.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 120W. Sociological Theory. 4 Units.
What a theory of society is and is not. Historical and contemporary models, perspectives, and schools.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 129. Special Topics: Theory. 4 Units.
Studies in selected areas of theory. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 133. Sociology of Generosity. 4 Units.
Introduces recent scientific research on the emergence of prosocial behavior that includes, but is not limited to, cooperation, fairness, reciprocity, and altruism. Emphasis is on learning why individuals would pursue collective benefits at the expense of self-interests.

SOCIOL 134. Game Theory and Politics I. 4 Units.
Introduction to game theory and a survey of its political applications. Examples of topics covered include voting in small committees, legislatures, and mass elections; interest group activities and environmental issues; institutional design, and the evolution of cooperative behavior.

Same as INTL ST 105A, SOC SCI 103A, POL SCI 130A.

Restriction: Social Policy and Public Service, Sociology, Political Science, and International Studies majors have first consideration for enrollment.

SOCIOL 135. Social Psychology of Networks. 4 Units.
Review of network methods used in small group and organizational research. Discussion of social psychological literature relevant to the network of study of cognitive social structure, exchange/communication, identity negotiation, and social control. Case study of network datasets exemplifies research issues.

Same as PSYCH 178N.

Restriction: Sociology and Psychology majors have first consideration for enrollment.

SOCIOL 136. Religious Traditions of Asian Americans. 4 Units.
Studies the religious traditions of Asian Americans, focusing on the transplantation of religious institutions, establishment of sacred spaces, celebration of religious holidays, socialization of children, as well as birth, marriage, gender relations, death, family.

Same as ASIANAM 143.

SOCIOL 138. Business Decisions. 4 Units.
Surveys normative and descriptive models of decision-making behavior, with an emphasis on organizational and policy contexts. Topics include rational choice theory, biases and heuristics, framing effects, and overconfidence. Management fads, panics, and herd behavior are also discussed.

Prerequisite: (ANTHRO 10A and ANTHRO 10B and ANTHRO 10C) or (SOCIOL 10A and SOCIOL 10B and SOCIOL 10C) or (SOC SCI 10A and SOC SCI 10B and SOC SCI 10C) or (MATH 2A and MATH 2B and (STATS 7 or MGMT 7)).

Same as ECON 148.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 139. Special Topics: Social Psychology. 4 Units.
Studies in selected areas of social psychology. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 141. Organizations. 4 Units.
How bureaucracies, formal organizations, and voluntary associations work, how/why they grow, and where they are going. History and structure of organizational rationality; dynamics of organized groups; behavior in organizations; limits of bureaucratization and attempts to overcome these limits through decentralization.

Same as POL SCI 155C.

Restriction: Sociology and Political Science majors have first consideration for enrollment.

SOCIOL 142. White-Collar Crime. 4 Units.
Examines criminal activity in business and corporate enterprise, organizations, and the professions. Theories regarding the causes and control of white-collar and corporate crime are covered as well as the numerous definitions of these terms.

Same as CRM/LAW C142.

Restriction: Sociology, Criminology, Law and Society, and Social Ecology majors have first consideration for enrollment.

SOCIOL 143. Social Networks and Social Support. 4 Units.
Examines the manner in which behaviors/attitudes of individuals are affected by their network ties to others. How are peoples' opportunities and well-being increased/decreased by their social networks? May include studies in mental/physical health, job seeking, separation and loss, and aging.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 144. Politics, Power, and Society. 4 Units.
Includes an examination of the major theoretical approaches to political sociology, and the application of these ideas to the politics of advanced capitalist societies. Also considers stability and change in power structures.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 145. Occupations and Professions. 4 Units.
What makes some jobs satisfying and others boring? How does technology influence the workplace? What changes are coming in the U.S. job market? Sociology and psychology of occupations. Students interview workers and study aspects of their occupations.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

SOCIOL 145W. Occupations and Professions. 4 Units.
What makes some jobs satisfying and others boring? How does technology influence the workplace? What changes are coming in the U.S. job market? Sociology and psychology of occupations. Students interview workers and study aspects of their occupations.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

(Ib)

SOCIOL 147A. Cities and Social Change. 4 Units.
Focuses on comparative urban political economy and the way cities and urban process are linked to changes in the global system. Attempts to draw on a diverse interdisciplinary literature that includes sociology, geography, and urban planning.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

SOCIOL 147AW. Cities and Social Change. 4 Units.
Focuses on comparative urban political economy and the way cities and urban process are linked to changes in the global system. Attempts to draw on a diverse interdisciplinary literature that includes sociology, geography, and urban planning.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

(Ib)

SOCIOL 149. Special Topics: Structures. 4 Units.
Studies in selected areas of structures. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 150. Sociological Lens on Religion. 4 Units.
Examines the effects of religious beliefs, belonging, and institutions on social dynamics, including class, gender, and racial stratification, politics, and social movements. Additional topics: the sociological significance of conversion, commitment, and secularization/sacralization.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 152. Sociology and Psychology of the Arts. 4 Units.
Explores the relationship between artists and the "art world" through which artistic activity is defined, supported, and consumed. Empirical studies in the plastic arts, performing arts, and literature are used to examine varieties of aesthetic expressions.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

SOCIOL 152W. Sociology of Art and Popular Culture. 4 Units.
Explores the relationship between artists and the "art world" through which artistic activity is defined, supported, and consumed. Empirical studies in the plastic arts, performing arts, and literature are used to examine varieties of aesthetic expressions.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

(Ib)

SOCIOL 154. Medical Sociology. 4 Units.
Current problems in U.S. health-care system and proposals for reform. Examines financial barriers to access; problem of patient dumping; underinsurance; prenatal and perinatal care; child services; preventative care and needs of the elderly; minorities; low-income people; undocumented.

Restriction: Upper-division students only. Sociology majors have first consideration for enrollment.

SOCIOL 154W. Medical Sociology. 4 Units.
Current problems in U.S. health-care system and proposals for reform. Examines financial barriers to access; problem of patient dumping; underinsurance; prenatal and perinatal care; child services; preventative care and needs of the elderly; minorities; low-income people; undocumented.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 155B. Baseball and Society. 4 Units.
An examination of baseball's role in American social life over the last 150 years. Issues of fraternal organizations, national development, capitalism, rationalization, race and ethnicity, gender, economic organization, labor relations, and politics are discussed.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 155BW. Baseball and Society. 4 Units.
An examination of baseball's role in American social life over the last 150 years. Issues of fraternal organizations, national development, capitalism, rationalization, race and ethnicity, gender, economic organization, labor relations, and politics are discussed.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 156. Deviance. 4 Units.
Perspectives on deviance and criminality in behavior, institution, community, and myth. The suitability of contemporary theories of deviant behavior.

Same as CRM/LAW C107, PSYCH 177D.

Restriction: Criminology, Law and Society, Social Ecology, Sociology, and Psychology majors have first consideration for enrollment.

SOCIOL 158C. Money, Work, and Social Life . 4 Units.
Sociological perspective on issues related to money and work. Consumption practices and lifestyles, jobs and organizations, issues of money in intimate relations, marriage, and households, illegal work, discrimination, economic globalization are discussed.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 158CW. Money, Work, and Social Life. 4 Units.
Sociological perspective on issues related to money and work. Consumption practices and lifestyles, jobs and organizations, issues of money in intimate relations, marriage, and households, illegal work, discrimination, economic globalization are discussed.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 159. Special Topics: Social Institutions and Culture. 4 Units.
Studies in selected areas of social institutions and culture. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 161. Sociology of Sex and Gender. 4 Units.
Explores complex processes contributing to social construction of gender and sexuality in the U.S. with focus on intersection of gender, race, ethnicity, sexuality, and class; evaluates how men and women are differentially constituted in family, education, work, politics, media, language.

SOCIOL 161W. Sociology of Sex and Gender. 4 Units.
Explores complex processes contributing to social construction of gender and sexuality in the U.S. with focus on intersection of gender, race, ethnicity, sexuality, and class; evaluates how men and women are differentially constituted in family, education, work, politics, media, language.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

SOCIOL 164W. Aging and Society. 4 Units.
Introduction to sociology of age, aging, and the aged. Problems posed by aging population. Life course transitions. How social organizations influence the life course. Work, health, family in later life.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment. Upper-division students only.

(Ib)

SOCIOL 165A. Social Inequality: Sociological Perspectives. 4 Units.
Concrete sociological studies from across the world, including the United States, are compared to give perspectives on social status, power, economic differences, race, ethnicity, and gender.

Prerequisite: One course in Anthropology, Economics, Political Science, or Sociology.

SOCIOL 165AW. Social Inequality: Sociological Perspectives. 4 Units.
Concrete sociological studies from across the world, including the United States, are compared to give perspectives on social status, power, economic differences, race, ethnicity, and gender.

Prerequisite: One course in Anthropology, Economics, Political Science, or Sociology. Satisfactory completion of the Lower-Division Writing requirement.

(Ib, VIII)

SOCIOL 166. Immigration and Inequality. 4 Units.
Explores immigration, ethnicity, and inequality as interconnected social forces. International migration, propelled by global inequalities, plays a central role in the formation of multinational societies, shapes inter-group relations and patterns of ethnic inequality, and transforms the immigrants themselves.

Same as SOC SCI 168B.

SOCIOL 167A. Racial and Ethnic Relations in the United States. 4 Units.
Examines central questions and issues in the field of race and ethnicity; the emergence, maintenance, and consequences of the ethnic and racial stratification system in the United States; the future of racial and ethnic relations; and relevant public policy issues.

Same as CHC/LAT 148.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 167AW. Racial and Ethnic Relations in the United States. 4 Units.
Examines central questions and issues in the field of race and ethnicity; the emergence, maintenance, and consequences of the ethnic and racial stratification system in the United States; the future of racial and ethnic relations; and relevant public policy issues.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as CHC/LAT 148W.

Restriction: Chicano/Latino Studies and Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 168. Sexism and Power. 4 Units.
Sexism seen as a socially constructed power which creates and maintains gender differences as relations and practices of structured inequalities. Males and females are objects constructed in a powered language dominated and controlled by males to their positional/distributional advantage.

Same as POL SCI 134J.

Restriction: Upper-division students only. Sociology and Political Science majors have first consideration for enrollment.

SOCIOL 168W. Sexism and Power. 4 Units.
Sexism seen as a socially constructed power which creates and maintains gender differences as relations and practices of structured inequalities. Males and females are objects constructed in a powered language dominated and controlled by males to their positional/distributional advantage.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as POL SCI 134JW.

Restriction: Upper-division students only. Sociology and Political Science majors have first consideration for enrollment.

(Ib)

SOCIOL 169. Special Topics: Age, Gender, Race, and Ethnicity. 4 Units.
Studies in selected areas of age, gender, race, and ethnicity. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 170A. Vietnam War. 4 Units.
Examines social structures and social changes in Vietnamese and U.S. societies through the study of the Vietnam War.

Same as INTL ST 143A.

SOCIOL 170B. U.S. War on Terrorism. 4 Units.
Analyzes the United States war on terrorism by focusing on terrorism, the U.S. wars in Afghanistan and Iraq, and changes in police powers through the Patriot Act, as well as the political leadership which directs the war.

Same as INTL ST 175A.

SOCIOL 171. Environment and Society. 4 Units.
Examines society's changing relationship to the natural world. Delineates different models of "nature" and then explores their institutional roots, the social responses they have generated, and their implications for social inequality.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 173. Social Inequality. 4 Units.
Sources, functions, and dynamics of the unequal distribution of wealth, prestige, knowledge, and power in American and other societies.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 174. Protests, Movements, and Revolutions. 4 Units.
A survey of models of collective action drawn from sociology, economics, psychology, and political science. Focus on areas such as social movements, strikes, crowd psychology, cults, fads, fashions, public opinion, and symbolic and mythical elements in collective culture.

Prerequisite: SOCIOL 1 or POL SCI 6A or ECON 1.

Same as POL SCI 156D.

Restriction: Political Science and Sociology majors have first consideration for enrollment.

SOCIOL 175B. China in the Global Age. 4 Units.
Chinese society from 1949 to present. Social change in the context of political control and ideological considerations. Focus on the power structure, political decision processes, and ideological legitimation, and interplay with the Chinese community and its culture.

Same as INTL ST 158D.

SOCIOL 175D. Migration Destinations. 4 Units.
Examines the migration patterns to the three largest nations that receive immigrants (i.e., permanent settlers): Australia, Canada, and the United States.

Same as ASIANAM 171A, INTL ST 117B.

SOCIOL 177. Immigration and Social Policy. 4 Units.
Explains how people decide to migrate and how they are incorporated into a host society (both historically and currently), examines the effects of immigration on the U.S., analyzes how the framing of immigration shapes the discourse about the issue.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 177W. Immigration and Social Policy. 4 Units.
Explains how people decide to migrate and how they are incorporated into a host society (both historically and currently), examines the effects of immigration on the U.S., analyzes how the framing of immigration shapes the discourse about the issue.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors have first consideration for enrollment.

(Ib)

SOCIOL 179. Special Topics: Societies and Social Inequality. 4 Units.
Studies in selected areas of societies and social inequality. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 180A. Sociology Majors Seminar. 4 Units.
Students learn sociology by doing it. A modest-sized research project is planned and implemented by each student.

Prerequisite: SOCIOL 110.

Restriction: Sociology majors only.

SOCIOL 180AW. Sociology Majors Seminar. 4 Units.
Students learn sociology by doing it. A modest-sized research project is planned and implemented by each student.

Prerequisite: SOCIOL 110. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Sociology majors only.

(Ib)

SOCIOL 188BW. Honors Research and Thesis. 4 Units.
Focuses on the design and implementation of individual research projects undertaken by senior Sociology majors. Writing projects consist of a proposal and paper on some empirical research.

Prerequisite: SOCIOL H188A. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Campuswide Honors Program students only.

(Ib)

SOCIOL H188A. Honors Research and Thesis. 4 Units.
Focuses on the design and implementation of individual research projects undertaken by senior Sociology majors. Writing projects consist of a proposal and paper on some empirical research.

Restriction: Campuswide Honors Program students only.

SOCIOL 189. Special Topics: Honors Sequence. 4 Units.
Independent honors research with Social Sciences faculty.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

Restriction: Sociology majors have first consideration for enrollment.

SOCIOL 197. Field Study. 4 Units.
Field study with Sociology faculty.

Repeatability: May be repeated for credit unlimited times.

SOCIOL 198. Directed Group Study . 4 Units.
Directed study with Sociology faculty.

Repeatability: May be repeated for credit unlimited times.

SOCIOL 199. Independent Study. 1-4 Units.
Independent research with Sociology faculty.

Repeatability: May be repeated for credit unlimited times.

SOCIOL 202A. Proseminar I in Sociology. 1 Unit.
Introduces first-year graduate students in Sociology to the current research interests of Sociology faculty, as well as to other aspects of graduate life at UCI and to the profession of sociology more generally.

Restriction: Graduate students only.

SOCIOL 202B. Proseminar II in Sociology. 4 Units.
Focus is on second-year research projects, design, development, data gathering, analysis, and preparing oral and written presentations of the results. Students learn analytic and writing skills, gain experience with research processes, and become socialized about professional standards, customs, and institutions.

Restriction: Graduate students only.

SOCIOL 210A. Classical Social Theory. 4 Units.
Examines the development of classical sociological theory through the writings of Karl Marx, Emile Durkheim, Max Weber, Georg Simmel, and George Herbert Mead.

Same as SOC SCI 253N.

Restriction: Graduate students only.

SOCIOL 210B. Contemporary Social Theory. 4 Units.
Familiarizes students with twentieth-century developments in social thought that have influenced sociological research, suggesting "what is living and what is dead" in the "classics" and offering an overview of the main outlines of recent sociological theorizing.

Same as SOC SCI 253R.

Restriction: Graduate students only.

SOCIOL 211A. Sociology of Gender. 4 Units.
An introduction to the sociology of gender in the U.S. and globally. The social construction of gender and sexuality; theoretical perspectives and feminist frameworks. Theories of economy, patriarch, and race, and the social positions of women and men.

Restriction: Graduate students only.

SOCIOL 212. Network Theory. 4 Units.
An introduction to theoretical work in the field of social networks. Topics include baseline models, homphily, and propinquity, exchange and power, balance theory, diffusion and social influence, equivalence, and cohesion. Deductive use of theory to make novel predictions is emphasized.

Restriction: Graduate students only.

SOCIOL 219. Special Topics: Theory. 2-4 Units.
Studies in selected areas of theory. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 220A. Research Design. 4 Units.
Data collection, organization, and analysis in ethnographic or quasi-experimental settings, including interviewing, participant observations, behavior observations, and questionnaires. Research design issues include sampling, longitudinal research, and comparative research. Emphasis on the integration of qualitative and quantitative data.

Overlaps with SOCIOL 265.

Restriction: Graduate students only.

SOCIOL 221A. Graduate Statistics I. 4 Units.
Statistics with emphasis on applications in sociology and anthropology. Examines exploratory uses of statistical tools in these fields as well as univariate, bivariate, and multivariate applications in the context of the general linear model.

Restriction: Graduate students only.

SOCIOL 221B. Graduate Statistics II. 4 Units.
Statistics with emphasis on applications in sociology and anthropology. Examines exploratory uses of statistical tools in these fields as well as univariate, bivariate, and multivariate applications in the context of the general linear model.

Prerequisite: SOCIOL 221A.

Restriction: Graduate students only.

SOCIOL 221C. Graduate Statistics III. 4 Units.
Statistics with emphasis on applications in sociology and anthropology. Examines exploratory uses of statistical tools in these fields as well as univariate, bivariate, and multivariate applications in the context of the general linear model.

Prerequisite: SOCIOL 221A and SOCIOL 221B.

Restriction: Graduate students only.

SOCIOL 222A. Comparative and Historical Sociological Methods. 4 Units.
Topics include the logic of comparative and historical analysis techniques and the examination of exemplar works in representative problem areas.

Restriction: Graduate students only.

SOCIOL 223. Advanced Qualitative Methods: Analyzing Qualitative Data. 4 Units.
Introduces students to the theory and practice of analyzing qualitative data. Students must have already learned about data collection and research design for qualitative research and they must have qualitative data they can analyze in the course.

Same as POL SCI 273A, PP&D 213, MGMTPHD 297K.

Restriction: Graduate students only.

SOCIOL 226A. Methods of Demographic Analysis. 4 Units.
Introduces basic demographic methods used in social science and public health research. Topics include sources and limitations of demographic data; components of population growth; measures of nuptiality, fertility, mortality, and population mobility projection methods; and demographic models.

Same as PUBHLTH 209.

Restriction: Graduate students only.

SOCIOL 227A. Seminar Ethnographic & Qualitative Field Methods. 4 Units.
Comprehensive and critical discussion of the traditions of qualitative fieldwork; detailed examination of the collection, coding, analysis, and presentation of ethnographic/qualitative field data; and close mentoring of student projects culminating in an original research paper.

Grading Option: In progress only.

Restriction: Graduate students only.

SOCIOL 227B. Seminar Ethnographic & Qualitative Field Methods. 4 Units.
Comprehensive and critical discussion of the traditions of qualitative fieldwork; detailed examination of the collection, coding, analysis, and presentation of ethnographic/qualitative field data; and close mentoring of student projects culminating in an original research paper.

Prerequisite: SOCIOL 227A.

Restriction: Graduate students only.

SOCIOL 229. Special Topics: Methods . 1-4 Units.
Studies in selected areas of methods. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 230A. Race and Ethnicity. 4 Units.
An examination of central questions and issues in the field of race and ethnicity through a critical analysis and discussion of the principal theoretical perspectives and paradigms that have framed much of the scholarship in the area.

Restriction: Graduate students only.

SOCIOL 232. Inequality. 4 Units.
Theoretical and empirical approaches to the study of social and economic inequality, with special attention to race/ethnicity, class, and gender.

Restriction: Graduate students only.

SOCIOL 233. Immigration and the New Second Generation. 4 Units.
Investigates how the children of today's immigrants incorporate into the United States social structure. Covers topics such as assimilation, immigrant families and communities, education, language, racial and ethnic identities, gender, education, and the changing U.S. racial structure.

SOCIOL 234. Theory of Ethnicity. 4 Units.
Examines critically the meaning and measurement of ethnicity, race, and nation in sociological theory and research. Theories of ethnicity are explored, along with empirical studies of the construction of ethnic and pan-ethnic identities in historical and contemporary contexts.

Restriction: Graduate students only.

SOCIOL 235. Poverty and Development . 4 Units.
Critical examines competing conceptualizations, methods of measurement, and poverty alleviation strategies widely used in developing countries. Focuses on poverty conceptualized as economic deprivation, well-being, vulnerability, and social exclusion.

Same as PP&D 251.

Restriction: Graduate students only.

SOCIOL 236. Immigrant Incorporation. 4 Units.
Focuses on the conceptual and theoretical ideas on immigrant adaptation and identity to a new country; frameworks that emphasize incorporation as a melting pot; synthesizing the theoretical and empirical literature on incorporation in order to develop better models.

Restriction: Graduate students only.

SOCIOL 237. Educational Inequality. 4 Units.
Focuses on macro-level explanations of inequality of schooling, particularly in the U.S. context. Explores traditional models, such as conflict, functionalism, status-attainment, cultural reproduction, and newer synthetic accounts. Emphasis on higher education access and the intersection of education and work.

Restriction: Graduate students only.

SOCIOL 239. Special Topics: Social Inequality. 2-4 Units.
Studies in selected areas of social inequality. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 240A. Social Movements. 4 Units.
A survey of the field of Social Movements, oriented around critical themes in the major theoretical traditions and contemporary exemplars.

Same as SOC SCI 253J.

Restriction: Graduate students only.

SOCIOL 241A. Political Sociology. 4 Units.
Begins with an examination of the three major orientations to the State (Pluralist, Elitist, and Class). Next considers current topics in political sociology including the Welfare State, the New Deal, political behavior, social movements, participation, and democracy.

Restriction: Graduate students only.

SOCIOL 242. Sociology of Culture. 4 Units.
Major perspectives in the sociology of culture. Topics include the role of cultural dynamics in the reproduction of inequality, collective action, political and organizational decision making, emotional experience, and the social impacts of new technologies.

SOCIOL 249. Special Topics: Political Sociology and Social Movements. 2-4 Units.
Studies in selected areas of political sociology and social movements. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 252A. Global Urbanization. 4 Units.
Examines the spread of cities worldwide in the twentieth century. What are the political and economic causes of this process? What are the social-cultural, political, and economic effects? How is contemporary urbanization linked to global restructuring of other kinds.

Same as SOC SCI 254J, PP&D 273.

Restriction: Graduate students only.

SOCIOL 259. Special Topics: Global Studies and Comparative Development. 2-4 Units.
Studies in selected areas of global studies and comparative development. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 260A. Family and Households . 4 Units.
Families and households as a fundamental unit of social organization. Concepts and controversies. U.S. demographic trends and global changes in marriage, divorce, fertility, living arrangements. Housework and paid work. Gender and generational inequalities. How families reproduce stratification systems.

Restriction: Graduate students only.

SOCIOL 261A. Life Course Sociology. 4 Units.
Age is a central organizing principle of individual lives, social institutions, and human populations. Considers how age is socially defined and how developmental transitions between ages (i.e., growing up and growing older) are accomplished.

Restriction: Graduate students only.

SOCIOL 262A. Population. 4 Units.
Introduces the interrelationships between population and social organization. Considers measurement and explanation of historical and contemporary trends in birth rates, death rates, migration, and marriage and divorce. Case material is drawn primarily from the U.S. and other industrialized nations.

Same as SOC SCI 253F.

Restriction: Graduate students only.

SOCIOL 263. The Sociology and Demography of Health and Illness. 4 Units.
Health from a population perspective. Topics include pandemics; the "McKeown debate" (standard of living vs. public health vs. medicine); long-term health changes in developed countries; health and socio-economic status; immigrant health. Not a course in medical sociology as such.

SOCIOL 264. Immigrant America. 4 Units.
The study of the causes and consequences of international migration has become one of the most vital fields of sociological theory and research. Examines principal theoretical perspectives and empirical research on contemporary immigration flows and the processes of incorporation.

Restriction: Graduate students only.

SOCIOL 265. DASA Research Design. 4 Units.
Data collection, organization, and analysis in population studies and demography. Research design issues include sampling, longitudinal research, and comparative research.

Prerequisite: Enrollment in DASA program.

Overlaps with SOCIOL 220A.

Restriction: Graduate standing only.

SOCIOL 269. Special Topics: Social Demography. 4 Units.
Studies in selected areas of social demography. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 271. Theories of Power and Empowerment. 4 Units.
Studies different ways of thinking about power and its uses. Explores theories of power that inform various notions of empowerment, including resistance, participatory democracy, and workplace empowerment.

Same as POL SCI 223A, PP&D 279, MGMTPHD 297R.

Restriction: Graduate students only.

SOCIOL 272A. Work and Industrial Relations. 4 Units.
Explores the nature, causes, and results of workplace conflict in American Society. Considers topics such as "American Exceptionalism," sex segregation in the workplace, strikes and the role of unions in American society.

Restriction: Graduate students only.

SOCIOL 279. Special Topics: Social Organizations and Institutions. 2-4 Units.
Studies in selected areas of social organizations and institutions. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 280. Analysis of Social Network Data. 4 Units.
Overview and application of methods for analyzing social network data. Topics include: data structures, visualization, graph theory, centrality, subgroups, positions, blockmodels, local properties, and statistical models. Social network analysis software is used to analyze a range of examples.

Restriction: Graduate students only.

SOCIOL 281. Introduction to Social Network Analysis. 4 Units.
Designed to provide a broad overview of social network analysis. At the same time, students will have an opportunity to delve deeply into applications of the network approach in their individual areas of interest.

Restriction: Graduate students only.

SOCIOL 289. Special Topics . 2-4 Units.
Studies in selected areas of Social Sciences. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOCIOL 290. Dissertation Research. 1-12 Units.
Dissertation research with Sociology faculty.

Repeatability: May be taken for credit 10 times.

Restriction: Graduate students only.

SOCIOL 299. Independent Study. 1-12 Units.
Independent research with Sociology faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

Graduate Program in Social Science

In addition to the departmental graduate programs, the School offers the M.A. degree in Social Science with a concentration in Demographic and Social Analysis (p. 1858), and the Ph.D. degree in Social Science with a concentration in Mathematical Behavioral Sciences (p. 1859). Each program is administered by a different group of faculty.

Graduate Concentration in Demographic and Social Analysis

http://www.demography.uci.edu

The M.A. in Social Science with a concentration in Demographic and Social Analysis offers specialized training in the research skills to address practical problems confronting society, business, government, and the nonprofit sector. The concentration emphasizes the Pacific Rim and issues defining Southern California's population, such as immigration, changing household and family structure, racial and economic inequalities, and the impact of local and regional population growth. Informed by the interdisciplinary field of demography, the program draws on faculty and courses in the Schools of Social Sciences and Social Ecology.

Admission

Students are admitted to the program in the fall quarter. Students must hold a B.A. or B.S., normally in a social science or related field, and should have had at least four units of undergraduate statistics or equivalent mathematics courses. Students must meet the general admission requirements for graduate studies, which include official transcripts of all college course work, Graduate Record Examination scores for tests taken within the past five years, and three letters of recommendation. Applicants whose first language is not English must also take the Internet-based Test of English as a Foreign Language (TOEFL) and achieve a score of at least 80 out of 120. The International English Language Testing System (IELTS) examination may be used instead, in which case a minimum overall score of 7 out of 9 is required, with a score of not less than 6 out of 9 on any individual module.

Requirements

The M.A. requires 36 units of study and an oral exit examination. All students must complete 20 units of required courses which include one course in research design, one in demographic methods, one in populations, and two in statistics. In addition, students must complete 16 units of elective courses in population issues or research methods. No more than four units may be internship, independent study, directed readings, or thesis courses (to prepare for the oral examination). One or two electives may be upper-division undergraduate courses, with the remainder being graduate courses. All courses must be completed with a grade of B or better.

The M.A. in Social Science with a concentration in Demographic and Social Analysis may also be awarded to Ph.D. students who complete the necessary requirements.

Courses

For graduate courses in social science click on the "Courses" tab above and scroll down to SOC SCI 209.

Graduate Concentration in Mathematical Behavioral Sciences

http://www.imbs.uci.edu/NEWphdprogram.html

The concentration in Mathematical Behavioral Sciences offers a program of interdisciplinary and mathematical approaches to the study of human behavior, providing high levels of training in current mathematical modeling and in mathematics and software use and programming. The program is administered by an interdisciplinary group of faculty. Within the concentration, two optional emphases are available: Social Networks; and Games, Decisions, and Dynamical Systems. Specific requirements are detailed below.

Admission

Admission to the concentration in Mathematical Behavioral Sciences requires evidence of appreciable mathematical skill and knowledge. As an absolute minimum, a candidate should have taken one full year of calculus, including calculus of several variables, and one course in linear algebra, and should also provide evidence of additional mathematical depth. This depth can be manifested in a number of different ways including, but not restricted to, an undergraduate degree in mathematics or physical science, a high score on the quantitative section of the GRE general test, or a strong undergraduate minor in mathematics. In addition, students should have some exposure to a behavioral science field. Especially useful is some experience with behavioral science modeling.

Those students interested in either the emphasis in Social Networks or the emphasis in Games, Decisions, and Dynamical Systems should make this clear in their application. A student is free at any time after admission to move into or out of either emphasis, but will be subject to the requirements in effect at the time of original admission to the concentration in Mathematical Behavioral Sciences.

General Requirements

Four major classes of requirements must be fulfilled. Since a number of options are available, the student will, in consultation with an advisor, develop a plan of study.

Quantitative/Mathematical. To be completed by the end of the third year:

1. one course each in analysis beyond calculus, abstract algebra beyond linear algebra, and logic; and
2. two quarters of mathematical statistics, with calculus as a prerequisite and covering the fundamentals of probability and random variables.

A list of courses eligible for satisfying the Quantitative/Mathematical requirement is available at the Institute for Mathematical Behavioral Sciences (http://www.imbs.uci.edu/NEWphdprogram.html) website.

Language/Computer. All students must be sufficiently familiar with various computer programs and languages to be able to conduct serious research in their field of interest and must submit either proposed courses or some demonstration of competency as part of their plan of study. In addition, students must either

1. attain proficiency in reading social science technical publications in one foreign language with a substantial relevant technical literature or
2. demonstrate proficiency in computer programming considerably beyond that of the standard computer requirement.

Because of the continually changing nature of computer languages and software, the conditions for fulfilling this additional computer expertise requirement is left to the judgment of the faculty subcommittee on computers of the Ph.D. program.

Substantive Minor. Students are expected to develop considerable expertise in some substantive field and in the application of models to it. This requires the completion of three courses at the upper-division or graduate level that do not necessarily entail extensive modeling, and three courses or seminars in which the primary thrust is mathematical modeling.

Research Papers and Colloquia. At the end of the second year, a 10–20-page paper reporting original research or a penetrating analysis of some subtopic of mathematical behavioral science (or either social networks, or games, decisions, and dynamical systems with a formal or mathematical component) is expected. An oral presentation will be given to faculty and graduate students. Two faculty members are assigned to read and evaluate the paper and talk.

Students are required to take for credit four quarters of the Mathematical Behavioral Sciences Colloquium, SOC SCI 211A--SOC SCI 211C, during their first three years. Although not a formal requirement, students are expected to attend the colloquium on a regular basis whenever in residence.

Time to Degree. Students must advance to candidacy in their fourth year. The normative time for completion of the Ph.D. is six years. The maximum time permitted is seven years.

Emphasis in Social Networks

The requirements for the emphasis in Social Networks are the same as the general requirements noted above, with the following exceptions:

Students may choose to complete the first part of the Quantitative/Mathematical requirement with one course each in discrete mathematics, graph theory, and logic.

Social Networks students are required to attend about 75 percent of the Mathematical Behavioral Sciences Colloquia, including all that are designated as Social Networks Colloquia, and also must attend occasional colloquia, usually of local faculty and graduate students, which are separate from the general Mathematical Behavioral Sciences Colloquia.

Emphasis in Games, Decisions, and Dynamical Systems

The requirements for the emphasis in Games, Decisions, and Dynamical Systems are the same as the general requirements noted above, with the following exceptions:

Students must complete eight graduate courses emphasizing game theory, decision theory, or dynamical systems. Examples of such courses are:

ANTHRO 289	Special Topics in Anthropology (when topics are Networks and Social Evolution; Cognition, Technology, and Genes; Dynamical Processes.)
ECON 243A	Game Theory
ECON 270A- 270B- 270C	Political Economy I and Political Economy II and Political Economy III

These courses will count toward the substantive minor requirement.

Students are required to attend about 75 percent of the Mathematical Behavioral Sciences Colloquia, including all that are designated as Games, Decisions, and Dynamical Systems colloquia, and must also must attend occasional colloquia, usually of local faculty and graduate students, which are separate from the general Mathematical Behavioral Sciences Colloquia.

Master of Arts Degree

The M.A. degree is awarded to UCI Ph.D. students who complete necessary requirements or to students currently enrolled in a Ph.D. program (or equivalent) at another institution who are directly admitted for graduate study leading only to the master's degree at UCI. Such applicants must provide evidence that their Ph.D. program agrees to this one-year arrangement. Requirements include the submission of a petition to the Graduate Committee along with a proposed plan of study consisting of 36 units of relevant Mathematical Behavioral Science courses, normally including the core requirement in mathematical statistics, and the satisfactory completion of a comprehensive examination.

Faculty

Nurudeen O. Alao, Ph.D. Northwestern University, *Lecturer of Social Sciences; International Studies*

Jeanett Castellanos, Ph.D. Washington State University, *Lecturer with Security of Employment of Social Sciences*

Ricardo Chavira, M.A. California State University, Northridge, *Lecturer of Social Sciences; International Studies*

Joanne Christopherson, Ph.D. University of California, Irvine, *Lecturer of Social Sciences*

Raúl A. Fernández, Ph.D. Claremont Graduate University, *Director of the UC-Cuba Academic Initiative* and *Professor Emeritus of Chicano/Latino Studies; Culture and Theory; Social Sciences*

James J. Flink, Ph.D. University of Pennsylvania, *Professor Emeritus of Social Sciences*

Paula Garb, Ph.D. Russian Academy of Sciences, *Lecturer of Social Sciences; International Studies; Undergraduate Education*

Gilbert G. Gonzalez, Ph.D. University of California, Los Angeles, *Professor Emeritus of Chicano/Latino Studies; Culture and Theory; Social Sciences*

James R. Hull, Ph.D. University of North Carolina at Chapel Hill, *Lecturer with Potential Security of Employment of Social Sciences; Sociology*

Nick R. Noviello, Ph.D. University of California, Irvine, *Lecturer of Social Sciences*

Bojan M. Petrovic, Ph.D. University of California, Irvine, *Lecturer of Social Sciences; Political Science*

Paul R. Shirey, Ph.D. University of California, Irvine, *Lecturer of Social Sciences; Economics*

Alfonso Valdez, Ph.D. University of Southern California, *Lecturer of Social Sciences*

Joseph L. White, Ph.D. Michigan State University, *Professor Emeritus of Social Sciences*

Courses

SOC SCI 1A. Principles in the Social Sciences. 4 Units.
Introduction to various disciplines within the social sciences. Provides an interdisciplinary perspective on understanding human behavior and social institutions, including interpersonal, economic, and cultural activities. Course may be offered online.

(III)

SOC SCI H1E. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Same as SOCECOL H20A.

Restriction: Campuswide Honors Program students only.

(III)

SOC SCI H1F. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Prerequisite: SOC SCI H1E or SOCECOL H20A.

Same as SOCECOL H20B.

Restriction: Campuswide Honors Program students only.

(III)

SOC SCI H1G. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Prerequisite: SOC SCI H1F or SOCECOL H20B.

Same as SOCECOL H20C.

Restriction: Campuswide Honors Program students only.

(III)

SOC SCI 2A. Introduction to Social Science Analysis. 4 Units.
Introduction to social science research and analytical models. Theory construction and use of research methods in an interdisciplinary context. Discussion of the application of social science research to public policy. Computer laboratories develop creative thinking, graphing, and data presentation skills.

Restriction: Social Science majors have first consideration for enrollment.

(III)

SOC SCI 3A. Computer-Based Research in the Social Sciences. 4 Units.
Focuses on the data manipulation, data visualization, and information searching techniques. Hands-on experience in hypothesis testing, mapping, graphics, and data arrays. Course may be offered online.

Restriction: School of Social Sciences majors have first consideration for enrollment.

SOC SCI 5A. Introduction to Human Geography. 4 Units.
Human behavior in a geographical context. Spatial patterns and organization of the cultural, social, and economic activities of man as imposed on and influenced by the earth's physical setting.

(III)

SOC SCI 5B. Introduction to Physical Geography. 4 Units.
An introduction to the physical world we live in. Distribution and dynamics of the earth's air, water, and solid crust. Concepts and principles from climatology and geology. Selected examples from North America and beyond.

SOC SCI 5D. US & World Geography. 4 Units.
Survey of general geographical principles and facts on a world scale, as well as introduction to the broad regional and resource geography of the U.S., emphasizing in particular the interactions of physical and cultural factors.

(III, VIII)

SOC SCI 9A. General Statistics and Probability I. 4 Units.
Introduction to the variety of statistical applications in many fields, including the humanities, physical and social sciences, business, forensic and health sciences. Descriptive statistics, including percentile ranks, standardization, and normal approximation. Estimation and the measurement of error.

Overlaps with ECON 10A, PSYCH 10A, SOCECOL 13, SOC SCI 10A, SOCIOL 10A, POL SCI 10A.

Restriction: Non-Social Sciences majors only.

(Va)

SOC SCI 9B. General Statistics and Probability II. 4 Units.
Introduction to statistical inference, sampling distributions, standard error. Hypothesis tests for proportions and means. Inferential techniques for nominal variables including chisquare. Selected applications in fields such as ecology, forensic science, and quantitative stylistics are based on student interests.

Prerequisite: SOC SCI 9A.

Overlaps with ANTHRO 10B, POL SCI 10B, PSYCH 10B, SOCECOL 13, SOC SCI 10B, SOCIOL 10B.

Restriction: Non-Social Sciences majors only.

(Va)

SOC SCI 9C. General Statistics and Probability III. 4 Units.
Focus on correlation and regression. One-way and two-way factorial analysis of variance. Introduction to repeated measures designs and non-parametric statistics. Critiquing the use of statistics in newspapers and popular magazines. Locating, accessing, and evaluating statistical data.

Prerequisite: SOC SCI 9B.

Overlaps with ANTHRO 10C, POL SCI 10C, PSYCH 10C, SOCECOL 13, SOC SCI 10C, SOCIOL 10C.

Restriction: Non-Social Sciences majors only.

(Vb)

SOC SCI 10A. Probability and Statistics in Social Sciences I. 4 Units.
Introduction to the variety of statistical applications in the social sciences. Descriptive statistics. Measures of central tendency and dispersion. Percentile ranks. Standardization and normal approximation. Basic probability theory focuses on application to statistical inference and binomial distribution. Laboratory required.

Corequisite: SOC SCI 3A.
Prerequisite: SOC SCI 3A.

Overlaps with ECON 10A, PSYCH 10A, SOCECOL 13, POL SCI 10A, SOC SCI 9A, SOCIOL 10A.

Restriction: Lower-division students only. Social Science majors have first consideration for enrollment.

(Va)

SOC SCI 10B. Probability & Statistics in Social Sciences II. 4 Units.
Introduction to statistical inference, sampling distribution, standard error. Hypothesis tests for proportions and means. Inferential techniques for nominal variables including chi-square, study measures of strengths, significance of relationships between variables, assumptions, data requirements, and types of error in significance tests. Course may be offered online.

Prerequisite: SOC SCI 10A.

Overlaps with ANTHRO 10B, POL SCI 10B, SOCECOL 13, SOC SCI 9B, SOCIOL 10B, PSYCH 10B.

Restriction: Social Science majors have first consideration for enrollment.

(Va)

SOC SCI 10C. Probability & Statistics in Social Sciences III. 4 Units.
Focus on correlation, regression, and control for effects of variables. One-way and two-way factorial analysis of variance. A priori and a posteriori comparisons. Introduction to repeated measures design and non-parametric statistics. Discuss use of statistics in newspapers and popular magazines.

Prerequisite: SOC SCI 10B.

Overlaps with ANTHRO 10C, POL SCI 10C, PSYCH 10C, SOCECOL 13, SOC SCI 9C, SOCIOL 10C.

Restriction: Social Science majors have first consideration for enrollment.

(Vb)

SOC SCI 11A. Barter to Bitcoin: Society, Technology and the Future of Money. 4 Units.
Digital money has captured the broad imagination of speculators, coders, regulators, criminals and the mass media. Course puts this change in context: how do we understand money as a social, political and technological phenomenon? Course may be offered online.

Same as IN4MATX 12.

(II, III)

SOC SCI 20. Model United Nations. 2 Units.
Focuses on simulations of the foreign policy pursuits of selected countries in the international community. Emphasis placed on understanding the rules of debate, as well as the policy positions of the student's selected country in the United Nations.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 6 times.

SOC SCI 40. Social Policy and Public Service. 4 Units.
An introduction to the basic theories and principles of public policy. Students examine various influences on the development of public policy and the principle actors in the process, and learn to identify tools and techniques employed in policy making.

(III)

SOC SCI 66. Introduction to Gangs . 4 Units.
Introduces students to street gang subculture and explores risk factors associated with gang membership. Students develop a working definition for street gang and understand the difference between social and legal definitions. Also explores the connection between prison and street gangs.

SOC SCI 70A. Race and Ethnicity. 4 Units.
Focuses on racial and ethnic relations in the United States and compares them with those found in other societies. Analyzes the conditions that favor either cooperation and integration or rivalry, tension, and conflict. Appraises strategies for reducing and resolving conflicts.

Same as SOCIOL 63.

(VII)

SOC SCI 70C. Comparing Cultures. 4 Units.
Introduces students to the scope of cross-cultural comparisons by analyzing the theories, methodologies, and facts utilized by anthropologists, sociologists, social psychologists, political scientists, and historians in comparing cultures.

(III, VII)

SOC SCI 78A. Asian American Histories. 4 Units.
Examines and compares diverse experiences of major Asian American groups since the mid-nineteenth century. Topics include origins of emigration; the formation and transformation of community; gender and family life; changing roles of Asian Americans in American society. Formerly ASIANAM 60A.

Same as ASIANAM 50, HISTORY 15C.

((III or IV) and VII).

SOC SCI 78B. Asian American Communities. 4 Units.
Examines the renewal of Asian immigration following World War II. Explores contemporary Asian American populations and communities in the U.S., and the impact of contemporary Asian immigration on the U.S. political economy and social order.

Same as ASIANAM 52.

(III, VII)

SOC SCI 78C. Asian Americans and Comparative Race Relations. 4 Units.
Analyzes the Asian American experience in comparative perspective, which includes comparisons of different ethnic and racial groups, and across gender and class. Possible topics include labor, economy, politics, migration, nation, popular culture, gender, family, sexuality, and multiraciality.

Same as ASIANAM 53.

(III, VII)

SOC SCI 89. Special Topics in Social Sciences. 2-4 Units.
Studies in selected areas of Social Sciences. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOC SCI 102A. Introduction to Geographic Information Systems. 4 Units.
Hands-on laboratory course introduces students to the fundamentals of Geographic Information Systems (GIS) technology using social science applications. Students will learn to organize, manipulate, and display spatial data leading to the design of their own GIS research project.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 102B. Intermediate Geographic Information Systems. 4 Units.
Expands Geographic Information Systems (GIS) skills to more advanced theories and concepts in the spatial analysis of social science issues and particularly to analyzing and interpreting spatial data. Students develop and complete a GIS research project of their own choosing.

Prerequisite: SOC SCI 102A.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 103A. Game Theory and Politics I. 4 Units.
Introduction to game theory and a survey of its political applications. Examples of topics covered include voting in small committees, legislatures, and mass elections; interest group activities and environmental issues; institutional design, and the evolution of cooperative behavior.

Same as INTL ST 105A, POL SCI 130A, SOCIOL 134.

Restriction: Social Policy and Public Service, Sociology, Political Science, and International Studies majors have first consideration for enrollment.

SOC SCI 103B. Game Theory and Politics II. 4 Units.
More advanced game theory and its political applications, beginning where Game Theory and Politics I ends. Examples of topics covered include revolutions; arms race; spatial models of party competition; political manipulation; political coalitions and their power.

Prerequisite: POL SCI 130A or ECON 116A.

Same as INTL ST 105B, POL SCI 130B.

Restriction: Social Policy and Public Service, International Studies, and Political Science majors have first consideration for enrollment.

SOC SCI 115D. International Business. 4 Units.
Introduction to conducting business in the international arena, decision making in the organization, and globalization of markets and production. Topics covered range from tax and finance to ethics, marketing, and more. Continuing corporate regulatory scandals discussed.

Same as INTL ST 112A.

SOC SCI 115E. California and Global Economy. 4 Units.
Presents the nature of the State's economy and the current and projected role of California in the world economy.

Same as INTL ST 135.

SOC SCI 118G. Regional Geography of California. 4 Units.
Geographical analysis of selected regions of California, in particular geomorphological, hydrological, and climatic conditions, as well as economic and social strengths and weaknesses. May include some fieldwork in Orange County on environmental, social and residential problems, with legislative background information.

SOC SCI 119. Special Topics in Geography. 4 Units.
Studies in selected areas of geography. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOC SCI 120. Transnational Gangs. 4 Units.
Examines the internationalization of U.S. domestic street gangs. The relationship between California gangs Mara Salvatrucha and 18th Street and Mexico/Central American gangs is assessed. Specified topics include: mobilization, migration, territorialism, culture, organization, and use of technology. Course may be offered online.

Prerequisite: SOC SCI 66.

Same as INTL ST 130.
Overlaps with SOC SCI XI120, INTL ST XI130.

SOC SCI 121T. Voting and Political Manipulation. 4 Units.
Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as INTL ST 156A, POL SCI 151H, ECON 154.

Restriction: International Studies, Political Science, Social Science and Economics majors have first consideration for enrollment.

SOC SCI 123A. U.S. Intervention in Latin America. 4 Units.
Explores political, economic, social, and cultural ties that bind Latin America to the United States. Focuses on U.S. intervention and Latin American response from early nineteenth century to present day. Case studies include Mexico, Guatemala, Cuba, Chile, and Central America.

Same as INTL ST 177D, HISTORY 166, CHC/LAT 150.

SOC SCI 130B. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.

Same as REL STD 112B, PSYCH 172S, LPS 140B.

SOC SCI 152A. Non-Government Organization (NGO) Fundamentals. 4 Units.
Introduction to non-governmental organizations, including their role in U.S. society and the international community. Explores varying definitions of NGOs and the characteristics held in common by all NGOs.

Same as INTL ST 152A.

SOC SCI 164B. Domestic Gangs. 4 Units.
Examines the history and development of California street gangs and the role of historical events in that development. Students will be able to contrast and compare gang cohort behaviors between some of the major gangs in California.

Prerequisite: SOC SCI 66.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 164C. Prison Gangs. 4 Units.
Examines the growth and spread of prison gangs throughout the country. Relationships between prison and street gangs, and possible relationships with foreign drug trafficking organizations studied. Violence examined as the standard to establish dominance in and out of prison. Course may be offered online.

Prerequisite: SOC SCI 66.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 164D. Juvenile Gangs. 4 Units.
Examines risk factors that can be used to predict gang membership. Compares generational with non-generational gangs and develops a working sociological definition that can be used to identify street gangs. Myths about juveniles, street gangs. Course may be offered online.

Prerequisite: SOC SCI 66.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 165. Chicano/Latino Families. 4 Units.
Introduction to the research, literature, and issues surrounding the topic of Chicano/Latino families including cultural history, contemporary issues, organization of family, traditions, lifestyles, values, beliefs, generational differences, gender issues, ethnic identity, evolution of demographic patterns, current economic and political standings.

Same as CHC/LAT 170, PSYCH 174H.

SOC SCI 167. Chicano/Chicana Labor History. 4 Units.
Examines origins of Latino/ Latina labor from colonial period to present. Emphasis on the issues of race, culture, class, and gender. Focus on processes and institutions including: encomienda, migration, unions, informal economies, Bracero program, domestic work.

Same as CHC/LAT 138.

SOC SCI 168B. Immigration and Inequality. 4 Units.
Explores immigration, ethnicity, and inequality as interconnected social forces. International migration, propelled by global inequalities, plays a central role in the formation of multinational societies, shapes inter-group relations and patterns of ethnic inequality, and transforms the immigrants themselves.

Same as SOCIOL 166.

SOC SCI 169AZ. Special Topics: Sociology. 4 Units.
No description.

Repeatability: Unlimited as topics vary.

SOC SCI 170A. Research Methods in the Social Sciences. 4 Units.
Examines how interdisciplinary social science research questions are formulated and studies several research methods including: experimental method, quasi-experimental methods, survey research, field research, evaluation research, and meta-analysis. Parametric and non-parametric statistical methods are illustrated using the SPSS program.

Prerequisite: SOC SCI 1A and SOC SCI 3A and SOC SCI 10C and SOC SCI 2A.

Restriction: Upper-division students only. Social Science majors have first consideration for enrollment.

SOC SCI 172A. American Culture. 4 Units.
A survey of the historical development of dominant American culture and society; emphasis on a close reading of key cultural texts, with weekly text as a model of writing examining its use of language and rhetoric.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 172AW. American Culture. 4 Units.
A survey of the historical development of dominant American culture and society; emphasis on a close reading of key cultural texts, with weekly text as a model of writing examining its use of language and rhetoric.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Social Science majors have first consideration for enrollment.

(Ib)

SOC SCI 172D. Law in the Twenty-First Century. 4 Units.
Examines the complex relationship between law, the social sciences, and modern society. Lectures explore such issues as the interplay between technology and constitutional rights, the impact of science on law, and the evolving roles of attorneys and judges.

Same as POL SCI 171F.

Restriction: Political Science and Social Science majors have first consideration for enrollment.

SOC SCI 173G. Film Media and the Latino Community. 4 Units.
Uses film as a resource for understanding contemporary issues and problems facing the Chicano/Latino community. (Does not study cinema as a genre.).

Same as CHC/LAT 114.

(VII)

SOC SCI 173I. Perspectives on the U.S. - Mexican Border. 4 Units.
Economic aspects of the historical development of the United States-Mexican border. The current economic situation in the Southwest and border areas as it affects both Mexico and the Latino/Chicano population is also examined.

Same as CHC/LAT 160, INTL ST 177B.

(VII)

SOC SCI 173N. Revolution in Latin America. 4 Units.
Presents a comparative analysis of the causes, development, and consequences of selected revolutionary movements, focusing on outbreaks in Mexico, Bolivia, Cuba, Chile, Nicaragua, and Grenada. Explores topics of state formation, economic nationalism, social justice, ethnicity, and role of international affairs.

Same as CHC/LAT 151B, HISTORY 166D, INTL ST 177C.

SOC SCI 173Q. Introduction to Cuba: History, Culture, and Society. 4 Units.
Introduction to Cuban history, culture, and society using social science texts, visual and musical materials. Examines major historical moments including the historical relationship between the United States and explores evolution of Cuban music from the earliest times to present.

Same as INTL ST 177F, CHC/LAT 130.

(VIII)

SOC SCI 175B. Ethnic and Racial Communities. 4 Units.
Examines various theoretical analyses of race and ethnicity, particularly as they apply to Asian Americans. Also explores the relationship of Asian Americans to other racialized minorities in the U.S.

Same as ASIANAM 161.

SOC SCI 177B. Asian American Women. 4 Units.
Examines the representations and experiences of Asian American women from diverse perspectives. Explores the commonalities and differences among various groups of Asian American women, with particular focus on history, culture, values, and family roles.

Same as ASIANAM 162.

SOC SCI 178C. The Korean American Experience. 4 Units.
Explores the factors that have distinctly shaped the Korean American experience, including patterns of racial domination, the profile of immigrant flow, immigrant roles in the urban political economy, politics in Korea, and the role of the church.

Same as ASIANAM 151C.

SOC SCI 178D. The Vietnamese American Experience. 4 Units.
Studies the resettlement of Vietnamese in the United States following their exodus from Southeast Asia. Topics discussed include the Vietnam War, the 1975 evacuation, boat and land refugees, the shaping of Vietnamese communities, and Vietnamese American literature.

Same as ASIANAM 151D.

SOC SCI 178E. The Japanese American Experience. 4 Units.
Studies the settlement of Japanese in Hawaii and the continental United States since the late nineteenth century. Topics covered include sugar plantations, development of rural Japanese America, World War II internment, post-War community development, and persistence of Japanese American identity.

Same as ASIANAM 151E.

SOC SCI 178F. South Asian American Experience. 4 Units.
Examines and compares the experiences of South Asian immigrants in the U.S. over time. Looks at the economic, political, and social positions of the immigrants, with special emphasis on religious changes and the changes in the second and later generations.

Same as ASIANAM 151F.

Restriction: Asian American Studies and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 178H. Southeast Asian American Experience. 4 Units.
Analyzes experiences of refugees and immigrants from Southeast Asia, which may include those from Cambodia, Laos, Vietnam, and the Philippines. Examines political and economic factors for their exodus and how they reconstruct their identities, histories, and communities.

Same as ASIANAM 151H.

SOC SCI 178J. Chinese American Experience. 4 Units.
Analyzes the experiences of Chinese in the United States. Immigration, Chinese exclusion, racial and gender identity. Historical overview and contemporary issues covered.

Same as ASIANAM 151J.

SOC SCI 178K. Filipina/Filipino American Experience. 4 Units.
Explores the experience of Filipina/Filipino Americans from the era of Spanish colonization of the Philippines to present-day community formations in the United States, with special emphasis on the twentieth century. Topics include colonialism, nation, migration, gender, and culture.

Same as ASIANAM 151K.

SOC SCI 179. Special Topics in Asian American Studies. 4 Units.
Studies in selected areas of Asian American Studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOC SCI 180X. Research Methods . 4 Units.
Develops an understanding of major research methods emphasizing quantitative research techniques; identifies techniques for research questions; applies understanding in relation to contemporary issues by way of a written a proposal for a quantitative research project.

Grading Option: Pass/no pass only.

Restriction: SAEP students only.

SOC SCI 180Y. Statistical Methods . 4 Units.
Covers the following topics: measurement, data screening procedures, descriptive statistics, the chi-square statistic, logistic regression, bivariate correlation and regression, and multiple correlation and regression. Students will develop a conceptual understanding of applied statistics.

Grading Option: Pass/no pass only.

Restriction: SAEP participants only.

SOC SCI 180Z. Communications . 4 Units.
Improves written and verbal communication skills through gathering, synthesizing, and organizing information into salient and clear points. Students learn to articulate information so that it can be clearly understood by others. Application to SAEP program and acceptance required.

Grading Option: Pass/no pass only.

Restriction: SAEP students only.

SOC SCI 181A. Ethical Leadership. 4 Units.
Explores historical and contemporary theories of ethical and unethical leadership. Examines models of "good leadership" such as cardinal and monastic virtues; and models of "bad leadership," such as Machiavelli's Prince. Explores the philosophies, styles, and accomplishments of leaders.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 183A. International Studies Forum. 2 Units.
A faculty-student forum featuring lecturers from a variety of institutions with discussion issues related to international studies.

Repeatability: May be taken for credit 4 times.

Same as HUMAN 183A, SOCECOL 183A, INTL ST 183A.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

SOC SCI 183B. Seminar in Mediation. 4 Units.
Student develop mediation skills and refine knowledge in the practice and theory of conflict resolution. Students who complete this course may serve as mediators in the Campus Mediation Program. Course is a prerequisite to completing Indep Study as an intern.

Same as HUMAN 183B, INTL ST 183B, SOCECOL 183B.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

SOC SCI 183C. Seminar in Conflict Resolution . 4 Units.
Designed for students pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write research paper.

Same as SOCECOL 183C, HUMAN 183C.

SOC SCI 183CW. Seminar Conflict Resolution. 4 Units.
Designed for seniors who are pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOCECOL 183CW, HUMAN 183CW.

(Ib)

SOC SCI 183E. Conflict Resolution in Cross-Cultural Perspective. 4 Units.
Examines theories of conflict management. Analyzes how conflict is mitigated in diverse cultures: at the interpersonal level, between groups, and on the international scale. Students discuss readings, hear from conflict management practitioners, and simulate negotiations.

Same as ANTHRO 136D, POL SCI 154G, INTL ST 183E.

(VIII)

SOC SCI 184A. Sage Leader Research I. 2 Units.
Participants in the SAGE Scholars Program learn to define leadership concepts, discover various leadership styles, and develop strong leadership and communication skills resulting in strengthened ability to contribute to and interact with UCI and the Orange County community.

Grading Option: Pass/no pass only.

Restriction: SAGE Scholars Program students only.

SOC SCI 184B. Sage Leader Research II. 4 Units.
Provides a survey of contemporary topics and challenges in the fields of management and leadership. Case studies and text by leading authors are used to analyze key leadership issues in twenty-first century, with particular emphasis on current events.

Restriction: SAGE Scholars Program students only.

SOC SCI 184F. International Journalism. 4 Units.
Studies and critically analyzes how the media covers international issues that have reshaped. American foreign coverage and the implications for Americans and U.S. foreign policy. Focuses on international reporting as a way of developing fundamental skills of journalism.

Same as INTL ST 155A.

SOC SCI 184GW. Media Writing. 4 Units.
Designed to teach reporting and news writing basics. Students learn how to gather and organize information, ask effective questions, develop story ideas, research facts, and write stories on deadline. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as INTL ST 155BW.
Overlaps with INTL ST XI155B, SOC SCI XI184G.

Restriction: International Studies majors have first consideration for enrollment.

(Ib)

SOC SCI 185W. People in Society. 4 Units.
Through readings about people in distinctly different societies throughout history, students learn concepts that cross the boundaries of the social science disciplines. Such themes as democracy, elitism, power, social class, and gender as the basis for discussion and writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: School of Social Sciences majors only.

(Ib)

SOC SCI 186A. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as PSYCH 144A, CHC/LAT 191A.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 186B. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144A or SOC SCI 186A or CHC/LAT 191A. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children and be culturally sensitive.

Same as PSYCH 144B, CHC/LAT 191B.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 186C. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144B or SOC SCI 186B or CHC/LAT 191B. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as PSYCH 144C, CHC/LAT 191C.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 187. Twenty-First-Century Graduate Education. 2 Units.
Graduate and professional education in twenty-first century United States. Examines strategies for admission to postbaccalaureate programs and success in graduate study culture. Introduction to processes including planning and preparation, school selection, entrance examination preparation, submission of applications, writing personal statements.

Grading Option: Pass/no pass only.

Restriction: Upper-division students only.

SOC SCI 188A. Introduction to Contemporary Middle East Politics. 4 Units.
An overview of basic issues that shape the politics of the Middle East and North Africa. Themes include implication of the colonization era, nation-state formation, inter-Arab relations, nationalism, Arab-Israel conflict, Islamic resurgence, and more.

Same as INTL ST 165, POL SCI 158D.

SOC SCI 188D. Iran: Past and Present. 4 Units.
Pre-revolutionary Iran; and Iran since the revolution. History, oil and politics: domestic and international.

Same as INTL ST 168.

SOC SCI 188E. Israel and the World: An Introduction. 4 Units.
Examines the founding of Israel, its relationship with the Arab world, the role of the international community, and the challenges it faces today.

Same as INTL ST 170.

SOC SCI 188I. Afghanistan. 4 Units.
Provides an examination of Afghanistan's traditional social organization, economy, political organization, and relationship among ethnic groups as a basis for discussing the consequences of domestic political turmoil and foreign interventions over the last 20 years. Current situation and future addressed.

Same as INTL ST 162, POL SCI 158C.

SOC SCI 188K. Political Islam. 4 Units.
Political Islamd is a diverse phenomenon. While noticeable barriers exist to "Islamist democracy," it is the Islamists who will define the political future of much of the Muslim world. Reviews the experience of Saudi Arabia, Egypt, Pakistan, Turkey, and Indonesia.

Same as INTL ST 161A.

SOC SCI 188M. Psychology of the Middle East Conflict. 4 Units.
Explores how emotions guide actions; political movements and social identity factors in ethnic, religious, or other group conflicts; psycho-biographies of political leaders and effects on foreign policy making; decisions to go to war; psychological dimensions of conflict and conflict resolution.

Same as INTL ST 166.

SOC SCI 189. Special Topics in Social Sciences. 2-4 Units.
Studies in selected areas of social sciences. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI H190A. Honors Research Workshop. 4 Units.
Student develops a 10–15-page prospectus of research for the honors thesis which includes: the research question, literature review, methods of investigation, and bibliography. Student selects a faculty mentor who will supervise thesis research and writing in winter and spring.

Restriction: Honors Program for Social Science majors students only.

SOC SCI H190B. Honors Thesis Research. 4 Units.
The student initiates and completes data collection for the honors thesis. A faculty mentor provides supervision and feedback on thesis chapters.

Prerequisite: SOC SCI H190A.

SOC SCI H190C. Honors Thesis. 4 Units.
The student completes, with the approval of the faculty mentor, an honors thesis containing: statement of the problem, literature review, research hypotheses, methods of investigation, results, discussion, and bibliography.

Prerequisite: SOC SCI H190B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

SOC SCI 191. Graduate-Mentored Study in the Social Sciences. 4 Units.
Offers a hands-on research experience while increasing awareness of the various disciplines in the social sciences and of the requirements of graduate school. Features graduate-mentored study under the supervision of the Associate Dean.

Prerequisite: Identification of a graduate student (who is in good standing) as a mentor.

Grading Option: Pass/no pass only.

SOC SCI 193A. Field Studies in Public and Community Service. 4 Units.
Advanced training in qualitative and ethnographic research centered on community service. Students pursue field studies at nonprofit agencies (200 hours) to understand current social problems in underrepresented and underserved communities. Through field placement, students apply theory to practice.

Prerequisite: SOC SCI 70C or SOCIOL 63. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Social Policy and Public Service majors only.

SOC SCI 193B. Field Studies in Public and Community Service. 4 Units.
Advanced training in qualitative and ethnographic research centered on community service. Students pursue field studies at nonprofit agencies (200 hours) to understand current social problems in underrepresented and underserved communities. Through field placement, students apply theory to practice.

Prerequisite: SOC SCI 193A.

SOC SCI 193C. Field Studies in Public and Community Service. 4 Units.
Advanced training in qualitative and ethnographic research centered on community service. Students pursue field studies at nonprofit agencies (200 hours) to understand current social problems in underrepresented and underserved communities. Through field placement, students apply theory to practice.

Prerequisite: SOC SCI 193B.

SOC SCI 194A. Public Service Internship. 2-4 Units.
Introduces the role of etiquette and leadership in the professional environment. With a two-unit (50 hours) or four-unit (100 hours) credit option, students intern at a nonprofit agency exploring their roles as community leaders and improving their professional skills. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Social Policy and Public Service majors only.

SOC SCI 194B. Community Internship. 2-4 Units.
Required to complete 50 (two units) or 100 (four units) hours at a nonprofit organization, students engage in lectures related to the formation and maintenance of nonprofit organizations. Grant writing, funding issues, and effective service delivery are addressed.

Prerequisite: SOC SCI 194A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Restriction: Social Science majors only.

SOC SCI 194C. Management and Leadership Practicum-Social Science . 2-4 Units.
Social Sciences Academic Resource Center (SSARC) Resource Mangers (RMs) report directly to the Director and Associate Director, serving as frontline resource consultants, assisting visitors with resume development, graduate and professional school planning, internship placement, and professional development.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 12 units.

SOC SCI 195A. Educational Policy Field Studies. 4 Units.
Integrates academic course work with experiential learning; examines the effects of educational policy on urban and suburban schools; explores the relationship between community service and personal academic interests; and develops awareness about the challenges of public education.

Repeatability: May be taken for credit 3 times.

SOC SCI 195B. Educational Policy Field Studies. 4 Units.
Integrates academic course work with experiential learning; examines the effects of educational policy on urban and suburban schools; explores the relationship between community service and personal academic interests; and develops awareness about the challenges of public education.

Prerequisite: SOC SCI 195A.

Repeatability: May be taken for credit 3 times.

SOC SCI 195C. Educational Policy Field Studies . 4 Units.
Integrates academic course work with experiential learning; examines the effects of educational policy on urban and suburban schools; explores the relationship between community service and personal academic interests; and develops awareness about the challenges of public education.

Prerequisite: SOC SCI 195B.

Repeatability: May be taken for credit 3 times.

SOC SCI 196. Global Connect. 2-4 Units.
Identifies factors of change that influence the twenty-first century. Students serve as mentors at high schools to introduce globalization issues through workshops and lectures. Students must submit an application and have a 3.0 or higher overall GPA.

Repeatability: May be taken for credit 3 times.

SOC SCI 197. Professional Internship. 2-4 Units.
Students apply classroom knowledge through research projects in nonprofit agencies (local, state, and government) and the private sector. They pose solutions to agency-posed questions. Students gain field experience through 50 hours (for 2 units) or 100 (for 4 units). Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

Restriction: School of Social Sciences majors only.

SOC SCI 198. Directed Group Study. 2-4 Units.
Directed study with Social Science faculty.

Repeatability: May be taken for credit for 12 units.

SOC SCI 199. Individual Study. 2-4 Units.
Opportunities to do research and learn new skills outside the normal classroom environment. Students participate in planned research and study activities under a written contract with a supervising UCI instructor. Students may enroll for only one 199 each quarter.

Repeatability: May be taken for credit for 16 units.

Restriction: Upper-division students only.

SOC SCI 209. Special Topics in Mathematical Social Science. 4 Units.
Studies in selected areas of mathematical social science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOC SCI 211A. Mathematical Behavioral Sciences Colloquium. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 211B. Mathematical Behavioral Sciences Colloquium. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 211C. Mathematical Behavioral Sciences Colloquium. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 249A. Special Topics in Social Networks. 4 Units.
Studies in selected areas of social networks. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOC SCI 253A. Oral History, Life History. 4 Units.
Interdisciplinary and comparative work in oral and life history; methods of interviewing.

Same as ANTHRO 221A.

Restriction: Graduate students only.

SOC SCI 253F. Population. 4 Units.
Introduces the interrelationships between population and social organization. Considers measurement and explanation of historical and contemporary trends in birth rates, death rates, migration, and marriage and divorce. Case material is drawn primarily from the U.S. and other industrialized nations.

Same as SOCIOL 262A.

Restriction: Graduate students only.

SOC SCI 253J. Social Movements. 4 Units.
A survey of the field of Social Movements, oriented around critical themes in the major theoretical traditions and contemporary exemplars.

Same as SOCIOL 240A.

Restriction: Graduate students only.

SOC SCI 253N. Classical Social Theory. 4 Units.
Examines the development of classical sociological theory through the writings of Karl Marx, Emile Durkheim, Max Weber, Georg Simmel, and George Herbert Mead.

Same as SOCIOL 210A.

Restriction: Graduate students only.

SOC SCI 253R. Contemporary Social Theory. 4 Units.
Familiarizes students with twentieth-century developments in social thought that have influenced sociological research, suggesting "what is living and what is dead" in the "classics" and offering an overview of the main outlines of recent sociological theorizing.

Same as SOCIOL 210B.

Restriction: Graduate students only.

SOC SCI 254A. Transnational Migration. 4 Units.
Examines borders and boundaries as material and semiotic constructs. Drawing upon an array of literatures, but loosely situated in U.S. geo/biopolitics, explores transformative troublings of places, spaces, borders, and bodies of all sorts.

Same as ANTHRO 235A, CHC/LAT 215.

Restriction: Graduate students only.

SOC SCI 254J. Global Urbanization. 4 Units.
Examines the spread of cities worldwide in the twentieth century. What are the political and economic causes of this process? What are the social-cultural, political, and economic effects? How is contemporary urbanization linked to global restructuring of other kinds.

Same as PP&D 273, SOCIOL 252A.

Restriction: Graduate students only.

SOC SCI 254L. Approaches to Globalization. 4 Units.
Historical and contemporary approaches to the world economy, emphasizing anthropological questions of culture, power, identity, inequality. Examines "neo-imperialism," "late capitalism," accumulation, global markets, urban space, the state, business and policy globalization discourse, "local" responses to and instantiations of the "global.".

Same as ANTHRO 248A.

Restriction: Graduate students only.

SOC SCI 255C. Grant and Proposal Writing. 4 Units.
Focuses on production, critique, and revision of student research proposals. A practical seminar designed to improve student proposals, help students through the application processes, and increase students' chances of obtaining support for their research.

Same as ANTHRO 213A.

Restriction: Graduate students only.

SOC SCI 259A. Special Topics in Social Relations. 1-4 Units.
Studies in selected areas of social relations. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOC SCI 272A. Origin and Evolution of Marxist Social Thought. 4 Units.
Focuses on the genesis and evolution of Marxist social thought The "systemic" method of Marx and Engels to questions of economic production and reproduction is compared and contrasted with modern world-system grand visions, feminist-theoretic approaches, and postmodern critiques.

Prerequisite: Undergraduate course in political theory or equivalent.

Restriction: Graduate students only.

SOC SCI 289. Special Topics in Social Science. 4 Units.
Current research in Social Science.

Repeatability: Unlimited as topics vary.

SOC SCI 290. Dissertation Research. 4-12 Units.
Dissertation research with Social Science faculty.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 299. Independent Study. 1-12 Units.
Independent research with Social Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

SOC SCI 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

The Curriculum in Geography

The curriculum in geography covers such topics as the evolution of the landscape, arrangement of urban centers, the internal structure of cities, the arrangement of industrial and agricultural activities, the pattern of movement of people, goods and ideas, and relationships between humans and the environment.

Courses in Geography

SOC SCI 5A	Introduction to Human Geography
SOC SCI 5B	Introduction to Physical Geography
SOC SCI 5D	US & World Geography
SOC SCI 118G	Regional Geography of California
SOC SCI 119	Special Topics in Geography

The Undergraduate Major in International Studies

571 Social Science Tower; 949-824-8687
http://internationalstudies.ss.uci.edu/
Cecelia Lynch, **Director**

The major in International Studies provides an interdisciplinary perspective on global politics, culture and economics. International Studies majors acquire twenty-first-century analytical skills and knowledge that will enable them to understand and contribute to shaping the rapidly evolving world community. The degree in International Studies prepares students for graduate study and professional careers in a variety of fields in the national and international job markets such as international affairs and public policy, international business and finance, international law, international organizations, academic research and teaching, and non-governmental work (in human rights, humanitarianism, development and environmental issues).

Requirements for the major include a core set of courses: an introductory sequence (Global Cultures and Society, International Politics, World History, and Global Economics), basic economics, an additional lower-division social science course, and the International Studies Public Forum. Students also

choose both a regional focus and a functional focus to enable them to broaden and deepen areas of knowledge and topics of particular interest. The final requirements are competence in a language other than English and an international experience or approved internship.

Requirements for the B.A. Degree in International Studies

All students must meet the University Requirements (p. 71)**.**

All students must meet the School Requirements (p. 1561)**.**

Requirements for the Major

All International Studies majors must complete a minimum of 16 or 17 courses for a letter grade with a minimum GPA of 2.0.

A. Four introductory courses:	
INTL ST 11	Global Cultures and Society
INTL ST 13	Global Economy
INTL ST 14	Introduction to International Relations
HISTORY 21A	World: Innovations
or HISTORY 21B	World: Empires and Revolutions
or HISTORY 21C	World: Wars and Rights
B. Complete the following ECON course:	
ECON 20B	Basic Economics II
C. Select one of the following courses:	
ANTHRO 2A	Introduction to Sociocultural Anthropology
POL SCI 51A	Introduction to Politics Around the World
REL STD 5A	World Religions I
or REL STD 5B	World Religions II
SOC SCI 5D	US & World Geography
SOCIOL 2	Globalization and Social Change
D. Competency in a language other than English. Competency is established by college-level course work equivalent to UCI's fifth quarter of study (usually 2B).	
E. Regional Focus: Four upper-division courses, at least two that focus on one geographic area. Courses must be from at least two different disciplines and include material on at least two different countries. [1]	
Europe and Eurasia	
Africa and the Middle East	
The Americas (including the U.S.)	
Asia	
Diasporic, Religious and/or Linguistic areas (e.g., Francophone World, Islamic World, Jewish Diaspora, African Diaspora)	
F. Functional Focus: Four upper-division courses from the following list with at least three in one area: [1]	
Global Issues and Institutions (International/Transnational Organizations and Movements; International/Comparative Law; Global Trade, Investment and Finance; Global Development, Public Health, and Environment)	
Global Conflict and Negotiation (Global Conflict and Conflict Resolution; Global Security)	
Global Role of U.S. and California	
Global Society and Culture (Global Population, Migration, and Diaspora; Global Identities: Religion, Nationalism, Gender; Global Ethics and Human Rights)	
G. Two quarters of SOC SCI 183A (International Studies Forum), one quarter of which must be taken during the junior or senior year as a capstone experience. (SOC SCI 183A is a two-unit course so these together count as a four-unit course.)	
H. At least one quarter of international experience. [2]	

1 Visit the Institute for International, Global and Regional Studies (http://internationalstudies.ss.uci.edu/is_undergrad_major_req/#approved_courses) website for a list of approved courses. Although some courses are listed in more than one focus, students may not double count a course for both their regional and functional areas. Study abroad counts as one course in the regional focus.

2 Majors are encouraged to study abroad through the University's Education Abroad Program (UCEAP) or the International Opportunities Program (IOP), which are available for periods of a quarter, year, or summer. When this is not possible, work overseas (through IOP) or a domestic internship with the UCDC Internship Program, the UCI Washington D.C. Academic Internship Program, or International Internship(INTL ST 197) or Social Science Internship Program (SOC SCI 197) with an international focus may be substituted. Study abroad counts as one course in the regional focus.

Honors Program in International Studies

The Honors Program allows International Studies majors to engage in research leading to the completion of an honors thesis. The topic for the honors thesis is selected by the student, in consultation with a faculty advisor, and should reflect a theme consistent with the student's module in the International Studies major. The honors program is open to all junior and senior International Studies majors with an overall GPA of 3.0 and a 3.5 GPA in the major who have taken all three core courses (INTL ST 11, INTL ST 13, and INTL ST 14) and at least two upper-division courses that count toward the International Studies major. Successful completion of a written senior thesis in the INTL ST 190 course satisfies the upper-division writing general education requirement.

During the spring quarter of the junior year or during the summer before the senior year, students formally apply to the honors program. Students will be notified of their selection to the honors program by September 1. In the fall quarter of the senior year, students enroll in International Studies INTL ST H180, Honors Research Seminar. In this course, each student formulates a written research plan (i.e., prospectus) for the honors thesis. Students also select a faculty member who agrees to supervise the research, evaluate the written work, and approve the honors thesis. In the winter quarter of the senior year, students enroll in International Studies INTL ST 190, Senior Thesis, with their faculty advisor. The faculty advisor supervises and evaluates data collection and analysis and reads and edits chapter drafts. In the spring quarter of the senior year, students enroll in a second quarter of Senior Thesis, with their faculty advisor. The thesis is to be completed by the student and approved by the advisor prior to the end of the quarter.

Honors students must also demonstrate a high level of language proficiency by completing two courses beyond the 2A level in language, literature, or culture taught in their chosen international language.

International Studies majors are also required to pursue some form of international experience, as explained in major requirement H.

Sigma Iota Rho: National Honors Society

The National Honor Society in International Studies was established in 1985, and welcomed the University of California, Irvine, designated Gamma Gamma, as a new chapter on November 30, 2006. The Gamma Gamma Chapter was established primarily as a means by which to honor those students who have excelled academically and to foster integrity and creative performance in the understanding of world affairs.

For more information call the International Studies program office at (949) 824-8687.

- International Studies Minor (p. 1877)
- Conflict Resolution Minor (p. 1878)

International Studies Minor Requirements

A. Choice of one from the core sequence:	
INTL ST 11	Global Cultures and Society
INTL ST 13	Global Economy
INTL ST 14	Introduction to International Relations
B. Regional Focus: Three upper-division courses, at least two that focus on one geographic area. Courses must be from at least two differenct disciplines and include material on at least two difference countries: [1]	
Europe and Eurasia	
Africa and the Middle East	
The Americas (including the U.S.)	
Asia	
Diasporic, Religious and/or Linguistic areas (e.g., Francophone World, Islamic World, Jewish Diaspora, African Diaspora)	
C. Functional Focus: Three upper-division courses in one of the following areas: [1]	
Global Issues and Institutions (International/Transnational Organizations and Movements; International/Comparative Law; Global Trade, Investment and Finance; Global Development, Public Health, and Environment)	
Global Conflict and Negotiation (Global Conflict and Conflict Resolution; Global Security)	
Global Role of U.S. and California	
Global Society and Culture (Global Population, Migration, and Diaspora; Global Identities; Religion, Nationalism, Gender; Global Ethics and Human Rights)	
D. One quarter of SOC SCI 183A (International Studies Forum), one quarter of which must be taken during the senior year as a capstone experience. (SOC SCI 183A is a two-unit course so these together count as a four-unit course.)	

[1] Visit the Institute for International, Global & Regional Studies (http://internationalstudies.ss.uci.edu/is_minor_intl) website for a list of approved courses. Although some courses are listed in more than one focus, students may not double county a course for both their regional and functional areas. Study abroad counts as one course in the regional focus.

Minor in Conflict Resolution

The minor in Conflict Resolution is sponsored by the International Studies program. It offers an interdisciplinary curriculum that helps students both discover and prepare themselves for any career. The course of study provides skills in conflict analysis and resolution and a useful understanding of integrative institutions at the local, regional and international levels. As enrolled minors, students are invited to special engagements where they can interact with leading community and government officials from the U.S. and other countries, prominent scholars and other experts in local and international conflict resolution.

The curriculum includes training that students may apply toward State of California certification as a mediator.

Conflict Resolution Minor Requirements

A. Complete one of the following:	
INTL ST 14	Introduction to International Relations
or SOCIOL 63	Race and Ethnicity
B. Conflict Resolution Core: four courses as follows:	
POL SCI 149	Special Topics in International Relations
POL SCI 154G	Conflict Resolution in Cross-Cultural Perspective
SOC SCI/HUMAN/SOCECOL/INTL ST 183B	Seminar in Mediation
SOC SCI/HUMAN/SOCECOL 183CW	Seminar Conflict Resolution
C. Conflict Resolution Electives: Select two of the following:	
ANTHRO 136A	Nationalism and Ethnicity in the Contemporary World
ANTHRO 164P/POL SCI 154F	Peoples and Cultures of Post-Soviet Eurasia
CHC/LAT 153	Cross-Cultural Research on Urban Gangs (same as CRM/LAW C156)
CRM/LAW C127	Hate Crimes
HISTORY 103	Topics in International Conflicts
HISTORY 126A	The Era of World War I: 1900-1939
HISTORY 126B	The Era of World War II: 1933-45
HISTORY 132A	Israel and Palestine
INTL ST 121	Social Ecology of Peace
INTL ST 166	Psychology of the Middle East Conflict
POL SCI 124A	The Politics of Protest
POL SCI 124C/AFAM 151/ASIANAM 132/CHC/LAT 147	Comparative Minority Politics
POL SCI 142G	U.S. Coercive Diplomacy
PSY BEH 178S/CRM/LAW C149	Violence in Society
SOC SCI 120	Transnational Gangs
SOCIOL 167A/CHC/LAT 148	Racial and Ethnic Relations in the United States
SOCIOL 170A	Vietnam War
SOCIOL 170B	U.S. War on Terrorism
SOCIOL 174/POL SCI 156D	Protests, Movements, and Revolutions
D. Two quarters of SOC SCI 183A (International Studies Forum), one quarter of which must be taken during the senior year as a capstone experience. (SOC SCI 183A is a two-unit course so these together count as a four-unit course.)	

NOTE: With faculty approval, a student may substitute a maximum of one course. With faculty approval, a student participating in the UC Education Abroad Program may substitute a maximum of two courses.

Faculty

Nurudeen O. Alao, Ph.D. Northwestern University, *Lecturer of Social Sciences; International Studies*

Stephen D. Bach, Ph.D. University of California, Irvine, *Lecturer of International Studies; Engineering*

Ricardo Chavira, M.A. California State University, Northridge, *Lecturer of Social Sciences; International Studies*

Robert Henry Duncan, Ph.D. University of California, Irvine, *Lecturer of International Studies*

Paula Garb, Ph.D. Russian Academy of Sciences, *Lecturer of Social Sciences; International Studies; Undergraduate Education*

Peter Gluck, J.D. Franklin Pierce College, *Lecturer of International Studies*

William Hernandez, J.D. Georgetown University, *Lecturer of Paul Merage School of Business; International Studies*

Charles T. O'Connell, Ph.D. University of California, Los Angeles, *Lecturer of International Studies; Sociology*

David Scharp, Ph.D. Washington University, *Lecturer of International Studies*

Seymour A. Schlosser, M.A. University of California, Los Angeles, *Lecturer of International Studies*

Jonas Schultz, Ph.D. Columbia University, *Professor Emeritus of Physics and Astronomy; International Studies; Logic and Philosophy of Science*

Carl E. Schwarz, Ph.D. University of California, Santa Barbara, *Lecturer of Political Science; International Studies*

Jean Tompihe, Ph.D. University of California, Los Angeles, *Lecturer of International Studies*

Courses

INTL ST 11. Global Cultures and Society. 4 Units.
Offers a general overview of the rise of global interdependence in political, economic, demographic, and cultural terms. Considers what drove people from relative isolation into intensified intercourse with one another, and investigates the consequences of this shift.

Same as ANTHRO 41A.

Restriction: Anthropology and International Studies majors have first consideration for enrollment.

(III, VIII)

INTL ST 13. Global Economy. 4 Units.
Acquaints students with the fundamental patterns of the global economy. Emphasizes the historical roots and political implications of economic choices.

Same as ECON 13.

Restriction: International Studies, Economics, Quantitative Economics, and Business Economics majors have first consideration for enrollment.

(III, VIII)

INTL ST 14. Introduction to International Relations. 4 Units.
Analysis of political relations between and among nations with emphasis on explanations of conflict and cooperation. The role of ideologies and their relation to international problems are also examined. Course may be offered online.

Same as POL SCI 41A.

Restriction: International Studies and Political Science majors have first consideration for enrollment.

(III, VIII)

INTL ST 105A. Game Theory and Politics I. 4 Units.
Introduction to game theory and a survey of its political applications. Examples of topics covered include voting in small committees, legislatures, and mass elections; interest group activities and environmental issues; institutional design, and the evolution of cooperative behavior.

Same as POL SCI 130A, SOC SCI 103A, SOCIOL 134.

Restriction: Social Policy and Public Service, Sociology, Political Science, and International Studies majors have first consideration for enrollment.

INTL ST 105B. Game Theory and Politics II. 4 Units.
More advanced game theory and its political applications, beginning where Game Theory and Politics I ends. Examples of topics covered include revolutions; arms race; spatial models of party competition; political manipulation; political coalitions and their power.

Prerequisite: POL SCI 130A or ECON 116A.

Same as POL SCI 130B, SOC SCI 103B.

Restriction: Social Policy and Public Service, International Studies, and Political Science majors have first consideration for enrollment.

INTL ST 111B. Coffee and Capitalism. 4 Units.
History of consumption and production of coffee over the centuries, and coffee's cultural, economic, social, political consequences. Coffee's social life as a drug, symbol of hospitality, religious rite, sociability and bourgeois lifestyle, commodity, source of livelihoods, imperial revenues, corporate profits.

Same as HISTORY 163.

INTL ST 111C. Global Economics and Security. 4 Units.
Analyzes U.S. economic strategy, the impact of U.S. foreign policy on economic strategy, the rise and the challenge of future Great Powers, and focuses on theories of growth, hegemonic stability, and the rise of interdependence in the economic field.

INTL ST 112A. International Business. 4 Units.
Introduction to conducting business in the international arena, decision making in the organization, and globalization of markets and production. Topics covered range from tax and finance to ethics, marketing, and more. Continuing corporate regulatory scandals discussed.

Same as SOC SCI 115D.

INTL ST 114A. International Political Economy. 4 Units.
Examination of problems in global political-economic relations through competing conceptual lenses or grand theories: mercantilism, liberalism, and Marxism. Surveys North-North and North-South issues relating power and wealth.

Same as POL SCI 141B.

(VIII)

INTL ST 114D. Political Economy of Japan. 4 Units.
Surveys postwar developments in the politics and political economy of Japan. Topics include the political and institutional context of policy making; pressures for change which Japan's political economy has faced in the last decade; Japan's past and present foreign policies.

Same as POL SCI 155F.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 117A. Transnational Migration. 4 Units.
Examines the movement of people across national borders, governmentality and the role of state practices to control populations, and issues of citizenship, belonging, and identity. Examples are drawn from the United States, Europe, Latin America, Asia, and Africa.

Same as CHC/LAT 161, ANTHRO 125X.

(VIII)

INTL ST 117B. Migration Destinations. 4 Units.
Examines the migration patterns to the three largest nations that receive immigrants (i.e., permanent settlers): Australia, Canada, and the United States.

Same as ASIANAM 171A, SOCIOL 175D.

INTL ST 121. Social Ecology of Peace. 4 Units.
Examination of differing definitions of the problem of achieving peace and the special problems of seeking peace in the nuclear age.

Same as SOCECOL E113.

INTL ST 122. Nuclear Environments. 4 Units.
Understanding the impact of the nuclear age on the environment and human health through interrelated developments of nuclear power and nuclear weapons. The early years of weapon development, catastrophic environmental pollution, perils of nuclear power in the U.S. and Russia.

Same as SOCECOL E127, PUBHLTH 168.

INTL ST 124A. Introduction to the Comparative Study of Legal Cultures. 4 Units.
Traces the anthropological and comparative cultural study of law from the nineteenth century to the present; briefly surveys the diversity of recorded legal cultures and critically examines key concepts which have been used to describe and classify them.

Same as CRM/LAW C102.

Restriction: Criminology, Law and Society, Social Ecology, and International Studies majors have first consideration for enrollment.

INTL ST 124B. New Democracies. 4 Units.
Examines what democracy is; considers competing theories about its causes; explores multiple democratic institutions; discusses several types of democracy; and analyzes various aspects of democratic quality and stability, focusing on Eastern Europe, Latin America, and sub-Saharan Africa.

Same as POL SCI 155A.

INTL ST 130. Transnational Gangs. 4 Units.
Examines the internationalization of U.S. domestic street gangs. The relationship between California gangs Mara Salvatrucha and 18th Street and Mexico/Central American gangs is assessed. Specified topics include: mobilization, migration, territorialism, culture, organization, and use of technology. Course may be offered online.

Prerequisite: SOC SCI 66.

Same as SOC SCI 120.
Overlaps with SOC SCI XI120, INTL ST XI130.

INTL ST 131A. Just War Revisited. 4 Units.
Examines the evolution of the doctrine of the just war across the history of Western political thought, the importance of changes in the doctrine and whether it applies today; examines international relations case studies to determine today's relevancy.

Same as POL SCI 135B.

INTL ST 135. California and Global Economy. 4 Units.
Presents the nature of the State's economy and the current and projected role of California in the world economy.

Same as SOC SCI 115E.

INTL ST 140A. Approaches to International Relations. 4 Units.
Reviews theoretical and methodological approaches to the study of international relations using contending perspectives to analyze power and influence, capabilities, interdependence, reciprocity, international regimes, anarchy, cooperation, imperialism, and hegemony.

Same as POL SCI 144A.

Restriction: Upper-division students only. Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 141A. Intelligence in International Politics. 4 Units.
Intelligence agencies, activities, and functions—their impact on international politics; how governments and societies seek to control intelligence agencies and activities; and how intelligence agencies work—their techniques, resources, technology, problems, successes, and failures.

Same as POL SCI 143F.

Restriction: Political Science and International Studies majors have first consideration for enrollment.

INTL ST 141B. Homeland Security . 4 Units.
Examines the 9/11 origins of the concept of homeland security; assess the evolution, structure, and operations of the Department of Homeland Security; critically examines the evolution of threat assessment to the U.S. and the utilization of risk management methodologies.

Same as POL SCI 143G.

INTL ST 142A. U.S. Foreign Policy I: Globalism and Cold War. 4 Units.
Looks at changing international perspectives, policy responses, and military strategies of presidential administrations from Truman to Reagan. In assessing the motives and objectives of U.S. foreign policy leaders during the “Cold War” era, the concept of “national interest” is examined.

Same as POL SCI 142D.

Restriction: International Studies and Political Science majors have first consideration for enrollment.

INTL ST 142B. U.S. Foreign Policy II: Cold War Decline & After. 4 Units.
Deals with U.S. foreign policy from the post-Vietnam War era through the collapse of the Cold War and into the emergence of the post-Cold War era, roughly from 1972 to the present.

Same as POL SCI 142E.

Restriction: Political Science majors have first consideration for enrollment.

INTL ST 142C. U.S. Foreign Policy III: National Security Decision-Making. 4 Units.
Concept of "national security" from 1947-1990s is reviewed. Organizational and psychological factors that influence decision-making, the dangers of "groupthink," and the issue of accountability are analyzed. National security agenda (military, economic, environmental, and social) for the 1990s is discussed.

Same as POL SCI 142F.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 142D. The International Relations of East Asia. 4 Units.
Surveys various aspects of relations between the nations of East Asia. Topics include the historical development of the region; current political and security relations, including the impact of the American military presence.

Same as POL SCI 142B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 142E. U.S. Coercive Diplomacy. 4 Units.
Examines the theory of compellence and the U.S. practice of coercive diplomacy--the power to change behavior of other governments. Specific case examples: the Cuban missile crisis, bombing of North Vietnam, the Nicaraguan Contras, Desert Shield/Desert Storm, and Libya.

Same as POL SCI 142G.

Restriction: Upper-division students only. Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 142F. Human Rights and Foreign Policy. 4 Units.
Analyzes theories, patterns, and cases of human rights foreign policy. How do countries pursue the values and standards of human rights in their foreign relations. How does the U.S. fit into worldwide trends? Examines historical and contemporary cases.

Same as POL SCI 142H.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 142G. U.S. Foreign Policy Toward Asia. 4 Units.
U.S. policy toward the countries of East Asia: bilateral and regional security relationships, U.S. economic relations with the major Asian countries, the development of regional institutions, and human rights.

Same as POL SCI 141E.

INTL ST 143A. Vietnam War. 4 Units.
Examines social structures and social changes in Vietnamese and U.S. societies through the study of the Vietnam War.

Same as SOCIOL 170A.

INTL ST 144A. Comparative Politics: Four Nations, Three Continents. 4 Units.
Studies four countries in a comparative fashion: their respective political histories and cultural traditions; actual differences among their superficially similar party, parliamentary, and executive institutions; contemporary economic policy. The countries represent three continents and varying levels of economic development.

Same as POL SCI 154C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 145A. International Law. 4 Units.
Examination of the origin, changing structure, application of international law, and the role of legal norms in regulating the behavior of states and maintaining international order.

Prerequisite: POL SCI 71A.

Same as POL SCI 172A.

(VIII)

INTL ST 145C. Constitution and Rights. 4 Units.
How are constitutions crafted, maintained, and changed? Does constitutionalism support or undermine democracy? What difference do rights and constitutional courts make? Explores these questions through a comparative examination of the theory and practice of constitutionalism in developing democracies.

Prerequisite: POL SCI 71A.

Same as POL SCI 172C.

INTL ST 145D. Courts in New Democracies . 4 Units.
Examines the conceptual, theoretical, and empirical foundations of the study of courts and politics in new democracies, introducing students to a variety of contemporary debates about how political dynamics shape courts, and how courts shape politics.

Prerequisite: POL SCI 71A.

Same as POL SCI 172D.

INTL ST 151B. Religion and World Politics. 4 Units.
Examines the relationship between religion and world politics historically and today, focusing on connections with peace/war, democracy, human rights, secularism(s), and globalization. Covers major debates, scholarship, concepts, and theories through class exercises, exams, and essays.

Prerequisite: POL SCI 41A or INTL ST 11 or INTL ST 12 or REL STD 5A or REL STD 5B or REL STD 5C.

Same as POL SCI 146B, REL STD 115.

INTL ST 152A. Non-Government Organization (NGO) Fundamentals. 4 Units.
Introduction to non-governmental organizations, including their role in U.S. society and the international community. Explores varying definitions of NGOs and the characteristics held in common by all NGOs.

Same as SOC SCI 152A.

INTL ST 153B. Cross-Cultural Studies in Gender. 4 Units.
Familiarizes students with the diversity of women's experiences around the world. Gender roles and relations are examined within cultural and historical contexts. A central concern is how class, race, and global inequalities interact with women's status.

Prerequisite: ANTHRO 2A or ANTHRO 2B.

Same as ANTHRO 121D.

INTL ST 153C. Urban Anthropology. 4 Units.
Cultural roles of urban centers and processes of urbanization in comparative perspective, focusing on both nonwestern, nonindustrial societies of past and present; the relationship between modern urban centers and Third World peoples. Migration, urban poverty, in Africa, Asia, Latin America.

Same as ANTHRO 121J.

INTL ST 153D. Colonialism and Gender. 4 Units.
An anthropological enquiry into the ways colonial relations of power have been structured and gendered throughout the world, and to what effect. Examines the social locations of men and women in the everyday exercise of colonial and imperial power.

Same as ANTHRO 136G.

Restriction: Anthropology majors have first consideration for enrollment.

INTL ST 153E. Nationalism and Ethnicity in the Contemporary World. 4 Units.
An exploration of the concepts of identity, culture, ethnicity, race, and nation through ethnographic cases, with a view to asking larger questions: how do people create nativeness and foreignness? How does "culture" get worked into contemporary racisms and nationalisms.

Same as ANTHRO 136A.

(VIII)

INTL ST 154. Ethics and Justice in International Affairs. 4 Units.
Analyzes choices regarding the use of force, resolving conflict, and promoting human rights and social justice. Special attention is given to the American experience as a principal case study of ethics and statecraft.

Restriction: Upper-division students only. International Studies majors have first consideration for enrollment.

INTL ST 154B. Human Rights. 4 Units.
Examines the causes and consequences of human rights violations with a focus on Latin America. What are human rights? When and where are they violated? What political mechanisms are available to deal with human rights problems? How effective are they.

Same as POL SCI 153E.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 154D. Ethics and International Relations. 4 Units.
Introduces students to the dynamic field of ethics and international relations. A variety of traditional and emerging perspectives are examined, skeptical views are discussed in detail, and arguments are illustrated with current cases.

Same as PP&D 140, POL SCI 146A.

INTL ST 154W. Ethics and Justice in International Affairs. 4 Units.
Analyzes choices regarding the use of force, resolving conflict, and promoting human rights and social justice. Special attention is given to the American experience as a principal case study of ethics and statecraft.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Upper-division students only. International Studies majors have first consideration for enrollment.

(Ib)

INTL ST 155A. International Journalism. 4 Units.
Studies and critically analyzes how the media covers international issues that have reshaped. American foreign coverage and the implications for Americans and U.S. foreign policy. Focuses on international reporting as a way of developing fundamental skills of journalism.

Same as SOC SCI 184F.

INTL ST 155BW. Media Writing. 4 Units.
Designed to teach reporting and news writing basics. Students learn how to gather and organize information, ask effective questions, develop story ideas, research facts, and write stories on deadline. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOC SCI 184GW.
Overlaps with INTL ST XI155B, SOC SCI XI184G.

Restriction: International Studies majors have first consideration for enrollment.

(Ib)

INTL ST 156A. Voting and Political Manipulation. 4 Units.
Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as POL SCI 151H, SOC SCI 121T, ECON 154.

Restriction: International Studies, Political Science, Social Science and Economics majors have first consideration for enrollment.

INTL ST 157A. Twenty-First Century Africa. 4 Units.
Comparative studies of the cultures and societies of Sub-Saharan Africa, with emphasis on critical study of colonialism and postcoloniality, social transformation, and the politics of identity.

Prerequisite: ANTHRO 2A.

Same as ANTHRO 164A.

Restriction: Anthropology majors have first consideration for enrollment.

INTL ST 158A. Modern South Asian Religions. 4 Units.
Nineteenth- and twentieth-century developments in Hinduism, Islam, and Sikhism are covered, with emphasis on changing forms as well as contents of religious movements and the state.

Same as ANTHRO 135I.

(VIII)

INTL ST 158B. Peoples of the Pacific. 4 Units.
The cultural history and recent developments among the Pacific peoples of Polynesia, Micronesia, Melanesia, New Guinea, and Australia.

Same as ANTHRO 163A.

(VIII)

INTL ST 158D. China in the Global Age. 4 Units.
Chinese society from 1949 to present. Social change in the context of political control and ideological considerations. Focus on the power structure, political decision processes, and ideological legitimation, and interplay with the Chinese community and its culture.

Same as SOCIOL 175B.

INTL ST 161A. Political Islam. 4 Units.
Political Islamd is a diverse phenomenon. While noticeable barriers exist to "Islamist democracy," it is the Islamists who will define the political future of much of the Muslim world. Reviews the experience of Saudi Arabia, Egypt, Pakistan, Turkey, and Indonesia.

Same as SOC SCI 188K.

INTL ST 162. Afghanistan. 4 Units.
Provides an examination of Afghanistan's traditional social organization, economy, political organization, and relationship among ethnic groups as a basis for discussing the consequences of domestic political turmoil and foreign interventions over the last 20 years. Current situation and future addressed.

Same as SOC SCI 188I, POL SCI 158C.

INTL ST 162B. Peoples and Cultures of Post-Soviet Eurasia. 4 Units.
Examines the cultures and political conflicts of the more than 130 indigenous ethnic groups in the European and Asian territories of the former U.S.S.R. Emphasis is on the theoretical issues of ethnicity, nationalism, and conflict management.

Same as POL SCI 154F, ANTHRO 164P.

(VIII)

INTL ST 165. Introduction to Contemporary Middle East Politics. 4 Units.
An overview of basic issues that shape the politics of the Middle East and North Africa. Themes include implication of the colonization era, nation-state formation, inter-Arab relations, nationalism, Arab-Israel conflict, Islamic resurgence, and more.

Same as SOC SCI 188A, POL SCI 158D.

INTL ST 166. Psychology of the Middle East Conflict. 4 Units.
Explores how emotions guide actions; political movements and social identity factors in ethnic, religious, or other group conflicts; psycho-biographies of political leaders and effects on foreign policy making; decisions to go to war; psychological dimensions of conflict and conflict resolution.

Same as SOC SCI 188M.

INTL ST 168. Iran: Past and Present. 4 Units.
Pre-revolutionary Iran; and Iran since the revolution. History, oil and politics: domestic and international.

Same as SOC SCI 188D.

INTL ST 170. Israel and the World: An Introduction. 4 Units.
Examines the founding of Israel, its relationship with the Arab world, the role of the international community, and the challenges it faces today.

Same as SOC SCI 188E.

INTL ST 174. Middle East Narratives. 4 Units.
Explores various narratives of peoples living in the Middle East: Bedouins, Jews, Muslims, Christians, Druze, Baha'i; looks at how their identities were formed and altered over time through empire, religion, exodus, war, democracy, diasporas; focus is philosophical and historical.

Same as POL SCI 136D.

INTL ST 175A. U.S. War on Terrorism. 4 Units.
Analyzes the United States war on terrorism by focusing on terrorism, the U.S. wars in Afghanistan and Iraq, and changes in police powers through the Patriot Act, as well as the political leadership which directs the war.

Same as SOCIOL 170B.

INTL ST 176A. African Politics. 4 Units.
An overview of African politics in comparative perspective. Central themes include the analysis of state-nation building in Africa, Africa's economy, and its civil society as this relates to implications for development prospects on the continent.

INTL ST 176B. East Asian Politics. 4 Units.
Explores the recent history and political systems of China, Japan, and Korea, comparing the three countries with each other and with occasional reference to the United States, British, and French systems.

Same as POL SCI 151A.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176C. Introduction to Chinese Politics. 4 Units.
Background to the Chinese revolution, rise of the communist party; and institutions, ideology, and structure of Communist party rule from 1949-present.

Same as POL SCI 151B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176D. Chinese Politics: Policy, Leadership, and Change. 4 Units.
Examines major policies from 1949 to the present, and considers the changing role of the Communist Party and its shifting treatment of various social groups; the era of Mao Zedong, reforms under Deng, and post-Deng politics.

Same as POL SCI 151C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176G. German Politics and Society. 4 Units.
Concentrates on twentieth-century German politics and society, focusing on the contemporary political system of democratic West Germany. Study of the historical legacies of Weimar and the Nazi period, the postwar division between the two states and their reunification.

Same as POL SCI 152C.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176I. West European Politics. 4 Units.
Explores four main themes: (1) thinking scientifically about politics; (2) understanding the linkages between different political structures and spheres of activity; (3) evaluating some theories about politics; (4) learning about three countries: Britain, France, and Germany.

Same as POL SCI 152F.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 176K. Latin American Politics. 4 Units.
Introduces the main concepts and theoretical approaches underlying the study of Latin American politics, examines recent political dynamics, and explores the challenges the region faces in the twenty-first century and how countries will attempt to address them.

Same as POL SCI 153A, CHC/LAT 151A.

Restriction: Political Science majors, Chicano/Latino Studies majors, and International Studies majors have first consideration for enrollment.

INTL ST 176L. Canadian Politics. 4 Units.
Addresses the basic structures and processes of contemporary Canadian government and politics. Additional topics may include regionalism, federalism, western alienation and oil, Canadian solutions to social welfare policy questions, developments in Quebec, and other issues associated with French-English relations.

Same as POL SCI 153B.

Restriction: Political Science majors and International Studies majors have first consideration for enrollment.

INTL ST 177B. Perspectives on the U.S. - Mexican Border. 4 Units.
Economic aspects of the historical development of the United States-Mexican border. The current economic situation in the Southwest and border areas as it affects both Mexico and the Latino/Chicano population is also examined.

Same as SOC SCI 173I, CHC/LAT 160.

(VII)

INTL ST 177C. Revolution in Latin America. 4 Units.
Presents a comparative analysis of the causes, development, and consequences of selected revolutionary movements, focusing on outbreaks in Mexico, Bolivia, Cuba, Chile, Nicaragua, and Grenada. Explores topics of state formation, economic nationalism, social justice, ethnicity, and role of international affairs.

Same as CHC/LAT 151B, HISTORY 166D, SOC SCI 173N.

INTL ST 177D. U.S. Intervention in Latin America. 4 Units.
Explores political, economic, social, and cultural ties that bind Latin America to the United States. Focuses on U.S. intervention and Latin American response from early nineteenth century to present day. Case studies include Mexico, Guatemala, Cuba, Chile, and Central America.

Same as HISTORY 166, SOC SCI 123A, CHC/LAT 150.

INTL ST 177E. Cuban Society and Revolution. 4 Units.
Explores the causes, development, and legacy of the 1959 Revolution. Themes include economic dependency, democracy, race, gender, culture, and the always volatile relations between Cuba and the United States.

Same as POL SCI 153G, HISTORY 166C, CHC/LAT 157.

INTL ST 177F. Introduction to Cuba: History, Culture, and Society. 4 Units.
Introduction to Cuban history, culture, and society using social science texts, visual and musical materials. Examines major historical moments including the historical relationship between the United States and explores evolution of Cuban music from the earliest times to present.

Same as CHC/LAT 130, SOC SCI 173Q.

(VIII)

INTL ST 177G. Revolution and Reaction in Cold War Latin America. 4 Units.
Explores Latin American experiences of revolutionary change and military dictatorship during the Cold War (1945-1990). Pays particular attention to the lives of women, peasants, workers, and the urban middle classes. Case studies include Guatemala, Cuba, Chile, Argentina, Nicaragua, and Mexico.

Same as HISTORY 166B.

INTL ST 177H. Gender, Race, and Nation in Latin America. 4 Units.
Addresses the importance of gender and race to nation-making in Latin America during the 19th and 20th centuries (1810-1945). Considers how hierarchies between men and women shaped ideas about family, the state, and modernity.

Same as HISTORY 166A, WOMN ST 172.

INTL ST 177I. Ancient Civilization of Mexico and the Southwest. 4 Units.
The prehistory and cultural evolution of the civilization which originated in Mexico, including the Olmecs, Aztecs, Toltecs, Maya, and Zapotec, as well as the Pueblos of the Southwestern U.S. Topics include the origins of food production and of the state.

Same as ANTHRO 141A.

INTL ST 177J. Peoples and Cultures of Latin America. 4 Units.
Surveys the prehistory of Latin America and its indigenous cultures, emphasizing the impact of colonial rule, capitalism, and twentieth-century transformations. Emphasis on communities from several countries. In some years, emphasis on comparisons between the Latin American and Caribbean experiences.

Same as ANTHRO 162A.

(VIII)

INTL ST 178A. Immigration Politics in Western Europe. 4 Units.
Examines the politics of immigration in Western Europe. Considers historical, economic, political, and social dimensions of immigration as well as the nature of ensuing conflict. Students investigate a variety of immigrant-related policies, including asylum, citizenship, and integration.

Same as POL SCI 141D.

INTL ST 179. Regional Topics in International Studies. 4 Units.
Studies in selected areas of international studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

INTL ST H180. International Studies Honors Research Seminar. 4 Units.
Assists students to prepare a thesis prospectus for the Honors Program in International Studies. Students choose a topic, learn writing and research methods, write a prospectus and orally present and defend it, and conduct a literature review.

Restriction: International Studies Honors Program students only. International Studies majors have first consideration for enrollment.

INTL ST 183A. International Studies Forum. 2 Units.
A faculty-student forum featuring lecturers from a variety of institutions with discussion issues related to international studies.

Repeatability: May be taken for credit 4 times.

Same as SOC SCI 183A, SOCECOL 183A, HUMAN 183A.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

INTL ST 183B. Seminar in Mediation. 4 Units.
Student develop mediation skills and refine knowledge in the practice and theory of conflict resolution. Students who complete this course may serve as mediators in the Campus Mediation Program. Course is a prerequisite to completing Indep Study as an intern.

Same as HUMAN 183B, SOC SCI 183B, SOCECOL 183B.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

INTL ST 183E. Conflict Resolution in Cross-Cultural Perspective. 4 Units.
Examines theories of conflict management. Analyzes how conflict is mitigated in diverse cultures: at the interpersonal level, between groups, and on the international scale. Students discuss readings, hear from conflict management practitioners, and simulate negotiations.

Same as ANTHRO 136D, SOC SCI 183E, POL SCI 154G.

(VIII)

INTL ST 189. Special Topics in International Studies. 2-4 Units.
Studies in selected areas of international studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

INTL ST 190. Senior Thesis. 4 Units.
Students work with faculty to complete their honors thesis.

Repeatability: May be taken for credit 2 times.

INTL ST 197. Internship. 2-4 Units.
Provides an opportunity to apply knowledge and skills to an internship experience in the non-profit sector. Students gain new skills outside the classroom environment by participating in an off-campus, supervised internship for a total of 50 or 100 hours.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

INTL ST 199. Individual Study. 2-4 Units.
Students participate in planned research and study under written contract with a supervising UCI instructor. Students may enroll for only one individual study course each quarter.

Repeatability: Unlimited as topics vary.

The Undergraduate Major in Social Policy and Public Service

The major in Social Policy and Public Service (SPPS) provides an interdisciplinary perspective on the study of society, both at the individual and group level. Using the knowledge and methods of all social science disciplines, a student majoring in Social Policy and Public Service develops the skills to think clearly about social concepts and issues. Majors have an opportunity to use their classroom knowledge in applied and individual learning experiences, such as internships, field studies, or research with a faculty advisor.

The curriculum for the major exposes students to various social science methods and topics, teaching applied computer-based research and statistical analyses; internship experiences in community, public and educational organizations; and a more in-depth understanding of social science research and methodology. To ensure competency in a specific area of interest, students can narrow their studies by choosing one of three focus areas while completing their upper-division work; the focus areas are (1) Education, (2) Governance, or (3) Health.

Requirements for the B.A. Degree in Social Policy and Public Service

All students must meet the University Requirements (p. 71)**.**
All students must meet the School Requirements (p. 1561)**.**

Requirements for the Major

School requirements must be met and must include 15 courses (60 units) as specified below. *Students are reminded that the Pass/Not Pass option is not applicable to course requirements A through H or any additional requirements listed for specific majors.* Courses used to meet requirements A through H are included in the computation of the grade point average in courses required in the major program.

A. An understanding of the fundamental concepts, analytical tools, and methods of social science:	
SOC SCI 1A	Principles in the Social Sciences
SOC SCI 2A	Introduction to Social Science Analysis
SOC SCI 3A	Computer-Based Research in the Social Sciences
B. One course in Introduction to Social Policy and Public Service:	
SOC SCI 40	Social Policy and Public Service
C. One course in Cultural Competency:	
SOC SCI 70C	Comparing Cultures
or SOCIOL 63	Race and Ethnicity
D. One course in Leadership:	
SOC SCI 181A	Ethical Leadership
E. Two courses in Research Methods:	
SOC SCI 102A	Introduction to Geographic Information Systems
SOC SCI 170A	Research Methods in the Social Sciences
F. Three quarters of Field Studies:	
SOC SCI 193A- 193B- 193C	Field Studies in Public and Community Service and Field Studies in Public and Community Service and Field Studies in Public and Community Service (must be taken consecutively)
G. One quarter of off-campus internship experience:	
SOC SCI 194A	Public Service Internship
H. Functional Focus: Three courses in one of the following areas:	
Education:	
EDUC 124	Multicultural Education in K-12 Schools
EDUC 126	Ethics and Education
EDUC 132	Reading and Writing Enrichment for After-School Programs
EDUC 150	Changing the High School Experience
EDUC 157	Educational Research and Evaluation
EDUC 175	Foundations of Education
EDUC 180	Interdisciplinary Topics in Education
EDUC 182	Latina/Latino Access and Persistence in Higher Education
CHC/LAT 189	Special Topics in Educational Policy and Issues
ECON 158	Economics of Education
PSYCH 141J- 141K- 141L	Jumpstart I: Early Language, Literacy, and Social Development and Jumpstart I: Early Language, Literacy, and Social Development and Jumpstart I: Early Language, Literacy, and Social Development
SOC SCI 196	Global Connect
Governance:	
ANTHRO 121G	Political Anthropology
ANTHRO 121J	Urban Anthropology
INTL ST 161A	Political Islam
INTL ST 162	Afghanistan
INTL ST 165	Introduction to Contemporary Middle East Politics
INTL ST 177C	Revolution in Latin America
INTL ST 177E	Cuban Society and Revolution

POL SCI 122A	American Metropolitan Politics
POL SCI 122B	California Politics
POL SCI 123A	Parties and Political Organizations
POL SCI 124A	The Politics of Protest
POL SCI 124B	Latinos in U.S. Politics
POL SCI 124C	Comparative Minority Politics
POL SCI 124E	African American Politics
POL SCI 125A	The United States Congress
POL SCI 125B	Congress:The New Institutionalist Approach
POL SCI 126C	U.S. Immigration Policy
POL SCI 126D	Urban Politics and Policy
POL SCI 130A	Game Theory and Politics I
POL SCI 130B	Game Theory and Politics II
POL SCI 137B	Types of Political Representation
POL SCI 137C	Political Psychology
POL SCI 142D	U.S. Foreign Policy I: Globalism and Cold War
POL SCI 142E	U.S. Foreign Policy II: Cold War Decline & After
POL SCI 142F	U.S. Foreign Policy III: National Security Decision-Making
POL SCI 151H	Voting and Political Manipulation
POL SCI 171A	Law and Society
POL SCI 171B	Jurisprudence
POL SCI 171C	Comparative Constitutional Politics
POL SCI 171D	American Constitutional Law
POL SCI 171F	Law in the Twenty-First Century
POL SCI 172A	International Law
POL SCI 172B	International Law and the U.S. Legal System
POL SCI 174A	Civil Liberties
POL SCI 174B	Contemporary Constitutional Rights
POL SCI 174C	U.S. Supreme Court
POL SCI 179	Special Topics in Public Law
SOC SCI 152A	Non-Government Organization (NGO) Fundamentals
SOC SCI 173I	Perspectives on the U.S. - Mexican Border
SOC SCI 188A	Introduction to Contemporary Middle East Politics
SOC SCI 194B	Community Internship
SOCIOL 138	Business Decisions
SOCIOL 141	Organizations
SOCIOL 144	Politics, Power, and Society
SOCIOL 177W	Immigration and Social Policy
Health:	
ANTHRO 128B	Race, Gender, and Science
ANTHRO 132A	Psychological Anthropology
ANTHRO 134A	Medical Anthropology
ANTHRO 134G	HIV/AIDS in a Global Context
CHC/LAT 168	Chicano/Latino Social Psychology
CHC/LAT 178	Health and the Latino Paradox
CHC/LAT 179	Special Topics in Health, Medicine, and Psychosocial Dynamics
PSYCH 120A	Abnormal Psychology
PSYCH 120D	Developmental Psychology
PSYCH 121S	Psychology of Sleep and Consciousness
PSYCH 127C	Clincal Child Psychology
PSYCH 127E	Psychology and Emotion
PSYCH 127G	Gerontology

PSYCH 127H	Child Health Psychology
PSYCH 127I	Infant Development
PSYCH 127T	Child Therapies
PSYCH 171	Psychology of a Diverse Society
PSYCH 174A	Asian American Psychology
PSYCH 174E	African American Psychology
PSYCH 174F	Chicano/Latino Psychology
SOCIOL 135	Social Psychology of Networks
SOCIOL 154	Medical Sociology

NOTE: Certain special topics courses may be applicable to this major; students should see their undergraduate advisor prior to enrolling in a special topics course to ensure that it meets the requirements. SOC SCI 184A Sage Leader Research I-SOC SCI 184B Sage Leader Research II may not be used to satisfy school requirements.

Honors Program

The honors program allows majors to engage in research leading to the completion of an honors thesis. The topic for the honors thesis, reflecting a social science theme, is determined by the student in consultation with a faculty advisor. In addition to satisfying the requirements for the major, honors program participants must complete additional course work as specified below.

The honors program is composed of three four-unit courses: SOC SCI H190A Honors Research Workshop, SOC SCI H190B Honors Thesis Research, and SOC SCI H190C Honors Thesis. Satisfactory completion of the honors thesis course also satisfies the upper-division writing requirement. The honors program is open to all junior and senior Social Policy and Public Service majors with an overall GPA of 3.00 and a 3.30 GPA in at least five Social Science courses.

The schedule of courses for the honors program is as follows:

1. During the spring quarter of the junior year or the summer prior to the senior year, students formally apply to the honors program through the School of Social Sciences Undergraduate Student Affairs Office.
2. In the fall quarter of the senior year, students enroll in SOC SCI H190A. This course ends with each student having formulated a written research plan for the honors thesis. Students also select a faculty mentor who has agreed to supervise the research and evaluate the final version of their honors thesis.
3. In the winter quarter of the senior year, students enroll in SOC SCI H190B and work with their faculty mentor, who supervises and evaluates data collection and analysis.
4. In the spring quarter of the senior year, students enroll in SOC SCI H190C and work with their faculty mentor to complete the final version of their honors thesis.

Pi Gamma Mu: International Honor Society

The International Honor Society in Social Sciences is the oldest and preeminent honor society in the social sciences with over 150 active chapters in the United States and overseas. Its mission is to encourage and recognize superior scholarship in social science disciplines and to foster cooperation and social service among its members. For more information call (949) 824-9229.

Faculty

Nurudeen O. Alao, Ph.D. Northwestern University, *Lecturer of Social Sciences; International Studies*

Jeanett Castellanos, Ph.D. Washington State University, *Lecturer with Security of Employment of Social Sciences*

Ricardo Chavira, M.A. California State University, Northridge, *Lecturer of Social Sciences; International Studies*

Joanne Christopherson, Ph.D. University of California, Irvine, *Lecturer of Social Sciences*

Raúl A. Fernández, Ph.D. Claremont Graduate University, *Director of the UC-Cuba Academic Initiative* and *Professor Emeritus of Chicano/Latino Studies; Culture and Theory; Social Sciences*

James J. Flink, Ph.D. University of Pennsylvania, *Professor Emeritus of Social Sciences*

Paula Garb, Ph.D. Russian Academy of Sciences, *Lecturer of Social Sciences; International Studies; Undergraduate Education*

Gilbert G. Gonzalez, Ph.D. University of California, Los Angeles, *Professor Emeritus of Chicano/Latino Studies; Culture and Theory; Social Sciences*

James R. Hull, Ph.D. University of North Carolina at Chapel Hill, *Lecturer with Potential Security of Employment of Social Sciences; Sociology*

Nick R. Noviello, Ph.D. University of California, Irvine, *Lecturer of Social Sciences*

Bojan M. Petrovic, Ph.D. University of California, Irvine, *Lecturer of Social Sciences; Political Science*

Paul R. Shirey, Ph.D. University of California, Irvine, *Lecturer of Social Sciences; Economics*

Alfonso Valdez, Ph.D. University of Southern California, *Lecturer of Social Sciences*

Joseph L. White, Ph.D. Michigan State University, *Professor Emeritus of Social Sciences*

Courses

SOC SCI 1A. Principles in the Social Sciences. 4 Units.
Introduction to various disciplines within the social sciences. Provides an interdisciplinary perspective on understanding human behavior and social institutions, including interpersonal, economic, and cultural activities. Course may be offered online.

(III)

SOC SCI H1E. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Same as SOCECOL H20A.

Restriction: Campuswide Honors Program students only.

(III)

SOC SCI H1F. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Prerequisite: SOC SCI H1E or SOCECOL H20A.

Same as SOCECOL H20B.

Restriction: Campuswide Honors Program students only.

(III)

SOC SCI H1G. Honors: Critical Issues on the Social Sciences. 6 Units.
Major themes, methods, and works in the social sciences from an interdisciplinary perspective. Each quarter focuses on a different topic. Weekly seminars emphasizing development of critical thinking skills and quantitative analysis through written work are integral to the course.

Prerequisite: SOC SCI H1F or SOCECOL H20B.

Same as SOCECOL H20C.

Restriction: Campuswide Honors Program students only.

(III)

SOC SCI 2A. Introduction to Social Science Analysis. 4 Units.
Introduction to social science research and analytical models. Theory construction and use of research methods in an interdisciplinary context. Discussion of the application of social science research to public policy. Computer laboratories develop creative thinking, graphing, and data presentation skills.

Restriction: Social Science majors have first consideration for enrollment.

(III)

SOC SCI 3A. Computer-Based Research in the Social Sciences. 4 Units.
Focuses on the data manipulation, data visualization, and information searching techniques. Hands-on experience in hypothesis testing, mapping, graphics, and data arrays. Course may be offered online.

Restriction: School of Social Sciences majors have first consideration for enrollment.

SOC SCI 5A. Introduction to Human Geography. 4 Units.
Human behavior in a geographical context. Spatial patterns and organization of the cultural, social, and economic activities of man as imposed on and influenced by the earth's physical setting.

(III)

SOC SCI 5B. Introduction to Physical Geography. 4 Units.
An introduction to the physical world we live in. Distribution and dynamics of the earth's air, water, and solid crust. Concepts and principles from climatology and geology. Selected examples from North America and beyond.

SOC SCI 5D. US & World Geography. 4 Units.
Survey of general geographical principles and facts on a world scale, as well as introduction to the broad regional and resource geography of the U.S., emphasizing in particular the interactions of physical and cultural factors.

(III, VIII)

SOC SCI 9A. General Statistics and Probability I. 4 Units.
Introduction to the variety of statistical applications in many fields, including the humanities, physical and social sciences, business, forensic and health sciences. Descriptive statistics, including percentile ranks, standardization, and normal approximation. Estimation and the measurement of error.

Overlaps with ECON 10A, PSYCH 10A, SOCECOL 13, SOC SCI 10A, SOCIOL 10A, POL SCI 10A.

Restriction: Non-Social Sciences majors only.

(Va)

SOC SCI 9B. General Statistics and Probability II. 4 Units.
Introduction to statistical inference, sampling distributions, standard error. Hypothesis tests for proportions and means. Inferential techniques for nominal variables including chisquare. Selected applications in fields such as ecology, forensic science, and quantitative stylistics are based on student interests.

Prerequisite: SOC SCI 9A.

Overlaps with ANTHRO 10B, POL SCI 10B, PSYCH 10B, SOCECOL 13, SOC SCI 10B, SOCIOL 10B.

Restriction: Non-Social Sciences majors only.

(Va)

SOC SCI 9C. General Statistics and Probability III. 4 Units.
Focus on correlation and regression. One-way and two-way factorial analysis of variance. Introduction to repeated measures designs and non-parametric statistics. Critiquing the use of statistics in newspapers and popular magazines. Locating, accessing, and evaluating statistical data.

Prerequisite: SOC SCI 9B.

Overlaps with ANTHRO 10C, POL SCI 10C, PSYCH 10C, SOCECOL 13, SOC SCI 10C, SOCIOL 10C.

Restriction: Non-Social Sciences majors only.

(Vb)

SOC SCI 10A. Probability and Statistics in Social Sciences I. 4 Units.
Introduction to the variety of statistical applications in the social sciences. Descriptive statistics. Measures of central tendency and dispersion. Percentile ranks. Standardization and normal approximation. Basic probability theory focuses on application to statistical inference and binomial distribution. Laboratory required.

Corequisite: SOC SCI 3A.
Prerequisite: SOC SCI 3A.

Overlaps with ECON 10A, PSYCH 10A, SOCECOL 13, POL SCI 10A, SOC SCI 9A, SOCIOL 10A.

Restriction: Lower-division students only. Social Science majors have first consideration for enrollment.

(Va)

SOC SCI 10B. Probability & Statistics in Social Sciences II. 4 Units.
Introduction to statistical inference, sampling distribution, standard error. Hypothesis tests for proportions and means. Inferential techniques for nominal variables including chi-square, study measures of strengths, significance of relationships between variables, assumptions, data requirements, and types of error in significance tests. Course may be offered online.

Prerequisite: SOC SCI 10A.

Overlaps with ANTHRO 10B, POL SCI 10B, SOCECOL 13, SOC SCI 9B, SOCIOL 10B, PSYCH 10B.

Restriction: Social Science majors have first consideration for enrollment.

(Va)

SOC SCI 10C. Probability & Statistics in Social Sciences III. 4 Units.
Focus on correlation, regression, and control for effects of variables. One-way and two-way factorial analysis of variance. A priori and a posteriori comparisons. Introduction to repeated measures design and non-parametric statistics. Discuss use of statistics in newspapers and popular magazines.

Prerequisite: SOC SCI 10B.

Overlaps with ANTHRO 10C, POL SCI 10C, PSYCH 10C, SOCECOL 13, SOC SCI 9C, SOCIOL 10C.

Restriction: Social Science majors have first consideration for enrollment.

(Vb)

SOC SCI 11A. Barter to Bitcoin: Society, Technology and the Future of Money. 4 Units.
Digital money has captured the broad imagination of speculators, coders, regulators, criminals and the mass media. Course puts this change in context: how do we understand money as a social, political and technological phenomenon? Course may be offered online.

Same as IN4MATX 12.

(II, III)

SOC SCI 20. Model United Nations. 2 Units.
Focuses on simulations of the foreign policy pursuits of selected countries in the international community. Emphasis placed on understanding the rules of debate, as well as the policy positions of the student's selected country in the United Nations.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 6 times.

SOC SCI 40. Social Policy and Public Service. 4 Units.
An introduction to the basic theories and principles of public policy. Students examine various influences on the development of public policy and the principle actors in the process, and learn to identify tools and techniques employed in policy making.

(III)

SOC SCI 66. Introduction to Gangs . 4 Units.
Introduces students to street gang subculture and explores risk factors associated with gang membership. Students develop a working definition for street gang and understand the difference between social and legal definitions. Also explores the connection between prison and street gangs.

SOC SCI 70A. Race and Ethnicity. 4 Units.
Focuses on racial and ethnic relations in the United States and compares them with those found in other societies. Analyzes the conditions that favor either cooperation and integration or rivalry, tension, and conflict. Appraises strategies for reducing and resolving conflicts.

Same as SOCIOL 63.

(VII)

SOC SCI 70C. Comparing Cultures. 4 Units.
Introduces students to the scope of cross-cultural comparisons by analyzing the theories, methodologies, and facts utilized by anthropologists, sociologists, social psychologists, political scientists, and historians in comparing cultures.

(III, VII)

SOC SCI 78A. Asian American Histories. 4 Units.
Examines and compares diverse experiences of major Asian American groups since the mid-nineteenth century. Topics include origins of emigration; the formation and transformation of community; gender and family life; changing roles of Asian Americans in American society. Formerly ASIANAM 60A.

Same as ASIANAM 50, HISTORY 15C.

((III or IV) and VII).

SOC SCI 78B. Asian American Communities. 4 Units.
Examines the renewal of Asian immigration following World War II. Explores contemporary Asian American populations and communities in the U.S., and the impact of contemporary Asian immigration on the U.S. political economy and social order.

Same as ASIANAM 52.

(III, VII)

SOC SCI 78C. Asian Americans and Comparative Race Relations. 4 Units.
Analyzes the Asian American experience in comparative perspective, which includes comparisons of different ethnic and racial groups, and across gender and class. Possible topics include labor, economy, politics, migration, nation, popular culture, gender, family, sexuality, and multiraciality.

Same as ASIANAM 53.

(III, VII)

SOC SCI 89. Special Topics in Social Sciences. 2-4 Units.
Studies in selected areas of Social Sciences. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOC SCI 102A. Introduction to Geographic Information Systems. 4 Units.
Hands-on laboratory course introduces students to the fundamentals of Geographic Information Systems (GIS) technology using social science applications. Students will learn to organize, manipulate, and display spatial data leading to the design of their own GIS research project.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 102B. Intermediate Geographic Information Systems. 4 Units.
Expands Geographic Information Systems (GIS) skills to more advanced theories and concepts in the spatial analysis of social science issues and particularly to analyzing and interpreting spatial data. Students develop and complete a GIS research project of their own choosing.

Prerequisite: SOC SCI 102A.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 103A. Game Theory and Politics I. 4 Units.
Introduction to game theory and a survey of its political applications. Examples of topics covered include voting in small committees, legislatures, and mass elections; interest group activities and environmental issues; institutional design, and the evolution of cooperative behavior.

Same as INTL ST 105A, POL SCI 130A, SOCIOL 134.

Restriction: Social Policy and Public Service, Sociology, Political Science, and International Studies majors have first consideration for enrollment.

SOC SCI 103B. Game Theory and Politics II. 4 Units.
More advanced game theory and its political applications, beginning where Game Theory and Politics I ends. Examples of topics covered include revolutions; arms race; spatial models of party competition; political manipulation; political coalitions and their power.

Prerequisite: POL SCI 130A or ECON 116A.

Same as INTL ST 105B, POL SCI 130B.

Restriction: Social Policy and Public Service, International Studies, and Political Science majors have first consideration for enrollment.

SOC SCI 115D. International Business. 4 Units.
Introduction to conducting business in the international arena, decision making in the organization, and globalization of markets and production. Topics covered range from tax and finance to ethics, marketing, and more. Continuing corporate regulatory scandals discussed.

Same as INTL ST 112A.

SOC SCI 115E. California and Global Economy. 4 Units.
Presents the nature of the State's economy and the current and projected role of California in the world economy.

Same as INTL ST 135.

SOC SCI 118G. Regional Geography of California. 4 Units.
Geographical analysis of selected regions of California, in particular geomorphological, hydrological, and climatic conditions, as well as economic and social strengths and weaknesses. May include some fieldwork in Orange County on environmental, social and residential problems, with legislative background information.

SOC SCI 119. Special Topics in Geography. 4 Units.
Studies in selected areas of geography. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: Unlimited as topics vary.

SOC SCI 120. Transnational Gangs. 4 Units.
Examines the internationalization of U.S. domestic street gangs. The relationship between California gangs Mara Salvatrucha and 18th Street and Mexico/Central American gangs is assessed. Specified topics include: mobilization, migration, territorialism, culture, organization, and use of technology. Course may be offered online.

Prerequisite: SOC SCI 66.

Same as INTL ST 130.
Overlaps with SOC SCI XI120, INTL ST XI130.

SOC SCI 121T. Voting and Political Manipulation. 4 Units.
Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as INTL ST 156A, POL SCI 151H, ECON 154.

Restriction: International Studies, Political Science, Social Science and Economics majors have first consideration for enrollment.

SOC SCI 123A. U.S. Intervention in Latin America. 4 Units.
Explores political, economic, social, and cultural ties that bind Latin America to the United States. Focuses on U.S. intervention and Latin American response from early nineteenth century to present day. Case studies include Mexico, Guatemala, Cuba, Chile, and Central America.

Same as INTL ST 177D, HISTORY 166, CHC/LAT 150.

SOC SCI 130B. Science and Religion II. 4 Units.
The development of genomics, stem-cell research, robotics, nanotechnology, neuropharmacology raises difficult religious and philosophical questions. Examines interdisciplinary approaches that cut across institutional boundaries, cultural borders, religious traditions. Focuses on relationship between religion and cognitive/affective/social neuroscience. Course may be offered online.

Same as REL STD 112B, PSYCH 172S, LPS 140B.

SOC SCI 152A. Non-Government Organization (NGO) Fundamentals. 4 Units.
Introduction to non-governmental organizations, including their role in U.S. society and the international community. Explores varying definitions of NGOs and the characteristics held in common by all NGOs.

Same as INTL ST 152A.

SOC SCI 164B. Domestic Gangs. 4 Units.
Examines the history and development of California street gangs and the role of historical events in that development. Students will be able to contrast and compare gang cohort behaviors between some of the major gangs in California.

Prerequisite: SOC SCI 66.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 164C. Prison Gangs. 4 Units.
Examines the growth and spread of prison gangs throughout the country. Relationships between prison and street gangs, and possible relationships with foreign drug trafficking organizations studied. Violence examined as the standard to establish dominance in and out of prison. Course may be offered online.

Prerequisite: SOC SCI 66.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 164D. Juvenile Gangs. 4 Units.
Examines risk factors that can be used to predict gang membership. Compares generational with non-generational gangs and develops a working sociological definition that can be used to identify street gangs. Myths about juveniles, street gangs. Course may be offered online.

Prerequisite: SOC SCI 66.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 165. Chicano/Latino Families. 4 Units.
Introduction to the research, literature, and issues surrounding the topic of Chicano/Latino families including cultural history, contemporary issues, organization of family, traditions, lifestyles, values, beliefs, generational differences, gender issues, ethnic identity, evolution of demographic patterns, current economic and political standings.

Same as CHC/LAT 170, PSYCH 174H.

SOC SCI 167. Chicano/Chicana Labor History. 4 Units.
Examines origins of Latino/ Latina labor from colonial period to present. Emphasis on the issues of race, culture, class, and gender. Focus on processes and institutions including: encomienda, migration, unions, informal economies, Bracero program, domestic work.

Same as CHC/LAT 138.

SOC SCI 168B. Immigration and Inequality. 4 Units.
Explores immigration, ethnicity, and inequality as interconnected social forces. International migration, propelled by global inequalities, plays a central role in the formation of multinational societies, shapes inter-group relations and patterns of ethnic inequality, and transforms the immigrants themselves.

Same as SOCIOL 166.

SOC SCI 169AZ. Special Topics: Sociology. 4 Units.
No description.

Repeatability: Unlimited as topics vary.

SOC SCI 170A. Research Methods in the Social Sciences. 4 Units.
Examines how interdisciplinary social science research questions are formulated and studies several research methods including: experimental method, quasi-experimental methods, survey research, field research, evaluation research, and meta-analysis. Parametric and non-parametric statistical methods are illustrated using the SPSS program.

Prerequisite: SOC SCI 1A and SOC SCI 3A and SOC SCI 10C and SOC SCI 2A.

Restriction: Upper-division students only. Social Science majors have first consideration for enrollment.

SOC SCI 172A. American Culture. 4 Units.
A survey of the historical development of dominant American culture and society; emphasis on a close reading of key cultural texts, with weekly text as a model of writing examining its use of language and rhetoric.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 172AW. American Culture. 4 Units.
A survey of the historical development of dominant American culture and society; emphasis on a close reading of key cultural texts, with weekly text as a model of writing examining its use of language and rhetoric.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Social Science majors have first consideration for enrollment.

(Ib)

SOC SCI 172D. Law in the Twenty-First Century. 4 Units.
Examines the complex relationship between law, the social sciences, and modern society. Lectures explore such issues as the interplay between technology and constitutional rights, the impact of science on law, and the evolving roles of attorneys and judges.

Same as POL SCI 171F.

Restriction: Political Science and Social Science majors have first consideration for enrollment.

SOC SCI 173G. Film Media and the Latino Community. 4 Units.
Uses film as a resource for understanding contemporary issues and problems facing the Chicano/Latino community. (Does not study cinema as a genre.).

Same as CHC/LAT 114.

(VII)

SOC SCI 173I. Perspectives on the U.S. - Mexican Border. 4 Units.
Economic aspects of the historical development of the United States-Mexican border. The current economic situation in the Southwest and border areas as it affects both Mexico and the Latino/Chicano population is also examined.

Same as CHC/LAT 160, INTL ST 177B.

(VII)

SOC SCI 173N. Revolution in Latin America. 4 Units.
Presents a comparative analysis of the causes, development, and consequences of selected revolutionary movements, focusing on outbreaks in Mexico, Bolivia, Cuba, Chile, Nicaragua, and Grenada. Explores topics of state formation, economic nationalism, social justice, ethnicity, and role of international affairs.

Same as CHC/LAT 151B, HISTORY 166D, INTL ST 177C.

SOC SCI 173Q. Introduction to Cuba: History, Culture, and Society. 4 Units.
Introduction to Cuban history, culture, and society using social science texts, visual and musical materials. Examines major historical moments including the historical relationship between the United States and explores evolution of Cuban music from the earliest times to present.

Same as INTL ST 177F, CHC/LAT 130.

(VIII)

SOC SCI 175B. Ethnic and Racial Communities. 4 Units.
Examines various theoretical analyses of race and ethnicity, particularly as they apply to Asian Americans. Also explores the relationship of Asian Americans to other racialized minorities in the U.S.

Same as ASIANAM 161.

SOC SCI 177B. Asian American Women. 4 Units.
Examines the representations and experiences of Asian American women from diverse perspectives. Explores the commonalities and differences among various groups of Asian American women, with particular focus on history, culture, values, and family roles.

Same as ASIANAM 162.

SOC SCI 178C. The Korean American Experience. 4 Units.
Explores the factors that have distinctly shaped the Korean American experience, including patterns of racial domination, the profile of immigrant flow, immigrant roles in the urban political economy, politics in Korea, and the role of the church.

Same as ASIANAM 151C.

SOC SCI 178D. The Vietnamese American Experience. 4 Units.
Studies the resettlement of Vietnamese in the United States following their exodus from Southeast Asia. Topics discussed include the Vietnam War, the 1975 evacuation, boat and land refugees, the shaping of Vietnamese communities, and Vietnamese American literature.

Same as ASIANAM 151D.

SOC SCI 178E. The Japanese American Experience. 4 Units.
Studies the settlement of Japanese in Hawaii and the continental United States since the late nineteenth century. Topics covered include sugar plantations, development of rural Japanese America, World War II internment, post-War community development, and persistence of Japanese American identity.

Same as ASIANAM 151E.

SOC SCI 178F. South Asian American Experience. 4 Units.
Examines and compares the experiences of South Asian immigrants in the U.S. over time. Looks at the economic, political, and social positions of the immigrants, with special emphasis on religious changes and the changes in the second and later generations.

Same as ASIANAM 151F.

Restriction: Asian American Studies and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 178H. Southeast Asian American Experience. 4 Units.
Analyzes experiences of refugees and immigrants from Southeast Asia, which may include those from Cambodia, Laos, Vietnam, and the Philippines. Examines political and economic factors for their exodus and how they reconstruct their identities, histories, and communities.

Same as ASIANAM 151H.

SOC SCI 178J. Chinese American Experience. 4 Units.
Analyzes the experiences of Chinese in the United States. Immigration, Chinese exclusion, racial and gender identity. Historical overview and contemporary issues covered.

Same as ASIANAM 151J.

SOC SCI 178K. Filipina/Filipino American Experience. 4 Units.
Explores the experience of Filipina/Filipino Americans from the era of Spanish colonization of the Philippines to present-day community formations in the United States, with special emphasis on the twentieth century. Topics include colonialism, nation, migration, gender, and culture.

Same as ASIANAM 151K.

SOC SCI 179. Special Topics in Asian American Studies. 4 Units.
Studies in selected areas of Asian American Studies. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOC SCI 180X. Research Methods . 4 Units.
Develops an understanding of major research methods emphasizing quantitative research techniques; identifies techniques for research questions; applies understanding in relation to contemporary issues by way of a written a proposal for a quantitative research project.

Grading Option: Pass/no pass only.

Restriction: SAEP students only.

SOC SCI 180Y. Statistical Methods . 4 Units.
Covers the following topics: measurement, data screening procedures, descriptive statistics, the chi-square statistic, logistic regression, bivariate correlation and regression, and multiple correlation and regression. Students will develop a conceptual understanding of applied statistics.

Grading Option: Pass/no pass only.

Restriction: SAEP participants only.

SOC SCI 180Z. Communications . 4 Units.
Improves written and verbal communication skills through gathering, synthesizing, and organizing information into salient and clear points. Students learn to articulate information so that it can be clearly understood by others. Application to SAEP program and acceptance required.

Grading Option: Pass/no pass only.

Restriction: SAEP students only.

SOC SCI 181A. Ethical Leadership. 4 Units.
Explores historical and contemporary theories of ethical and unethical leadership. Examines models of "good leadership" such as cardinal and monastic virtues; and models of "bad leadership," such as Machiavelli's Prince. Explores the philosophies, styles, and accomplishments of leaders.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI 183A. International Studies Forum. 2 Units.
A faculty-student forum featuring lecturers from a variety of institutions with discussion issues related to international studies.

Repeatability: May be taken for credit 4 times.

Same as HUMAN 183A, SOCECOL 183A, INTL ST 183A.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

SOC SCI 183B. Seminar in Mediation. 4 Units.
Student develop mediation skills and refine knowledge in the practice and theory of conflict resolution. Students who complete this course may serve as mediators in the Campus Mediation Program. Course is a prerequisite to completing Indep Study as an intern.

Same as HUMAN 183B, INTL ST 183B, SOCECOL 183B.

Restriction: School of Humanities, School of Social Ecology, International Studies, and Social Science majors have first consideration for enrollment.

SOC SCI 183C. Seminar in Conflict Resolution . 4 Units.
Designed for students pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write research paper.

Same as SOCECOL 183C, HUMAN 183C.

SOC SCI 183CW. Seminar Conflict Resolution. 4 Units.
Designed for seniors who are pursuing the minor in Conflict Resolution and/or International Studies major. Provides a forum in which students will refine skills and theory in the study of cooperation and conflict, from local to global arenas. Students write.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as SOCECOL 183CW, HUMAN 183CW.

(Ib)

SOC SCI 183E. Conflict Resolution in Cross-Cultural Perspective. 4 Units.
Examines theories of conflict management. Analyzes how conflict is mitigated in diverse cultures: at the interpersonal level, between groups, and on the international scale. Students discuss readings, hear from conflict management practitioners, and simulate negotiations.

Same as ANTHRO 136D, POL SCI 154G, INTL ST 183E.

(VIII)

SOC SCI 184A. Sage Leader Research I. 2 Units.
Participants in the SAGE Scholars Program learn to define leadership concepts, discover various leadership styles, and develop strong leadership and communication skills resulting in strengthened ability to contribute to and interact with UCI and the Orange County community.

Grading Option: Pass/no pass only.

Restriction: SAGE Scholars Program students only.

SOC SCI 184B. Sage Leader Research II. 4 Units.
Provides a survey of contemporary topics and challenges in the fields of management and leadership. Case studies and text by leading authors are used to analyze key leadership issues in twenty-first century, with particular emphasis on current events.

Restriction: SAGE Scholars Program students only.

SOC SCI 184F. International Journalism. 4 Units.
Studies and critically analyzes how the media covers international issues that have reshaped. American foreign coverage and the implications for Americans and U.S. foreign policy. Focuses on international reporting as a way of developing fundamental skills of journalism.

Same as INTL ST 155A.

SOC SCI 184GW. Media Writing. 4 Units.
Designed to teach reporting and news writing basics. Students learn how to gather and organize information, ask effective questions, develop story ideas, research facts, and write stories on deadline. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Same as INTL ST 155BW.
Overlaps with INTL ST XI155B, SOC SCI XI184G.

Restriction: International Studies majors have first consideration for enrollment.

(Ib)

SOC SCI 185W. People in Society. 4 Units.
Through readings about people in distinctly different societies throughout history, students learn concepts that cross the boundaries of the social science disciplines. Such themes as democracy, elitism, power, social class, and gender as the basis for discussion and writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Restriction: School of Social Sciences majors only.

(Ib)

SOC SCI 186A. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as PSYCH 144A, CHC/LAT 191A.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 186B. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144A or SOC SCI 186A or CHC/LAT 191A. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children and be culturally sensitive.

Same as PSYCH 144B, CHC/LAT 191B.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 186C. HABLA: Language Intervention for Disadvantaged Children. 4 Units.
Train students for home visits promoting school readiness among two-four year-olds from low SES and educational backgrounds. Covers fundamentals of child language, literacy, cognitive development; procedures, ethics of home visitation. Work with families to create better literacy and language environment.

Prerequisite: PSYCH 144B or SOC SCI 186B or CHC/LAT 191B. Must pass an interview conducted by instructor, be fluent in English and one other language (Spanish most typically), must have experience with preschool children, and be culturally sensitive.

Same as PSYCH 144C, CHC/LAT 191C.

Restriction: Psychology, Chicano/Latino Studies, and Social Policy and Public Service majors have first consideration for enrollment.

SOC SCI 187. Twenty-First-Century Graduate Education. 2 Units.
Graduate and professional education in twenty-first century United States. Examines strategies for admission to postbaccalaureate programs and success in graduate study culture. Introduction to processes including planning and preparation, school selection, entrance examination preparation, submission of applications, writing personal statements.

Grading Option: Pass/no pass only.

Restriction: Upper-division students only.

SOC SCI 188A. Introduction to Contemporary Middle East Politics. 4 Units.
An overview of basic issues that shape the politics of the Middle East and North Africa. Themes include implication of the colonization era, nation-state formation, inter-Arab relations, nationalism, Arab-Israel conflict, Islamic resurgence, and more.

Same as INTL ST 165, POL SCI 158D.

SOC SCI 188D. Iran: Past and Present. 4 Units.
Pre-revolutionary Iran; and Iran since the revolution. History, oil and politics: domestic and international.

Same as INTL ST 168.

SOC SCI 188E. Israel and the World: An Introduction. 4 Units.
Examines the founding of Israel, its relationship with the Arab world, the role of the international community, and the challenges it faces today.

Same as INTL ST 170.

SOC SCI 188I. Afghanistan. 4 Units.
Provides an examination of Afghanistan's traditional social organization, economy, political organization, and relationship among ethnic groups as a basis for discussing the consequences of domestic political turmoil and foreign interventions over the last 20 years. Current situation and future addressed.

Same as INTL ST 162, POL SCI 158C.

SOC SCI 188K. Political Islam. 4 Units.
Political Islamd is a diverse phenomenon. While noticeable barriers exist to "Islamist democracy," it is the Islamists who will define the political future of much of the Muslim world. Reviews the experience of Saudi Arabia, Egypt, Pakistan, Turkey, and Indonesia.

Same as INTL ST 161A.

SOC SCI 188M. Psychology of the Middle East Conflict. 4 Units.
Explores how emotions guide actions; political movements and social identity factors in ethnic, religious, or other group conflicts; psycho-biographies of political leaders and effects on foreign policy making; decisions to go to war; psychological dimensions of conflict and conflict resolution.

Same as INTL ST 166.

SOC SCI 189. Special Topics in Social Sciences. 2-4 Units.
Studies in selected areas of social sciences. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Social Science majors have first consideration for enrollment.

SOC SCI H190A. Honors Research Workshop. 4 Units.
Student develops a 10–15-page prospectus of research for the honors thesis which includes: the research question, literature review, methods of investigation, and bibliography. Student selects a faculty mentor who will supervise thesis research and writing in winter and spring.

Restriction: Honors Program for Social Science majors students only.

SOC SCI H190B. Honors Thesis Research. 4 Units.
The student initiates and completes data collection for the honors thesis. A faculty mentor provides supervision and feedback on thesis chapters.

Prerequisite: SOC SCI H190A.

SOC SCI H190C. Honors Thesis. 4 Units.
The student completes, with the approval of the faculty mentor, an honors thesis containing: statement of the problem, literature review, research hypotheses, methods of investigation, results, discussion, and bibliography.

Prerequisite: SOC SCI H190B. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

SOC SCI 191. Graduate-Mentored Study in the Social Sciences. 4 Units.
Offers a hands-on research experience while increasing awareness of the various disciplines in the social sciences and of the requirements of graduate school. Features graduate-mentored study under the supervision of the Associate Dean.

Prerequisite: Identification of a graduate student (who is in good standing) as a mentor.

Grading Option: Pass/no pass only.

SOC SCI 193A. Field Studies in Public and Community Service. 4 Units.
Advanced training in qualitative and ethnographic research centered on community service. Students pursue field studies at nonprofit agencies (200 hours) to understand current social problems in underrepresented and underserved communities. Through field placement, students apply theory to practice.

Prerequisite: SOC SCI 70C or SOCIOL 63. Satisfactory completion of the Lower-Division Writing requirement.

Restriction: Social Policy and Public Service majors only.

SOC SCI 193B. Field Studies in Public and Community Service. 4 Units.
Advanced training in qualitative and ethnographic research centered on community service. Students pursue field studies at nonprofit agencies (200 hours) to understand current social problems in underrepresented and underserved communities. Through field placement, students apply theory to practice.

Prerequisite: SOC SCI 193A.

SOC SCI 193C. Field Studies in Public and Community Service. 4 Units.
Advanced training in qualitative and ethnographic research centered on community service. Students pursue field studies at nonprofit agencies (200 hours) to understand current social problems in underrepresented and underserved communities. Through field placement, students apply theory to practice.

Prerequisite: SOC SCI 193B.

SOC SCI 194A. Public Service Internship. 2-4 Units.
Introduces the role of etiquette and leadership in the professional environment. With a two-unit (50 hours) or four-unit (100 hours) credit option, students intern at a nonprofit agency exploring their roles as community leaders and improving their professional skills. Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 2 times.

Restriction: Social Policy and Public Service majors only.

SOC SCI 194B. Community Internship. 2-4 Units.
Required to complete 50 (two units) or 100 (four units) hours at a nonprofit organization, students engage in lectures related to the formation and maintenance of nonprofit organizations. Grant writing, funding issues, and effective service delivery are addressed.

Prerequisite: SOC SCI 194A.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit 3 times.

Restriction: Social Science majors only.

SOC SCI 194C. Management and Leadership Practicum-Social Science . 2-4 Units.
Social Sciences Academic Resource Center (SSARC) Resource Mangers (RMs) report directly to the Director and Associate Director, serving as frontline resource consultants, assisting visitors with resume development, graduate and professional school planning, internship placement, and professional development.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 12 units.

SOC SCI 195A. Educational Policy Field Studies. 4 Units.
Integrates academic course work with experiential learning; examines the effects of educational policy on urban and suburban schools; explores the relationship between community service and personal academic interests; and develops awareness about the challenges of public education.

Repeatability: May be taken for credit 3 times.

SOC SCI 195B. Educational Policy Field Studies. 4 Units.
Integrates academic course work with experiential learning; examines the effects of educational policy on urban and suburban schools; explores the relationship between community service and personal academic interests; and develops awareness about the challenges of public education.

Prerequisite: SOC SCI 195A.

Repeatability: May be taken for credit 3 times.

SOC SCI 195C. Educational Policy Field Studies . 4 Units.
Integrates academic course work with experiential learning; examines the effects of educational policy on urban and suburban schools; explores the relationship between community service and personal academic interests; and develops awareness about the challenges of public education.

Prerequisite: SOC SCI 195B.

Repeatability: May be taken for credit 3 times.

SOC SCI 196. Global Connect. 2-4 Units.
Identifies factors of change that influence the twenty-first century. Students serve as mentors at high schools to introduce globalization issues through workshops and lectures. Students must submit an application and have a 3.0 or higher overall GPA.

Repeatability: May be taken for credit 3 times.

SOC SCI 197. Professional Internship. 2-4 Units.
Students apply classroom knowledge through research projects in nonprofit agencies (local, state, and government) and the private sector. They pose solutions to agency-posed questions. Students gain field experience through 50 hours (for 2 units) or 100 (for 4 units). Course may be offered online.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

Grading Option: Pass/no pass only.

Repeatability: May be taken for credit for 8 units.

Restriction: School of Social Sciences majors only.

SOC SCI 198. Directed Group Study. 2-4 Units.
Directed study with Social Science faculty.

Repeatability: May be taken for credit for 12 units.

SOC SCI 199. Individual Study. 2-4 Units.
Opportunities to do research and learn new skills outside the normal classroom environment. Students participate in planned research and study activities under a written contract with a supervising UCI instructor. Students may enroll for only one 199 each quarter.

Repeatability: May be taken for credit for 16 units.

Restriction: Upper-division students only.

SOC SCI 209. Special Topics in Mathematical Social Science. 4 Units.
Studies in selected areas of mathematical social science. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

SOC SCI 211A. Mathematical Behavioral Sciences Colloquium. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 211B. Mathematical Behavioral Sciences Colloquium. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 211C. Mathematical Behavioral Sciences Colloquium. 2 Units.
Weekly reports and colloquia by faculty, students, and visitors.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 249A. Special Topics in Social Networks. 4 Units.
Studies in selected areas of social networks. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOC SCI 253A. Oral History, Life History. 4 Units.
Interdisciplinary and comparative work in oral and life history; methods of interviewing.

Same as ANTHRO 221A.

Restriction: Graduate students only.

SOC SCI 253F. Population. 4 Units.
Introduces the interrelationships between population and social organization. Considers measurement and explanation of historical and contemporary trends in birth rates, death rates, migration, and marriage and divorce. Case material is drawn primarily from the U.S. and other industrialized nations.

Same as SOCIOL 262A.

Restriction: Graduate students only.

SOC SCI 253J. Social Movements. 4 Units.
A survey of the field of Social Movements, oriented around critical themes in the major theoretical traditions and contemporary exemplars.

Same as SOCIOL 240A.

Restriction: Graduate students only.

SOC SCI 253N. Classical Social Theory. 4 Units.
Examines the development of classical sociological theory through the writings of Karl Marx, Emile Durkheim, Max Weber, Georg Simmel, and George Herbert Mead.

Same as SOCIOL 210A.

Restriction: Graduate students only.

SOC SCI 253R. Contemporary Social Theory. 4 Units.
Familiarizes students with twentieth-century developments in social thought that have influenced sociological research, suggesting "what is living and what is dead" in the "classics" and offering an overview of the main outlines of recent sociological theorizing.

Same as SOCIOL 210B.

Restriction: Graduate students only.

SOC SCI 254A. Transnational Migration. 4 Units.
Examines borders and boundaries as material and semiotic constructs. Drawing upon an array of literatures, but loosely situated in U.S. geo/biopolitics, explores transformative troublings of places, spaces, borders, and bodies of all sorts.

Same as ANTHRO 235A, CHC/LAT 215.

Restriction: Graduate students only.

SOC SCI 254J. Global Urbanization. 4 Units.
Examines the spread of cities worldwide in the twentieth century. What are the political and economic causes of this process? What are the social-cultural, political, and economic effects? How is contemporary urbanization linked to global restructuring of other kinds.

Same as PP&D 273, SOCIOL 252A.

Restriction: Graduate students only.

SOC SCI 254L. Approaches to Globalization. 4 Units.
Historical and contemporary approaches to the world economy, emphasizing anthropological questions of culture, power, identity, inequality. Examines "neo-imperialism," "late capitalism," accumulation, global markets, urban space, the state, business and policy globalization discourse, "local" responses to and instantiations of the "global.".

Same as ANTHRO 248A.

Restriction: Graduate students only.

SOC SCI 255C. Grant and Proposal Writing. 4 Units.
Focuses on production, critique, and revision of student research proposals. A practical seminar designed to improve student proposals, help students through the application processes, and increase students' chances of obtaining support for their research.

Same as ANTHRO 213A.

Restriction: Graduate students only.

SOC SCI 259A. Special Topics in Social Relations. 1-4 Units.
Studies in selected areas of social relations. Topics addressed vary each quarter.

Repeatability: Unlimited as topics vary.

Restriction: Graduate students only.

SOC SCI 272A. Origin and Evolution of Marxist Social Thought. 4 Units.
Focuses on the genesis and evolution of Marxist social thought The "systemic" method of Marx and Engels to questions of economic production and reproduction is compared and contrasted with modern world-system grand visions, feminist-theoretic approaches, and postmodern critiques.

Prerequisite: Undergraduate course in political theory or equivalent.

Restriction: Graduate students only.

SOC SCI 289. Special Topics in Social Science. 4 Units.
Current research in Social Science.

Repeatability: Unlimited as topics vary.

SOC SCI 290. Dissertation Research. 4-12 Units.
Dissertation research with Social Science faculty.

Repeatability: May be repeated for credit unlimited times.

SOC SCI 299. Independent Study. 1-12 Units.
Independent research with Social Science faculty.

Repeatability: May be repeated for credit unlimited times.

Restriction: Graduate students only.

SOC SCI 399. University Teaching. 4 Units.
Limited to Teaching Assistants.

Repeatability: May be repeated for credit unlimited times.

Appendix

University Administration

Under the State constitution, governance of the University is entrusted to The Board of Regents. The Regents appoint the President of the University, and with the President's advice, the officers of the University. Authority in academic matters is delegated by The Regents to the Academic Senate, which consists of faculty and certain administrative officers. The Academic Senate determines academic policy for the University as a whole, sets conditions for admission and the granting of degrees, authorizes and supervises courses and curricula, and advises the University administration on faculty appointments, promotions, and budgets. Additionally, each campus has a divisional Academic Senate.

The President is executive head of the total institution. Each campus has a Chancellor as its chief administrative officer. Students participate in policy-making at both the campus and Universitywide levels.

The Regents of the University of California

Regents Ex Officio

Governor of California and President of The Regents: Jerry Brown
Lieutenant Governor of California: Gavin Newsom
Speaker of the Assembly: John A. Pérez
State Superintendent of Public Instruction: Tom Torlakson
President of the Alumni Associations of the University of California: Ken Feingold
Vice President of the Alumni Associations of the University of California: Van Schultz
President of the University: Janet Napolitano

Appointed Regents [1]

Richard C. Blum (2026)
William C. De La Peña (2018)
Russell S. Gould (2017)
Eddie Island (2017)
George Kieffer (2021)
Sherry L. Lansing (2022)
Monica Lozano (2022)
Hadi Makarechian (2020)
Norman J. Pattiz (2026)
Bonnie Reiss (2020)
Frederick Ruiz (2016)
Richard Sherman (2025)
Bruce D. Varner (2018)
Paul Wachter (2016)
Charlene Zettel (2021)
Cinthia Flores (July 1, 2013–June 30, 2014)

Regents-Designate [2]

to be announced
to be announced

1 Regents except ex-officio Regents and the student Regent, are appointed by the Governor to 12-year terms commencing on March 1. Ex-officio Regents serve by virtue of their elected or appointed positions; the student Regent is appointed by the Regents to a one-year term commencing on July 1.

2 One-year terms expiring June 30.

Faculty Representatives to The Regents

Mary Gilly
William Jacob *(through 8-31-14)*

Staff Advisors to The Regents

Kathy Barton
Donna Coyne

Principal Officers of The Regents

General Counsel and Vice President–Legal Affairs: Charles F. Robinson

Treasurer of The Regents and Chief Investment Officer and Vice President–Investments: Jagdeep Sinh Bachher
Interim Secretary and Chief of Staff of The Regents: Anne Shaw
Senior Vice President–Chief Compliance and Audit Officer: Sheryl Vacca

Office of the President

President of the University: Janet Napolitano
Vice President–Laboratory Management: Glenn L. Mara
Executive Vice President–Business Operations: Nathan Brostrom
Provost and Executive Vice President–Academic Affairs: Aimee Dorr
Executive Vice President–Chief Financial Officer: Peter J. Taylor
Senior Vice President–Health Sciences and Services: John D. Stobo
Senior Vice President–External Relations: Daniel M. Dooley

Chancellors

Chancellor at Berkeley: Nicholas B. Dirks
Chancellor at Davis: Linda Katehi
Interim Chancellor at Irvine: Howard Gilman
Chancellor at Los Angeles: Gene D. Block
Chancellor at Merced: Dorothy Leland
Chancellor at Riverside: Kim A. Wilcox
Chancellor at San Diego: Pradeep K. Khosla
Acting Chancellor at San Francisco: Sam Hawgood
Chancellor at Santa Barbara: Henry T. Y. Yang
Chancellor at Santa Cruz: George R. Blumenthal

UCI Officers

Interim Chancellor: Howard Gillman
Provost and Executive Vice Chancellor: Howard Gillman
Vice Chancellor, Administrative and Business Services: Wendell C. Brase
Vice Chancellor, Planning and Budget: Meredith Michaels
Vice Chancellor, Research: John C. Hemminger
Vice Chancellor, Student Affairs: Thomas A. Parham
Vice Chancellor, University Advancement: Gregory R. Leet
Chief Executive Officer, Medical Center and Associate Vice Chancellor, Medical Center Affairs: Terry A. Belmont

UCI Deans and Chairs of Independent Academic Units

Dean, Claire Trevor School of the Arts: Joseph S. Lewis III
Dean, Francisco J. Ayala School of Biological Sciences: Frank M. LaFerla
Dean, The Paul Merage School of Business: Eric Spangenberg
Dean, School of Education: Deborah Lowe Vandell
Dean, The Henry Samueli School of Engineering: Gregory Washington
Dean, School of Humanities: Georges Van Den Abbeele
Dean, Donald Bren School of Information and Computer Sciences: Hal S. Stern
Dean, School of Law: Erwin Chemerinsky
Interim Dean, School of Medicine: Roger F. Steinert
Dean, School of Physical Sciences: Kenneth C. Janda
Dean, School of Social Ecology: Valerie Jenness
Dean, School of Social Sciences: William M. Maurer
Dean, Continuing Education, Distance Learning, and Summer Session: Gary W. Matkin
Dean, Graduate Division: Frances M. Leslie
Dean, Division of Undergraduate Education: *TBA*
Director, Program in Nursing Science: *TBA*
Chair, Department of Pharmaceutical Sciences: A. Richard Chamberlin
Chair, Department of Population Health and Disease Prevention: Oladele Ogunseitan

UCI Administrators

Associate Chancellor/Chief of Staff: Ramona Agrela
Associate Vice Chancellor, Strategic Communications: Ria M. Carlson
Senior Assistant Vice Chancellor, Constituent and Alumni Relations: Goran S. Matijasevic
Assistant Vice Chancellor, Alumni Relations, and Executive Director, UCI Alumni Association: *TBA*
Director, Intercollegiate Athletics: Michael Izzi

Vice Provost, Academic Personnel: Herbert P. Killackey
Assistant Vice Chancellor, Academic Personnel: Joan K. Tenma
Senior Vice Provost, Academic Planning: Michael P. Clark
Vice Provost, Academic Initiatives: Albert F. Bennett
Associate Vice Provost, Equity and Diversity: Douglas M. Haynes
Associate Executive Vice Chancellor: Michael R. Arias
Associate Executive Vice Chancellor, Director of the Office of Equal Opportunity and Diversity, and Title IX/ Sexual Harassment Officer: Kirsten Quanbeck
Associate Vice Chancellor and Chief Information Officer: Dana F. Roode
University Librarian: Lorelei Tanji
University Ombudsman: J. Michael Chennault
Assistant Vice Chancellor, Healthcare Measurement and Evaluation: Sherrie Kaplan
Associate Vice Chancellor, Administrative and Business Services: Paige L. Macias
Associate Vice Chancellor and Campus Architect: Rebekah Gladson
Assistant Vice Chancellor/Controller: Bent Nielsen
Assistant Vice Chancellor, Facilities Management and Environmental Health and Safety: Marc A. Gomez
Assistant Vice Chancellor, Human Resources: John Daly
Associate Vice Chancellor, Planning and Budget: Richard Lynch
Assistant Vice Chancellor, Institutional Research and Decision Support: Ryan M. Cherland
Associate Dean, Graduate Division: Susan Bibler Coutin
Associate Vice Chancellor, Administration: Mark W. Warner
Associate Vice Chancellor, Research: James W. Hicks
Assistant Vice Chancellor, Research Development: Jacob E. Levin
Assistant Vice Chancellor, Administrative Operations and Planning: D. Sinqui Musto
Assistant Vice Chancellor, Research Administration: Bruce A. Morgan
Assistant Vice Chancellor, Technology Alliances: Ronnie C. Hanecak
Associate Vice Chancellor, Student Affairs: Daniel J. Dooros
Assistant Vice Chancellor, Wellness, Health, and Counseling Services: Marcelle C. Holmes
Assistant Vice Chancellor, Enrollment Services: Brent Yunek
Assistant Vice Chancellor and Dean of Students, Student Life and Leadership: Rameen Talesh
Assistant Vice Chancellor, Constituent Development: Sylvia Acosta
Assistant Vice Chancellor, Community and Government Relations: Kate Klimow
Assistant Vice Chancellor, Development: Daniel Montplaisir
Senior Assistant Vice Chancellor, Strategic Planning and Administration: Lynn Rahn
Assistant Vice Chancellor, UC Irvine Health Advancement: *TBA*

Refer to http://www.oit.uci.edu/telephone/principal-officers/ for a complete list of UCI administrators.

UCI Faculty Distinctions

The 2007 Nobel Peace Prize was awarded to the Intergovernmental Panel on Climate Change (IPCC) and former Vice President Al Gore. Several UC Irvine climate scientists have played a part in writing, reviewing, and editing IPCC climate change reports over the last decade, including Michael Prather, *Professor of Earth System Science and Fred Kavli Chair in Earth System Science;* Donald R. Blake, *Professor of Chemistry and Earth System Science;* Michael L. Goulden, *Associate Professor of Earth System Science and of Ecology and Evolutionary Biology;* Gudrun Magnusdottir, *Professor of Earth System Science;* James T. Randerson, *Associate Professor of Earth System Science;* Soroosh Sorooshian, *Director of the Center for Hydrometeorology and Remote Sensing (CHRS), and UCI Distinguished Professor of Civil and Environmental Engineering and of Earth System Science;* Susan E. Trumbore, *Professor of Earth System Science;* Stanley C. Tyler, *Researcher, Department of Earth System Science;* Jin-Yi Yu, *Associate Professor of Earth System Science;* and Charles S. Zender, *Associate Professor of Earth System Science.*

UCI Nobel Laureates

Nobel Prize in Chemistry, 2004
Irwin Rose, *UCI Distinguished Professor Emeritus, Department of Physiology and Biophysics*

Nobel Prize in Chemistry, 1995
F. Sherwood Rowland, *Research Professor Emeritus of Chemistry and Earth System Science, and Bren Chair* (d. 2012)

Nobel Prize in Physics, 1995
Frederick Reines, *UCI Distinguished Professor Emeritus of Physics* (d. 1998)

Templeton Prize, 2010

Francisco J. Ayala, *University Professor and Donald Bren Professor of Biological Sciences*

UCI Endowed Chairs

Daniel G. Aldrich, Jr. Endowed Chair
Frank L. Meyskens, Jr., *Vice Dean of the School of Medicine and Professor, Departments of Medicine (Hematology/Oncology), Biological Chemistry, and Program in Public Health*

Louise Turner Arnold Chair in the Neurosciences
Daniele Piomelli, *Professor, Departments of Anatomy and Neurobiology, Pharmacology, and Biological Chemistry*

Hana and Francisco J. Ayala Dean's Chair
Frank LaFerla, *Dean and Professor of Neurobiology and Behavior* and Neurology

Howard Baskerville Professor of Humanities
Touraj Daryaee, *Associate Director of the Dr. Samuel M. Jordan Center for Persian Studies and Culture and Professor of History*

Arnold and Mabel Beckman Chair in Laser Biomedicine
Michael W. Berns, *Professor of Surgery, Developmental and Cell Biology, and Biomedical Engineering*

***Grace Beekhuis Bell Chair in* Biological Chemistry**
Suzanne B. Sandmeyer, *Professor of Biological Chemistry, Microbiology and Molecular Genetics, and Chemical Engineering and Materials Science*

Donald Bren Professors, The Donald L. Bren Endowment

Francisco J. Ayala, *University Professor of Biological Sciences*

Michael Carey, *Professor of Computer Science*

Paolo Casali, *School of Medicine Senior Associate Dean for Research and Graduate Studies, Director of the Center for Immunology, and Professor, Department of Medicine (Immunology)*

Michael T. Clegg, *Professor of Biological Sciences and of Ecology and Evolutionary Biology*

Sheldon Greenfield, *Interim Director of the Chao Family Comprehensive Cancer Center, Executive Co-Director of the Center for Health Policy Research, and Professor of Medicine (General Internal Medicine)*

Wilson Ho, *Professor of Physics and Chemistry*

Ramesh C. Jain, *Professor of Information and Computer Sciences*

Arthur D. Lander, *Director, Center for Complex Biological Systems and Professor of Developmental and Cell Biology, Biomedical Engineering, and Pharmacology*

Wen-Hwa Lee, *Professor Emeritus of Biological Chemistry and Pharmacology*

Gary Olson, *Professor of Informatics*

Judy Olson, *Professor of Informatics, Management, and Planning, Policy, and Design*

Paolo Sassone-Corsi, *Director of the Center for Epigenetics and Metabolism and UCI Distinguished Professor, Departments of Biological Chemistry and Pharmaceutical Sciences*

Conexant-Broadcom Chair in the Center for Pervasive Communications
Hamid Jafarkhani, *UCI Chancellor's Professor of Electrical Engineering and Computer Science*

Thomas and Mary Cesario Endowed Chair in Medicine
Alpesh Amin, *Professor of Medicine, Management, Public Health, and Nursing Science; Executive Director, Hospitalist Program*

John E. Connolly Chair
Michael J. Stamos, *Department Chair of Surgery and Professor of Clinical Surgery*

Dean's Leadership Circle Endowed Chair
Andrew J. Policano, *Professor of Management and Economics*

Edward A. Dickson Emerti Professor
Keith Nelson, *Professor Emeritus of History*
J. Hillis Miller, *Professor Emeritus of Comparative Literature*

Endowed Chair and Director of the Center for Diversity in Engineering Education

Martha L. Mecartney, *Professor of Chemical Engineering and Materials Science*

Philip J. DiSaia Chair in Gynecologic Oncology
Robert E. Bristow, *Director of the Division of Gynecologic Oncology and Professor, Department of Obstetrics and Gynecology (Gynecologic Oncology)*

Lawrence K. Dodge Endowed Chair in Integrative Biology
John Longhurst, *Associate Dean, School of Medicine; Director of the Susan Samueli Center for Integrative Medicine; Professor of Medicine (Cardiology), Physiology and Biophysics, Pharmacology, and Biomedical Engineering; and Susan Samueli Chair in Integrative Medicine*

Suzanne Dykema Endowed Chair In Pancreatic Cancer
David Imagawa, *Professor of Clinical Surgery*

Edwards Lifesciences Chair
Steven C. George, *Director of the Edwards Lifesciences Center for Advanced Cardiovascular Technology and Professor of Biomedical Engineering and of Chemical Engineering and Materials Science*

***Endowed Chair in Gastrointestinal Endoscopic* Oncology**
Kenneth Chang, *Professor in Clinical Medicine*

Walter B. Gerken Chair in Enterprise and Society
Rajeev K. Tyagi, *Professor of Management*

Hasso Brothers Endowed Chair in Radiological Sciences
Scott C. Goodwin*, Professor of Clinical Radiological Sciences*

Clifford S. Heinz Chair
Stergios Skaperdas, *Professor of Economics*

Roger W. and Janice M. Johnson Chair in Civic Governance and Public Management
Martha Feldman, *Professor of Planning, Policy, and Design, Management, Political Science, and Sociology*

Fred Kavli Chair in Earth System Science
Ellen Druffel, *Professor of Earth System Science*

Kirkup Chair in Psychiatry and Human Behavior for the Medical Treatment of Stuttering
Gerald Maguire, *Senior Associate Dean, School of Medicine, and Professor of Clinical Psychiatry, Department of Psychiatry and Human Behavior*

Irving H. Leopold Chair in Ophthalmology
Roger F. Steinert, *Interim Dean for School of Medicine, Department Chair of Ophthalmology and Professor of Clinical Ophthalmology and Biomedical Engineering*

William J. Link Chair in Biomedical Engineering
Abraham Lee, *Department Chair and Professor of Biomedical Engineering and Professor of Mechanical and Aerospace Engineering*

John S. and Marilyn Long Chair in U.S.-China Business Law
Benjamin van Rooij, *Professor of Law and Criminology, Law and Society*

John D. and Catherine T. MacArthur Foundation Chair in Digital Media and Learning
Mizuko “Mimi” Ito, *Professor in Residence of Anthropology, Education, and Informatics*

Dorothy J. Marsh Chair in Reproductive Biology
Philip J. Di Saia, *Chief of Gynecology and Gynecologic Oncology and Professor of Obstetrics and Gynecology and of Radiation Oncology*

Della Martin Chair in Psychiatry
William E. Bunney, Jr., *UCI Distinguished Professor Emeritus of Psychiatry and Human Behavior*

Maseeh Chair in Persian Studies and Culture
Nasrin Rahimieh, *Director of the Dr. Samuel M. Jordan Center for Persian Studies and Culture and Professor of Comparative Literature*

Maseeh Professor in Persian Performing Arts
Hossein Omoumi, *Professor of Music and of Persian Performing Arts*

Gary McCue Administrative Term Chair in Cosmology
James Bullock, *UCI Chancellor’s Fellow and Professor of Physics and Astronomy*

James L. McGaugh Chair in the Neurobiology of Learning and Memory
John F. Guzowski, *Associate Professor of Neurobiology and Behavior*

Abraham I. Melden Chair in Moral Philosophy
Margaret Gilbert, *Professor of Philosophy*

Paul Merage Chair in Business Growth

David A. Hirshleifer, *Professor of Management and Economics*

Terrence J. Shevlin, *Professor of Management*

Eric L. and Lila D. Nelson Chair in Neuropharmacology
Olivier Civelli, *Department Chair of Pharmacology and Professor, Departments of Pharmacology, Developmental and Cell Biology, and Pharmaceutical Sciences*

Nichols Clinical Neuroscience Chair
Claudia Kawas, *Professor of Neurology and of Neurobiology and Behavior*

Jack W. Peltason Endowed Chair
Bernard N. Grofman, *Professor of Political Science and Economics*

Raymond Pryke Endowed Chair in First Amendment Law
Erwin Chemerinsky, *Dean of the School of Law and UCI Distinguished Professor of Law and Political Science*

The Edward J. Quilligan Chair in Maternal-Fetal Medicine
Manuel Porto, *Department Chair of Obstetrics and Gynecology and Professor of Clinical Obstetrics and Gynecology (Maternal-Fetal Medicine)*

The Robert and Marjorie Rawlins Chair of Music
David Brodbeck, *Department Chair and Professor of Music*

Ronald W. Reagan Endowed Chair in Geriatrics
Laura Mosqueda, *Department Chair of Family Medicine*, *Director of the Program in Geriatrics, and Professor of Clinical Family Medicine (Family Medicine and Geriatrics)*

Reeve-Irvine Chair in Spinal Cord Injury Research
Oswald Steward, *Director, Reeve-Irvine Research Center; Senior Associate Dean for Research, School of Medicine*; *and Professor, Departments of Anatomy and Neurobiology, Neurobiology and Behavior, and Neurosurgery*

Chair in Rhetoric and Communication
Virginia Jackson, *Associate Professor of English*

Norman Rostoker Chair in Applied Physics
Toshiki Tajima, *Professor of Physics and Astronomy*

Henry Samueli Endowed Chairs

G. Scott Samuelsen, *Director of the National Fuel Cell Research Center, Director of the Advanced Power and Energy Program, and Professor Emeritus of Mechanical and Aerospace Engineering and of Civil and Environmental Engineering*

William A. Sirignano, *Professor of Mechanical and Aerospace Engineering*

H. Kumar Wickramasinghe, *Professor of Electrical Engineering and Computer Science, Biomedical Engineering, and Chemical Engineering and Materials Science*

The Henry Samueli Endowed Chair in Engineering in the Center for Engineering Science in Design
J. Michael McCarthy, *Director of the Center for Engineering Science in Design (CESD) and Professor of Mechanical and Aerospace Engineering*

Susan Samueli Chair in Integrative Medicine
John Longhurst, *Associate Dean, School of Medicine; Director of the Susan Samueli Center for Integrative Medicine; Professor of Medicine (Cardiology), Physiology and Biophysics, Pharmacology, and Biomedical Engineering; and Lawrence K. Dodge Endowed Chair in Integrative Medicine*

Walter R. Schmid Chair in Pediatric Urology
Antoine Khoury, *Chief of Pediatric Urology and Professor, Department of Urology*

Danette (Dee Dee) Shepard Chair in Neurological Studies
Tallie Z. Baram, *Professor, Departments of Pediatrics, Neurology, Physiology and Biophysics, and Anatomy and Neurobiology*

Jack H. Skirball Endowed Chair
James V. Jester, *Professor in Residence, Departments of Ophthalmology and Biomedical Engineering*

Ted and Janice Smith Family Foundation Endowed Chair in Information and Computer Science
Hal S. Stern, *Dean of the Donald Bren School of Information and Computer Sciences and Professor of Statistics*

Robert R. Sprague Chair in Brain Imaging
Steven G. Potkin, *Professor of Psychiatry and Human Behavior*

Taco Bell Chair in Information Technology Management
Vijay Gurbaxani, *Director of the Center for Digital Transformation and Professor of Management and Informatics*

Teller Family Chair in Jewish History
Matthias Lehmann, *Director of the Interdisciplinary Minor in Jewish Studies and Associate Professor of History*

Edward and Vivian Thorp Chair in Mathematics
Karl C. Rubin, *Department Chair and Professor of Mathematics*

Thomas T. and Elizabeth C. Tierney Chair in Global Peace and Conflict Studies
Etel Solingen, *Professor of Political Science*

Claire Trevor Dean's Endowed Chair, Claire Trevor School of the Arts
Joseph S. Lewis III, *Dean of the Claire Trevor School of the Arts and Professor of Art*

Claire Trevor Professors in the Arts

Robert Cohen, *Professor of Drama*

Donald McKayle*, Professor of Dance*

Yvonne Rainer, *UCI Distinguished Professor Emerita of Art*

Fong and Jean Tsai Chair in Women's Imaging
Stephen Feig, *Division Director of Mammography and Professor of Clinical Radiological Sciences, Department of Radiological Sciences*

UC Presidential Chair
Peter M. Rentzepis, *Professor of Chemistry and of Chemical Engineering and Materials Science*

UCI ADVANCE Term Chair
Chuu-Lian Terng, *Professor of Mathematics*

UCI Excellence in Teaching Chair in Mathematics
Richard Schoen, *Professor of Mathematics*

Dr. Stanley van den Noort Endowed Chair
Steven L. Small, *Department Chair of Neurology and Professor, Departments of Neurology, Neurobiology and Behavior, and Cognitive Sciences*

Drew, Chace, and Erin Warmington Chair in the Social Ecology of Peace and International Cooperation
Scott A. Bollens, *Professor of Planning, Policy, and Design*

UCI Chancellor's Fellows

Marianne Bitler, *Professor of Economics*

William Branch, *Professor of Economics*

James Bullock, *Professor of Physics and Gary McCue Administrative Term Chair in Cosmology*

Elizabeth Cauffman, *Professor of Psychology and Social Behavior and of Education*

John R. Hipp, *Associate Professor of Criminology, Law and Society and Sociology*

Simon Huttegger, *Professor of Logic and Philosophy of Science*

Svetlana Jitomirskaya, *Professor of Mathematics*

Michael J. Montoya, *Associate Professor of Anthropology, Chicano/Latino Studies, and Public Health*

Gary Richardson, *Professor of Economics*

Timonthy Tait, *Professor of Physics and Astonomy*

Kathleen K. Treseder, *Department Vice Chair and Professor of Ecology and Evolutionary Biology, and Professor of Earth System Science*

Shiou-Chuan (Sheryl) Tsai, *Professor of Molecular Biology and Biochemistry, Chemistry, and Pharmaceutical Sciences*

Marcelo Wood, *Professor of Neurobiology and Behavior*

UCI Chancellor's Professors

Kei Akagi, *UCI Chancellor's Professor of Music*

Pierre Baldi, *Director of the Institute for Genomics and Bioinformatics and UCI Chancellor's Professor of Computer Science, Biomedical Engineering, and Biological Chemistry*

Frank D. Bean, *Director of the Center for Research on Immigration, Population, and Public Policy and UCI Chancellor's Professor of Sociology and Economics*

Dan L. Burk, *UCI Chancellor's Professor of Law*

Kitty Calavita, *UCI Chancellor's Professor of Criminology Law, and Society*

Imran S. Currim, *UCI Chancellor's Professor of Management*

Nikil Dutt, *UCI Chancellor's Professor of Computer Science and of Electrical Engineering and Computer Science*

Catherine Fisk, *UCI Chancellor's Professor of Law*

Bryant Garth, *UCI Chancellor's Professor School of Law*

Michael T. Goodrich, *Department Chair and UCI Chancellor's Professor of Computer Science*

Richard L. Hasen, *UCI Chancellor's Professor of Law and Political Science*

Hamid Jafarkhani, *UCI Chancellor's Professor of Electrical Engineering and Computer Science and Conexant-Broadcom Chair in the Center for Pervasive Communications*

Frank LaFerla, *Director of the Institute for Memory Impairments and Neurological Disorders and Dean of Francisco J. Ayala School of Biological Sciences and UCI Chancellor's Professor of Neurobiology and Behavior*

Eva Y.-H. P. Lee, *Department Chair and UCI Chancellor's Professor of Biological Chemistry*

Peter Li, *UCI Chancellor's Professor Emeritus of Mathematics*

John S. Lowengrub, *UCI Chancellor's Professor of Mathematics, Chemical Engineering and Materials Science, and Biomedical Engineering*

Marc J. Madou, *UCI Chancellor's Professor of Mechanical and Aerospace Engineering, Biomedical Engineering, and Chemical Engineering and Materials Science*

Steven J. Mailloux, *UCI Chancellor's Professor of English*

George E. Marcus, *Director of the Center for Ethnography and UCI Chancellor's Professor of Anthropology*

Carrie Menkel-Meadow, *UCI Chancellor's Professor of Law*

Kristen Monroe, *UCI Chancellor's Professor of Political Science*

David Neumark, *Director of the Center for Economics & Public Policy and UCI Chancellor's Professor of Economics and Management*

Margot Norris, *UCI Chancellor's Professor Emerita of English and Comparative Literature*

Reginald M. Penner, *Director of the Center for Solar Energy and UCI Chancellor's Professor of Chemistry*

Thomas L. Poulos, *UCI Chancellor's Professor of Molecular Biology and Biochemistry, Pharmaceutical Sciences, Physiology and Biophysics, and Chemistry*

Rajagopalan Radhakrishnan, *UCI Chancellor's Professor of English*

Charles Ragin, *UCI Chancellor's Professor of Sociology*

James T. Randerson, *UCI Chancellor's Professor of Earth System Science and of Ecology and Evolutionary Biology*

R. Anthony Reese, *UCI Chancellor's Professor of Law*

Bryan Reynolds, *UCI Chancellor's Professor of Drama*

Markus Ribbe*, UCI Chancellor's Professor of Molecular Biology and Biochemistry*

Gabriele Schwab, *UCI Chancellor's Professor of Comparative Literature and Anthropology*

David A. Snow, *UCI Chancellor's Professor of Sociology*

Etel Solingen, *UCI Chancellor's Professor of Political Science*

Ivan Soltesz, *Department Chair of Anatomy and Neurobiology and UCI Chancellor's Professor of Anatomy and Neurobiology, Physiology and Biophysics, and Neurobiology and Behavior*

Daniel Stokols, *UCI Chancellor's Professor Emeritus of Planning, Policy, and Design and of Psychology and Social Behavior*

Richard Taylor, *Director of the Institute for Software Research and UCI Chancellor's Professor of Informatics*

Brook Thomas, *UCI Chancellor's Professor of English*

Christopher Tomlins, *UCI Chancellor's Professor of Law*

Chen S. Tsai, *UCI Chancellor's Professor of Electrical Engineering and Computer Science*

Gene Tsudik*, UCI Chancellor's Professor of Computer Science*

Jeffrey Wasserstrom, *UCI Chancellor's Professor of History*

Cecile Whiting, *UCI Chancellor's Professor of Art History*

UCI Distinguished Professors

Satya N. Atluri, *UCI Distinguished Professor of Mechanical and Aerospace Engineering*

John C. Avise, *UCI Distinguished Professor of Ecology and Evolutionary Biology*

Donald R. Blake, *UCI Distinguished Professor of Chemistry and Earth System Science*

William E. Bunney, Jr., *UCI Distinguished Professor Emeritus of Psychiatry and Human Behavior and Della Martin Chair in Psychiatry*

Michael D. Cahalan, *Department Chair and UCI Distinguished Professor of Physiology and Biophysics*

Charles R. Cantor, *UCI Distinguished Adjunct Professor of Physiology and Biophysics*

Erwin Chemerinsky, *Dean of the School of Law, UCI Distinguished Professor of Law and Political Science, and Raymond Pryke Endowed Chair in First Amendment Law*

Barbara A. Dosher, *UCI Distinguished Professor of Cognitive Sciences*

Michael V. Drake, *Chancellor and UCI Distinguished Professor of Ophthalmology*

Greg Duncan, *UCI Distinguished Professor of Education, Economics, and Psychology and Social Behavior*

David Easton, *UCI Distinguished Research Professor of Political Science*

Jacquelynne S. Eccles, *UCI Distinguished Professor of Education*

Barbara J. Finlayson-Pitts, *UCI Distinguished Professor of Chemistry*

Zachary Fisk, *UCI Distinguished Professor of Physics*

Anthony A. James, *UCI Distinguished Professor of Microbiology and Molecular Genetics and of Molecular Biology and Biochemistry*

Elizabeth F. Loftus, *UCI Distinguished Professor of Psychology and Social Behavior; Criminology, Law and Society; Cognitive Sciences; and Law*

Penelope Maddy, *UCI Distinguished Professor of Logic and Philosophy of Science and of Mathematics*

David B. Malament, *UCI Distinguished Professor Emeritus of Logic and Philosophy of Science*

Mihai Maniutiu, *UCI Distinguished Professor of Drama*

Bruce McNaughton, *UCI Distinguished Professor of Neurobiology and Behavior*

Ricardo Miledi, *UCI Distinguished Research Professor of Neurobiology and Behavior*

Jack Miles, *UCI Distinguished Professor of English*

J. Hillis Miller, *UCI Distinguished Research Professor Emeritus of English and Comparative Literature*

Shaul Mukamel, *UCI Distinguished Professor of Chemistry*

Charles Newman, *UCI Distinguished Professor of Mathematics*

Ngugi wa Thiong'o, *UCI Distinguished Professor of English and Comparative Literature*

Larry E. Overman, *UCI Distinguished Professor of Chemistry*

Yvonne Rainer, *UCI Distinguished Professor Emerita and Claire Trevor Professor Emerita of Art*

Irwin Rose, *UCI Distinguished Professor Emeritus, Department of Physiology and Biophysics*

Vicki Ruiz*, UCI Distinguished Professor of History and Gender and Sexuality Studies*

Donald G. Saari, *Director of the Institute for Mathematical Behavioral Sciences and UCI Distinguished Professor of Economics and Mathematics*

Henry Samueli, *UCI Distinguished Adjunct Professor of Electrical Engineering and Computer Science*

Paolo Sassone-Corsi, *Director of the Center for Epigenetics and Metabolism and UCI Distinguished Professor of Biological Chemistry and Pharmaceutical Sciences*

Masanobu Shinozuka, *UCI Distinguished Professor Emeritus of Civil and Environmental Engineering*

Lowery Stokes Sims, *UCI Distinguished Professor of Art*

Brian Skyrms, *UCI Distinguished Professor of Logic and Philosophy of Science and of Economics, and Director of the Minor in the History and Philosophy of Science*

David A. Snow, *Co-Director of the Center for Citizen Peacebuilding and UCI Distinguished Professor of Sociology*

Soroosh Sorooshian, *UCI Distinguished Professor of Civil and Environmental Engineering and of Earth System Science*

George Sperling, *UCI Distinguished Professor of Cognitive Sciences and of Neurobiology and Behavior*

Eric J. Stanbridge, *UCI Distinguished Professor Emeritus of Microbiology and Molecular Genetics*

UCI Faculty Membership in Major U.S. Learned Societies

American Academy of Arts and Sciences: 34
American Association for the Advancement of Science: 135
American Philosophical Society: 7
American Physical Society: 43
National Academy of Engineering: 11
National Academy of Sciences: 25
National Academy of Sciences–Institute of Medicine: 4

Academic Honesty

The UCI Academic Senate Policies on Academic Honesty were approved by the Irvine Division on June 2, 1988, and most recently revised on June 5, 2008.

A. Preamble

The University is an institution of learning, research, and scholarship predicated on the existence of an environment of honesty and integrity. As members of the academic community, faculty, students, and administrative officials share responsibility for maintaining this environment. It is essential that all members of the academic community subscribe to the ideal of academic honesty and integrity and accept individual responsibility for their work. Academic dishonesty is unacceptable and will not be tolerated at the University of California, Irvine. Cheating, forgery, dishonest conduct, plagiarism, and collusion in dishonest activities erode the University's educational, research, and social roles. They devalue the learning experience and its legitimacy not only for the perpetrators but for the entire community.

B. Responsibilities

All members of the academic community have a responsibility to ensure that scholastic honesty is maintained.

Faculty have primary responsibility for:

1. Upholding and enforcing universitywide principles of academic honesty and integrity and explaining clearly these principles including any qualifications which may be operative in the classes they are teaching.
2. Minimizing opportunities for academic misconduct in their courses.
3. Confronting students suspected of academic dishonesty in a way that respects student privacy.
4. Affording students accused of academic misconduct the right to appeal any resulting disputes to disinterested parties for hearing and resolution.
5. Assigning an appropriate grade to a student who engages in academic dishonesty.
6. Reporting all instances of academic dishonesty to appropriate Associate Deans.
7. Protecting the anonymity of any student reporting an incident of academic dishonesty to the extent permitted by due process required for the accused and other legal requirements.

Students have responsibility for:

1. Refraining from cheating and plagiarism.
2. Refusing to aid or abet any form of academic dishonesty.
3. Notifying professors and/or appropriate administrative officials about observed incidents of academic misconduct. The anonymity of a student reporting an incident of academic dishonesty will be protected.

C. What is Academic Dishonesty?

Academic dishonesty applies equally to electronic media and print, and involves text, images, and ideas. It includes but is not limited to the following examples:

Cheating

1. Copying from others during an examination.
2. Communicating exam answers with other students during an examination.
3. Offering another person's work as one's own.
4. Taking an examination for another student or having someone take an examination for oneself.
5. Sharing answers for a take-home examination or assignment unless specifically authorized by the instructor.
6. Tampering with an examination after it has been corrected, then returning it for more credit.
7. Using unauthorized materials, prepared answers, written notes or information concealed in a blue book or elsewhere during an examination.
8. Allowing others to do the research and writing of an assigned paper (including use of the services of a commercial term-paper company).

Dishonest Conduct

1. Stealing or attempting to steal an examination or answer key from the instructor.
2. Changing or attempting to change academic records without proper sanction.
3. Submitting substantial portions of the same work for credit in more than one course without consulting all instructors involved.
4. Forging add/drop/change cards and other enrollment documents, or altering such documents after signatures have been obtained.
5. Intentionally disrupting the educational process in any manner.
6. Allowing another student to copy off of one's own work during a test.

Plagiarism

Plagiarism is intellectual theft. It means use of the intellectual creations of another without proper attribution. Plagiarism may take two main forms, which are clearly related:

1. To steal or pass off as one's own the ideas or words, images, or other creative works of another.
2. To use a creative production without crediting the source, even if only minimal information is available to identify it for citation.

Credit must be given for every direct quotation, for paraphrasing or summarizing a work (in whole, or in part, in one's own words), and for information which is not common knowledge.

Collusion

Any student who knowingly or intentionally helps another student perform any of the above acts of cheating or plagiarism is subject to discipline for academic dishonesty.

D. Procedures for Dealing with Incidents of Academic Dishonesty

Many, perhaps most, incidents of academic dishonesty involve accusations which are based on clear evidence and which are not contested by the accused student. In such cases, if the infraction is relatively minor and there is no indication that the accused student has previously been involved in such incidents, it is most appropriate that the matter be resolved between the student and the faculty member. When this occurs, it is nevertheless important that a written report of the incident be filed to ensure that penalties assessed are commensurate with the offense and that repeated infractions be detected and dealt with appropriately.

More serious incidents and repeat offenses which call for stronger disciplinary action, may result in campuswide sanctions, in addition to the actions imposed by a faculty member. In such cases, these sanctions, as described in Section 105.00 of the *Policies Applying to Campus Activities, Organizations, and Students,* will be administered by the Academic Associate Deans or the Office of the Dean of the Division of Undergraduate Education or the Graduate Division.

Finally, whenever an accusation of academic dishonesty or a grade given by a faculty member is contested by an accused student, the student has recourse for mediation of the dispute. Processes for mediation, assistance with conflict resolution, and/or an informal inquiry may be requested by the student or the Associate (Undergraduate or Graduate) Dean of the faculty member's school through the Office of the Ombudsman. In incidents where a campuswide sanction has been imposed, the student can request a hearing with the appropriate Hearing Panel on Academic Honesty which will be convened by the Office of either the Dean of the Division of Undergraduate Education or the Dean of the Graduate Division, depending on the status of the accused student.

The procedures outlined here are designed to institute a system that recognizes that many cases of academic misconduct are best resolved between the student and faculty member involved, while it provides for appropriate record keeping and handling of serious and repeated offenses and guarantees a fair hearing to a student who has received a campuswide sanction.

Authority of Faculty Members

When a faculty member has evidence of student academic dishonesty, the faculty member must present the evidence to the student in a private meeting or communicate with the student by some other means. The faculty member must initiate this communication with the student within 15 calendar days of discovering evidence of academic dishonesty and evaluating the relevant work. The faculty member then may follow up with one or more of only the following actions:

1. To issue a reprimand to the student with letter of explanation to the student's file.
2. To require repetition of the questionable work or examination with letter of explanation to the student's file.
3. To reduce the grade to an 'F' or zero, if appropriate, on the questionable work or examination with written notification to the student and a letter of explanation to the student's file.
4. To assign the student a failing grade in the course or otherwise lower the grade in the course with a letter of explanation to the student's file.

It is essential that any such action be reported in writing to the student in a letter from the faculty member. Copies of this letter must also be sent to (a) the Associate Dean of the faculty member's school, (b) the Associate Dean of the student's school, who will maintain a file of cases of academic misconduct involving students enrolled in that school, and (c) the Office of the Dean of the Division of Undergraduate Education or Dean of the Graduate Division, as appropriate. The faculty member is strongly encouraged to consult with the Associate (Undergraduate or Graduate) Dean of his or her school before the letter is drafted. Reference to (or a copy of) the UCI Academic Senate Policies on Academic Honesty should be included in the letter. If action (4) is taken, the faculty member is responsible for making certain that the failure is recorded by the Registrar on the student's permanent academic record. Careful documentation of the incident must be maintained by the faculty member in the event that his or her actions in the case should later be subject to review.

Responsibilities of the Academic Associate Deans

1. The Associate (Graduate or Undergraduate) Dean of either the accused student's school or of the faculty member's school may impose campus-wide sanctions. Sanctions imposed by Associate Deans are final unless the student requests a hearing within 15 calendar days of notification. The 15-day period starts from the time the Associate Dean has notified the student of the discipline or has notified the student of the hearing and appeal process by providing a copy of this policy, whichever comes later. It is recommended that each case be brought to a final resolution within 90 days of instruction.
2. The Associate Dean (or equivalent official) of each school is responsible for maintaining confidential records concerning academic dishonesty of students enrolled in that school. All letters reporting faculty-imposed academic penalties for academic misconduct will be included in these files.
3. The Associate Dean of the accused student's school will be responsible for identifying all incidents which represent repeated offenses by a student and may impose a campuswide sanction because of repeat offenses.
4. Associate Deans are required to notify the student of the hearing and appeal process and provide the student a copy of this policy or explicitly refer the student to it. If an Associate Dean suspects grounds for a grievance involving discrimination, the student should be referred to Appendix II of *The Manual of the Irvine Division of the Academic Senate,* "Student Academic Grievance Procedures Relating to Non-Discrimination" (which is limited to allegations of discrimination).
5. In those classes where academic dishonesty continues to be a problem and the faculty member or another university official has already been approached by the student(s) from the class, the Associate Dean will consult with the appropriate faculty member to address the problem.

6. Students who have on file recorded acts of academic dishonesty, as defined by the *Policies Applying to Campus Activities, Organizations, and Students,* may be excluded by the Associate Deans from consideration for academic honors at graduation. Another consequence could be that in admission to a major, for students who wish to change majors, individual majors may take into account the commission of an act of dishonesty. Exclusion from consideration for honors and exclusion from major change is not for the purposes of this policy to be considered a campuswide sanction. Students excluded from such consideration under this policy therefore are not eligible to request a formal hearing.
7. In those situations where a campuswide sanction is imposed and the student requests a hearing, the Associate Dean will forward to the Hearing Panel on Academic Honesty the materials which led him or her to impose the sanction. In addition, the Associate Dean will appear before the Hearing Panel to discuss the case upon request of the Hearing Panel.

Student Hearings

It should be understood that all grades are ultimately the responsibility of faculty. However, if a student accused of academic dishonesty wishes to contest an action by a faculty member, the student may, within a 15-day period, request assistance by writing to the Associate Dean of the faculty member. The period is 15 calendar days and starts from the time the Associate Dean has notified the student of the discipline or has notified the student of the hearing and appeal process by providing a copy of this policy, whichever comes later.

When a campuswide sanction is imposed, the affected student may, within 15 days of notification, request a hearing before a Hearing Panel on Academic Honesty. Students considering a hearing in response to campuswide sanctions for alleged academic misconduct are urged to contact the Associate Dean of their academic school and/or the University Ombudsman concerning possible sources of advice and assistance. Students should be advised regarding the grounds for appeal as specified in section 103.11 of the *Policies Applying to Campus Activities, Organizations, and Students.*

Role of the Ombudsman

The services of the Ombudsman may be requested at any time by the student, the faculty member, or the Associate Dean. The role of the Ombudsman is to assist in conflict resolution, mediate the dispute, perform an informal inquiry of the case, and clarify policies and procedures for anyone involved.

In those incidents where imposition of a campuswide sanction is a consideration and the student has requested a hearing before the Panel on Academic Honesty, the case may be referred to the Office of the Ombudsman by the Dean of the Division of Undergraduate Education or the Dean of the Graduate Division. An informal inquiry may be conducted by the Ombudsman who will then confer with the Associate Dean and the accused student. However, the findings of the Ombudsman will not be forwarded to the Hearing Panel on Academic Honesty. The case may be referred by the student to either the Dean of the Division of Undergraduate Education or the Dean of the Graduate Division, as appropriate, who will be responsible for convening the Hearing Panel on Academic Honesty.

Students should always be informed by the Associate Dean of their school of their right to secure the assistance of the Ombudsman in understanding and addressing the problem or issue.

Role of the Deans of Undergraduate Education and the Graduate Division

Whenever an incident of academic misconduct is referred to the Office of the Dean of the Division of Undergraduate Education or the Dean of the Graduate Division by the student, a representative of the appropriate offices will meet with the student and, if requested, explain the process and arrange the time and place of a hearing before the appropriate (Undergraduate or Graduate) Hearing Panel on Academic Honesty. The appropriate Dean will maintain a record of all cases of academic dishonesty reported by the respective Associate Deans.

Formal resolution by the appropriate Hearing Panel on Academic Honesty may result in the imposition by the Dean of the Division of Undergraduate Education or the Dean of the Graduate Division of one or more of the sanctions described in section 105.00 of the *Policies Applying to Campus Activities, Organizations, and Students*, including suspension or dismissal from the University.

E. Hearing Panels on Academic Honesty

1. **Jurisdiction of the Hearing Panels on Academic Honesty**
   There will be two types of Hearing Panels on Academic Honesty. One type of Hearing Panel will hear cases of campuswide sanctions on undergraduate students while the other will hear graduate student cases. The Hearing Panels can reduce, affirm, or increase sanctions.
2. **Composition of the Hearing Panels on Academic Honesty**
   An undergraduate Hearing Panel on Academic Honesty will be convened for each case submitted throughout the year. The pool from which each Undergraduate Hearing Panel on Academic Honesty shall be drawn consists of all appointed faculty and ex officio faculty on the Council of Student Experience, selected student Peer Academic Advisors nominated by the academic units (one per unit), and a representative from the Office of the Dean of the Division of Undergraduate Education, appointed by the Dean of the Division of Undergraduate Education. These groups will be trained in the Academic Honesty policy and procedures by a representative of the Dean of the Division of Undergraduate Education so that there will be a ready pool of qualified participants available on short notice when a hearing is called. For each hearing involving an Undergraduate Hearing Panel on Academic Honesty, two faculty appointed by the Council on Student Experience Chair, two student Peer Academic Advisors and one representative from the Office of the Dean of the Division of Undergraduate Education appointed by the Dean of the Division of Undergraduate Education shall form an Undergraduate Hearing Panel on Academic Honesty to hear the student appeal. The hearing will be scheduled by the Office of the Dean of the Division of Undergraduate Education.

   The Graduate Hearing Panel on Academic Honesty will be a standing administrative committee composed of two faculty, two students, and a representative of the Dean of the Graduate Division. Terms of faculty members will be two years. One faculty member will be appointed annually by the Dean of the Graduate Division. To ensure continuity, terms will be staggered; during the first year of operation only, one faculty member will

be appointed for a one-year term. One additional faculty member will be appointed by the Dean of the Graduate Division to serve as an alternate to the Graduate Hearing Panel. The two students shall serve for one year and will be appointed by AGS. One additional student member will be appointed by AGS to serve as an alternate.

3. **Role of the Associate Dean**
   The Associate Dean will forward to each Hearing Panel the evidence which led to his or her decision to impose the campuswide sanction. In addition, the Associate Dean will appear before the Hearing Panel to comment on the case if the Hearing Panel wishes.
4. **Hearings**
   a. If the student requests a hearing, the Office of the Dean of the Division of Undergraduate Education or the Dean of the Graduate Division shall schedule a hearing of the case before the appropriate Hearing Panel. Written notice must be given to the parties involved regarding the date, time, and place of the hearing.
   b. The chair will be elected by the membership of the Hearing Panel. The chair will rule on all questions of procedure, the admission or exclusion of evidence, and the need to call witnesses for additional testimony. Hearings shall be held in accordance with generally accepted standards of procedural due process.
   c. Hearings will be closed unless the parties involved agree to an open hearing. Every effort must be made by all parties to maintain confidentiality during the process.
   d. Hearings shall be held following the provisions in sections 103.11. (5, 6, and 8) of the Policy on Student Conduct and Discipline in the *Policies Applying to Campus Activities, Organizations, and Students*, except that the role of the Dean of Students shall be filled by the Dean of the Division of Undergraduate Education or the Graduate Division, depending on the status of the student.
5. **Report of the Hearing Panel on Academic Honesty**
   After a hearing, a Hearing Panel shall arrive at a decision. When a decision is reached, the student and the appropriate Academic Associate Dean will be informed of the judgment.
6. **Final Appeal**
   If the campuswide sanction is upheld by a Hearing Panel, the report of the Hearing Panel and all supporting evidence may be sent for a final level of review at the request of the student. If the accused student is an undergraduate, the case will be reviewed by the Dean of the Graduate Division. If the accused student is a graduate student, the case will be reviewed by the Dean of the Division of Undergraduate Education. This final review process can only result in decreasing the sanctions imposed on the student or leaving them unchanged. There are no further appeals or processes.
7. **Implementation**
   Once the judgment has been rendered the Dean of the Division of Undergraduate Education or the Graduate Division will implement the judgment in the form of a letter to the student as well as initiate any other necessary administrative actions.

F. Maintenance of Disciplinary Records

Records relating to academic dishonesty will be maintained by the Associate Deans and the Offices of the Deans of the Division of Undergraduate Education and the Graduate Division to promote consistency of penalties for a given offense and to ensure appropriate action against repeat offenders. Records will normally be destroyed after five years, unless the Associate Dean determines in any particular case that there is good reason to extend the period of retention. In order to ensure that minor and nonrecurring infractions do not negatively impact a student's career beyond UCI, any student may petition to the Associate Dean of his or her academic school to have relevant academic disciplinary records expunged after the record is two years old or upon graduation, whichever comes first. The Associate Dean has sole authority to consider and to grant or deny such petitions. The University will release a student's disciplinary records to potential employers, governmental agencies, other educational institutions, or other organizations or individuals only if authorized to do so by the student in question or if compelled by law. Any record expunged by the Associate Dean will also be erased in the Dean of the Division of Undergraduate Education or the Graduate Division Offices.

Additional Information

This policy is intended to focus solely on issues related to academic dishonesty. Certain details of the implementation of procedures specified here can be found in the *University of California Policies Applying to Campus Activities, Organizations, and Students*, available free of charge from the Office of the Ombudsman, located at 205 Multipurpose Science & Technology Building and the Office of the Dean of Students, located in the UCI Student Center.

- Student Conduct and Discipline (p. 1921)
- Anti-Hazing Compliance (p. 1921)
- Campus Safety and Security (p. 1922)
- Computer- and Network-Use Policy (p. 1923)
- Privacy and Student Records (p. 1924)
- Employment/Salary and Graduation Rates Information (p. 1926)
- Nondiscrimination and Sexual Harassment Policy Statements (p. 1927)
- Sex Offenses Policy (p. 1928)

Principles of Community

UC Irvine is a multicultural community of people from diverse backgrounds. Our activities, programs, classes, workshops, lectures and everyday interactions are enriched by our acceptance of one another, and we strive to learn from each other in an atmosphere of positive engagement and mutual respect.

Our legacy for an increasingly multicultural academic community and for a learning climate free from expressions of bigotry is drawn from the United States and California Constitutions, and from the charter of the University of California which protects diversity and reaffirms our commitment to the protection of lawful free speech. Affirmation of that freedom is an effective way of ensuring that acts of bigotry and abusive behavior will not go unchallenged within the university. Tolerance, civility and mutual respect for diversity of background, gender, ethnicity, race and religion are as crucial within our campus community as are tolerance, civility and mutual respect for diversity of political beliefs, sexual orientation and physical abilities. Education and clear, rational and vigorous challenges are positive responses to prejudice and acts of bigotry.

The university's nondiscrimination policy, in compliance with applicable federal and state law, covers treatment in university programs and activities as well as admission and employment. UCI expects all those affiliated with it to adhere to the letter and the spirit of university nondiscrimination policies and related federal and state laws. Information concerning these policies is available at the University of California's Office of the President (http://www.ucop.edu).

Allegations of physical abuse, threats of violence, or conduct that threatens the health or safety of any person on university property or in connection with official university functions will be investigated promptly and, where found to exist, appropriate actions will be taken in accordance with university policy.

All who work, live, study and teach at UCI are here by choice and, as part of that choice, should be committed to these Principles of Community (http://www.dos.uci.edu/conduct/principlesofcommunity.php) which are an integral part of the guidelines by which the university community can successfully conduct its affairs.

Student Conduct and Discipline

Students enrolling in the university are expected to assume an obligation to conduct themselves in a manner compatible with the university's function as an educational institution. The *University of California Policies Applying to Campus Activities, Organizations, and Students* sets forth standards of conduct expected of UCI students. The *Policies* lists rules concerning conduct and related matters, as established by the policies of the Regents and the President of the University, and also incorporates campus regulations.

Anti-Hazing Compliance

The State of California and the University of California have expressly and repeatedly asserted their opposition to hazing and preinitiation activities which do not contribute to the positive development and welfare of the individuals involved.

In February 2006, the Education Code of the State of California was repealed and amended to codify within the Penal Code a new definition of hazing. In accordance with the revised Education Code and Penal Code, students are advised of the following:

Education Code 32052

Any person who participates in the hazing of another, or any corporation or association which knowingly permits hazing to be conducted by its members or by others subject to its direction or control, shall forfeit any entitlement to State funds, scholarships, or awards which are enjoyed by him, by her, or by it, and shall be deprived of any sanction or approval granted by any public educational institution or agency.

Penal Code 245.6

Section 245.6 of the Penal Code reads:

1. It shall be unlawful to engage in hazing, as defined in this section.
2. "Hazing" means any method of initiation or preinitiation into a student organization or student body, whether or not the organization or body is officially recognized by an educational institution, which is likely to cause serious bodily injury to any former, current, or prospective student of any school, community college, college, university, or other educational institution in this state. The term "hazing" does not include customary athletic events or school-sanctioned events.
3. A violation of this section that does not result in serious bodily injury is a misdemeanor, punishable by a fine of not less than one hundred dollars ($100), nor more than five thousand dollars ($5,000), or imprisonment in the county jail for not more than one year, or both.
4. Any person who personally engages in hazing that results in death or serious bodily injury as defined in paragraph (4) of subdivision (f) of Section 243 of the Penal Code, is guilty of either a misdemeanor or a felony, and shall be punished by imprisonment in county jail not exceeding one year, or by imprisonment in the state prison.
5. The person against whom the hazing is directed may commence a civil action for injury or damages. The action may be brought against any participants in the hazing, or any organization to which the student is seeking membership whose agents, directors, trustees, managers, or officers authorized, requested, commanded, participated in, or ratified the hazing.
6. Prosecution under this section shall not prohibit prosecution under any other provision of law.

Campus Safety and Security

The UC Irvine Police Department (UCIPD) is responsible for the safety and security of the UCI campus and the University of California, Irvine Medical Center. UCIPD and UCI administration make continual efforts to reduce crime on campus and at the UC Irvine Medical Center.

Crime Prevention

The UCI Police Department offers educational programs and presentations to the campus community. The Department teaches a variety of prevention and awareness topics. These topics include: drugs and alcohol, domestic violence, sexual assault, identity theft, property and auto theft, workplace violence, and personal safety. The personal safety component is further developed through the RAD (Rape Aggression Defense) Program for women. For more information, or to schedule a presentation, call 949-824-5223 or visit the UCIPD (http://www.police.uci.edu) website. Crime prevention tips are also available on the website.

Safety Tips

All members of the UCI community should be aware of their surroundings by using common sense and practicing safety precautions. Theft is the most common security problem. Property theft is preventable if you keep your personal belongings (backpack, laptop computer, cellular phone) in sight, within arm's length, or secured in a locked place. Students living on campus should keep their doors locked at all times. Faculty and staff should keep valuables locked up while they are in their workplace. The last person to leave a laboratory or building should lock the doors. Report the presence of unknown visitors or suspicious persons to the UCI Police Department or UC Irvine Medical Centerr Security as soon as possible.

While on campus at night, it is suggested that you do not walk alone. The UCI Safety Escort Service (949-824-SAFE) is available for safety escorts between campus locations.

Emergency Call Boxes (Blue Light Phones)

Emergency call boxes (Blue Light Phones) are located throughout the UCI campus and the UC Irvine Medical Center. These call boxes are to be used to report emergencies, crimes, suspicious persons or activities, accidents, and safety hazards.

The campus has 150 Blue Light Phones installed around the ring mall, housing communities, and in parking structures and lots. Blue Light Phones are represented by a diamond on the campus map. Call boxes are easily identified by the blue light on top of the terminal, and the boxes have the ability to detect all sounds within a 15-foot radius. To activate the emergency call box, push the red button located on the front of the terminal. You are then automatically connected to the UCI Police Department Communications Center. The UC Irvine Medical Center has 21 emergency call boxes located throughout the complex and in the southeast corner of the Manchester parking lot. These phones are also connected to the UCIPD Communications Center.

Substance Abuse Policies

UCI is designated a drug-free environment, and only under certain conditions is the consumption of alcohol permitted. The sale, manufacture, distribution, or possession of any controlled substance is illegal under both state and federal laws. Such laws are strictly enforced by UCIPD. All members of the UCI community who violate these laws are subject to disciplinary action, criminal prosecution, fines, and imprisonment.

Sales, consumption, and the furnishing of alcohol on the UCI campus is restricted by UCI's Alcohol Policy and California State law, and are controlled by the California Department of Alcohol and Beverage Control (ABC). ABC and UCIPD share enforcement of alcohol laws on campus. It is unlawful to sell, furnish, or give alcohol to a person under the age of 21 years (this includes the Anthill Pub & Grille). The possession of alcohol by anyone under 21 in a public place, or in a place open to the public, is illegal. It is also a violation of UCI's Alcohol Policy for anyone under the age of 21 to consume or possess alcohol in any public or private housing area on campus. Students and employees found violating alcohol/substance policies or laws could be subject to sanctions by the University.

Weapons Policy

The California Penal Code contains several sections regarding possessing weapons on college campuses. The UCI Police Department encourages all members of the campus community to be familiar with the following statutes that regulate the possession of weapons.

Section 626.9 – Felony Violation – Bringing or possessing a firearm on the grounds of a University of California campus, or any property owned or operated by the University of California, without written permission from the UCPD Chief of Police.

Section 626.10(b) – Misdemeanor or Felony Violation – Bringing or possessing any dirk, dagger, ice pick, or knife having a fixed blade longer than 2 ½ inches on university grounds.

Section 16590 – Misdemeanor or Felony Violation – Possessing a undetectable firearm, cane gun, wallet gun, zip gun, belt buckle knife, blackjack, billy club, nunchaku, shuriken and metal knuckles.

Section 21510 – Misdemeanor Violation – Carry upon the person, or in the passenger or driver's area of a vehicle, a switch blade knife having a blade two or more inches in length.

UCIPD asks that you immediately report any situation in which a subject states they have a firearm on campus, or that they intend to a use a firearm on campus. You can choose to remain anonymous when making a report.

To Report an Incident

UCIPD needs your help to build and maintain a safe community. If you witness suspicious or unusual behavior on campus, please contact UCIPD. UCI police officers will assess the situation and take the appropriate action. Please report crimes; you can ask to be anonymous.

On campus, dial 9-1-1 for a police, medical, or fire emergency. For non-emergency police services dial (949) 824-5223. The UCI Police Department's campus office is open 24 hours a day and is located on the ground floor of the Public Services Building, at the corner of East Peltason and Pereira Drives.

At the UC Irvine Medical Center, dial 9-1-1 for a police, medical, or fire emergency. For non-emergency police service dial (714) 456-5493. The UC Irvine Medical Center Security office is located in Building 33.

Crimes occurring off campus should be reported immediately to the city/state law enforcement agency where the crime occurred.

UCI Crime Statistics

Pursuant to the Federal Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act of 1999, the University of California, Irvine annually publishes statistics of reported occurrences of criminal activity on and off campus and at the UC Irvine Medical Center. This information is available to all students, faculty, staff, and the general public.

The University of California, Irvine's annual security report includes statistics for the previous three years concerning reported crime that occurred on campus, in certain off-campus buildings controlled by UCI, at the UC Irvine Medical Center, and on public property within or immediately adjacent to and accessible from the campus and UC Irvine Medical Center. The annual security report also includes institutional policies concerning alcohol and drug use, crime prevention, the reporting of crimes, sexual assault, and other matters. The fire safety report includes statistics concerning fires that occurred in on campus student housing facilities. Copies of these reports are available on the UCI Police Department (http://www.police.uci.edu) website. Copies may also be obtained by visiting the UCI Police Department front counter Monday through Friday, 8:00a.m. to 5:00p.m.

UCI Police Department
100 Public Services Building
Irvine, CA 92697-4900
(949) 824-5223
Records Unit: 949-824-7798

Computer- and Network-Use Policy

The University of California, Irvine provides computing resources and worldwide network access to members of the UCI electronic community for legitimate academic and administrative pursuits to communicate, access knowledge, and retrieve and disseminate information. All members of the UCI community (faculty, staff, students, and authorized guests) sharing these resources also share the rights and responsibilities for their use.

Rights and Responsibilities

Worldwide, open-access electronic communication is a privilege and continued access requires that users act responsibly. Users should be able to trust that the products of their intellectual efforts will be safe from violation, destruction, theft, or other abuse. Users sharing computing resources must respect and value the rights and privacy of others, respect the integrity of the systems and related physical resources, and observe all relevant laws, regulations, and contractual obligations. Users are responsible for refraining from acts that waste resources, prevent others from using them, harm resources or information, or abuse other people. To help protect files, users are responsible for setting passwords appropriately and for keeping passwords confidential by not giving them to another person.

Most UCI-owned computers are under the control of a system administrator or lab manager. These administrators are expected to respect the privacy of computer system users. However, UCI computer system administrators may access user files or suspend services on the systems they manage without notice as required to protect the integrity of computer systems or to examine accounts that are suspected of unauthorized use, misuse, or have been corrupted or damaged. This includes temporarily locking vulnerable accounts, removing hung jobs, reprioritizing resource intensive jobs, and such.

Many UCI departments have their own computing and networking resources and policies. When accessing computing resources, users are responsible for obeying both the policies described here and the policies of other departments. Student responsibilities are also described in the University of California Policies Applying to Campus Activities, Organizations, and Students (http://www.dos.uci.edu/conduct/uci_policy.php). In addition, all users are responsible for obeying policies of off-campus network services accessed using UCI resources.

Examples of Misuse

Examples of misuse include, but are not limited to:

- Knowingly running or installing on any computer system or network, or giving to another user, a program intended solely for the purpose of damaging or placing excessive load on a computer system or network. This includes, but is not limited to, computer viruses, Trojan horses, worms, bots, flash programs, or password cracking programs.
- Attempting to circumvent data protection schemes or uncover security loopholes without prior written consent of the system administrator. This includes creating and/or running programs that are designed to identify security loopholes and/or intentionally decrypt secure data.

- Using computers or electronic mail to act abusively toward others or to provoke a violent reaction, such as stalking, acts of bigotry, threats of violence, or other hostile or intimidating “fighting words.” Such words include those terms widely recognized to victimize or stigmatize individuals on the basis of race, ethnicity, religion, sex, sexual orientation, disability, and other protected characteristics.
- Posting on electronic bulletin boards or Web pages materials that violate the University’s codes of conduct (faculty, student). This includes posting information that is slanderous or defamatory in nature or displaying graphically disturbing or sexually harassing images or text in a public computer facility or location that are in view of other individuals.
- Attempting to monitor or tamper with another user’s electronic communications or reading, copying, changing, or deleting another user’s files or software without the explicit agreement of the owner.
- Violating terms of applicable software licensing agreements or copyright laws.
- Using campus networks to gain, or attempt to gain, unauthorized access to any computer system.
- Using a computer account or obtaining a password without appropriate authorization.
- Facilitating or allowing use of a computer account and/or password by an unauthorized person.
- Employing, either directly or by implication, a false identity when using an account or other electronic resources. This includes sending unauthorized mail that appears to come from someone else.
- Performing an act without authorization that will interfere with the normal operation of computers, terminals, peripherals, networks, or will interfere with others’ ability to make use of the resources.
- Using an account for any activity that is commercial in nature not related to work at UCI, such as consulting services, typing services, developing software for sale, advertising products, and/or other commercial enterprises for personal financial gain.
- Deliberately wasting computing resources, such as playing games (for example, MUDS or IRC) while someone else is waiting to use the computer for UCI-related work, sending chain letters, spamming, treating printers like copy machines, storing or moving large files that could compromise system integrity or preclude other users’ right of access to disk storage, and the like.

Consequences of Misuse

Misuse of computing, networking, or information is unacceptable, and users will be held accountable for their conduct. Serious infractions can result in temporary or permanent loss of computing and/or network privileges and/or Federal or State legal prosecution. Appropriate corrective action or discipline may be taken in conformance with applicable personnel policies, student policies, collective bargaining agreements, and procedures established by the Academic Senate. California Penal Code, Section 502 makes certain computer abuses a crime, (such as illegal reproduction of software protected by U. S. copyright law) and penalties can include a fine and/or imprisonment. Files may be subject to search under proper authorization.

Minor infractions of this policy, such as poorly chosen passwords, overloading systems, excessive disk space consumption, are typically handled internally to the department in an informal manner. More serious infractions such as abusive behavior, account invasion or destruction, attempting to circumvent system security, and the like are handled formally through the Office of the Dean of Students or by other appropriate officials.

Contact Information

For additional information, contact the Office of Information Technology by calling 949-824-2222, or by sending e-mail to oit@uci.edu. OIT Help Desk offices are located in Administrative Module B, Building 423 - parking lot 16.

Privacy and Student Records

The University of California campuses maintain various types of records pertaining to students; some are maintained for academic purposes; others, such as hospital and employment records, are maintained for other specific purposes. Student records —that is, those pertaining to students in their capacity as students—include but are not limited to academic evaluations, transcripts, test scores and other academic records, general counseling and advising records, disciplinary records, and financial aid records. At UCI, an “applicant” becomes a “student” at the time of submission of their Statement of Intent to Register form.

The disclosure of information from student records is governed in large measure by the Federal Family Educational Rights and Privacy Act of 1974 (FERPA), by the State of California Education Code, and by University policy and procedures implementing these laws which protect the student’s right of privacy, provide safeguards for the confidentiality of student records, and permit students access to their own records.

Pursuant to the Federal Family Educational Rights and Privacy Act of 1974 and the University of California Policies Applying to the Disclosure of Information from Student Records, students at the University have the following five rights:

1. To inspect and review records pertaining to themselves in their capacity as students
2. To inspect records maintained by the campus of disclosure of personally identifiable information from their student records
3. To seek correction of their student records through a request to amend the records or a request for a hearing
4. To file complaints regarding alleged violation of the rights accorded students by the Federal Act with the Family Policy Compliance Office (http://www2.ed.gov/policy/gen/guid/fpco), U.S. Department of Education, 400 Maryland Avenue S.W., Washington, D.C. 20202-5920.
5. To have withheld from disclosure, in the absence of their prior consent for release, personally identifiable information from their student records, with exceptions as noted in the University student records policies.

There are instances in which information can be disclosed without prior written consent of the student. University officials may require access to student records in the course of the performance of their assigned duties. Further, confidential information can be disclosed without prior written consent of the student (a) in connection with conditions of certain financial aid awards; (b) when the campus is complying with a judicial order or subpoena; and (c) when authorized federal or State officials are conducting an audit or evaluation of federally supported educational programs. There are also other situations in which the University is required to disclose information. The *University of California Policies Applying to Campus Activities, Organizations, and Students*, Part B, Section 130.721 contains a list of exceptions.

Normally, the campus will release the following as personally identifiable information which can be made public:

- student's name
- date and place of birth
- address (local and/or permanent)
- campus e-mail address
- telephone numbers
- dates of attendance
- major field of study
- grade level
- degrees and honors received
- number of course units in which enrolled
- enrollment status, (e.g., undergraduate or graduate, full-time or part-time)
- most recent previous educational institution attended
- participation in officially recognized activities, including intercollegiate athletics
- name, weight, and height of participants on intercollegiate University athletic teams
- photo

However, students have the right to refuse to permit any or all of these categories to be designated public information with respect to themselves. Students should view the UCI Student Information Release Matrix on the University Registrar's (http://www.reg.uci.edu) website at to see what information is available for release, and what groups may have access to that information.

Students wishing to restrict release of public information should contact the Registrar's Office for instructions on how to do so.

If a student requests that information from his or her records not be regarded as public information, then the information will not be released to anyone without the written consent of the student. The student should be aware of the important implications of exercising this right. For example, if a request is made to withhold from disclosure a student's name and degrees and honors received, the campus cannot release for publication information on any honors received by the student, such as election to Phi Beta Kappa, and cannot include the student's name and degree earned in the campus commencement program without the written consent of the student. Similarly, if a request is made to withhold from disclosure a student's name and dates of attendance, a student's status as a student cannot be verified for potential employers with out the written consent of the student. Further, if a student's last instruction to the campus was to withhold from disclosure the degree granted to that student and the date on which the degree was conferred, that information cannot be confirmed for a third party in connection with the appointment of that graduate to a new position or in connection with an honor that individual received without the written consent of the student.

It is extremely important for each student to keep the Registrar's Office currently informed as personal data changes occur to assure that accurate and complete records are maintained.

Students are informed annually of their rights under the University's student records policies and FERPA. Copies of the FERPA and University and campus policies are available for review in the Reference Room, Langson Library. In addition, University policies are published in the *University of California Policies Applying to Campus Activities, Organizations, and Students* (http://www.dos.uci.edu/conduct/uci_policy.php).

Complaints regarding alleged violation of the rights accorded students by FERPA may be filed with the University Registrar. A complaint must be made within 180 days of when the alleged violation was discovered (not necessarily when the alleged violation may have occurred). Additionally, a student may file a complaint with the U.S. Department of Education's Family Policy Compliance Office (http://www2.ed.gov/policy/gen/guid/fpco).

Types and locations of major student records maintained by the campus are listed in the following table; consult the UCI (http://www.uci.edu) website or the Campus Directory or building directories for room numbers.

Type of Record	Location of Record	Responsible Official
School, department, or program	Administrative office for particular unit	Dean, Chair, or Director
Academic Testing Center	Anteater Instruction and Research Bldg. (AIRB) Room 3040	Director, Testing Center
Admissions—Undergraduate	Aldrich Hall	Director, Admissions and Relations with Schools
Admissions—Graduate	Aldrich Hall	Dean, Graduate Division

Admissions—School of Law	Law Building	Assistant Dean, Admissions
Admissions—School of Medicine	Med. Sci. I	Director, Admissions
Career Center	Student Services I	Director, Career Center
Child Care Services	Early Childhood Education Center	Director, Child Care Services
Counseling	Student Services	Director, Counseling Services
Dean of Students	Student Center	Dean of Students
Disability Services	Disability Services Center	Director, Disability Services
Education Abroad Program	Student Services II	Coordinator, Study Abroad Center
Financial Aid	Aldrich Hall	Director, Financial Aid
Financial Services (Cashier, Collections)	Aldrich Hall	Manager, Financial Services
Housing	Student Center	Director, Housing
International Center	Student Center	Director, International Center
Learning and Academic Resource Center	Second Floor, Rowland Hall	Director, Learning and Academic Resource Center
Ombudsman Services	205 Multipurpose Science & Technology Bldg. (MSTB)	University Ombudsman
Parking	Public Services Building	Parking Supervisor
Registrar—Graduate/Undergraduate	Aldrich Hall	University Registrar
Registrar—School of Medicine	Med. Sci. I	Assistant Deputy Registrar
Registrar—School of Law	Law Building	Law School Registrar
Relations with Schools	Aldrich Hall	Director, Admissions and Relations with Schools
Student Conduct	Student Center	Dean of Students
Student Health	Student Health Center	Director, Student Health
Summer Session	University Extension	Director, Summer Session
Undergraduate Education	Aldrich Hall	Dean, Undergraduate Education
University Extension	University Extension	Dean, Continuing Education
Veterans	Student Center	Coordinator, Veterans Student Services
Incidental Records (minutes of various committees, copies of correspondence in offices not listed above, and other records not listed)	Aldrich Hall	Vice Chancellor Student Affairs, or other Student Affairs officials (for conduct issues, could be Dean of Students, Dean of Undergraduate Education, or Dean of the Graduate Division)

NOTE: Pursuant to the Federal Family Educational Rights and Privacy Act of 1974 (FERPA), individual institutions may implement disclosure policies that exceed those outlined in the Act. It should be noted that University of California policies are more restrictive than those outlined in FERPA. The disclosure policies for the UC campuses are outlined in the *University of California Policies Applying to Campus Activities, Organizations, and Students,* sections 130.00-134.00.

Employment and Salary Information

Average Salaries by Discipline [1]

Field of Study	Bachelor's
Business	$55,144.00
Communications	$44,552.00
Computer Science	$59,084.00
Education	$40,590.00
Engineering	$62,564.00
Humanities & Social Sciences	$38,054.00
Math & Sciences	$42,956.00
Overall	$45,633.00

1 Source: A national survey conducted by the National Association of Colleges and Employers, representing the average starting salaries of undergraduates of fall 2013 throughout the country. It should be noted that a wide variation in starting salaries exists within each discipline based on job location, type of employer, personal qualifications of the individual, and employment conditions at the time of job entry.

UCI Six-Year Graduation Rates by Sex and Ethnicity

Fall 2007

Men

Ethnicity	Entered	Graduated	% Graduated
International Student	43	33	76.7%
African American	42	29	69.0%
American Indian	2	2	100.0%
Asian	1,186	1,044	88.0%
Hispanic	277	208	75.1%
Other/Unknown	128	111	86.7%
White	460	373	81.1%
Total	2,138	1,800	84.2%

Women

Ethnicity	Entered	Graduated	% Graduated
International Student	77	60	77.9%
African American	71	60	84.5%
American Indian	7	6	85.7%
Asian	1,527	1,381	90.4%
Hispanic	425	342	80.5%
Other/Unknown	126	114	90.5%
White	547	458	83.7%
Total	2,780	2,421	87.1%

Total Entering Freshmen

Ethnicity	Entered	Graduated	% Graduated
International Student	120	93	77.5%
African American	113	89	78.8%
American Indian	9	8	88.9%
Asian	2,713	2,425	89.4%
Hispanic	702	550	78.3%
Other/Unknown	254	225	88.6%
White	1,007	831	82.5%
Total	4,918	4,221	85.8%

NOTE: Students who declined to state their gender are included in Men.
Source: UC Irvine Office of Institutional Research

UCI Six-Year Graduation Rates of Freshmen Who Received Athletically Related Financial Aid

Fall 2007 Entering Freshmen

Men

Total Entered	Total Graduated	Total % Graduated
32	18	56.3%

Women

Total Entered	Total Graduated	Total % Graduated
27	21	77.8%

Source: UC Irvine Office of Institutional Research

Nondiscrimination and Sexual Harassment Policy Statements

UC Irvine is committed to creating and maintaining an environment in which all persons who participate in university programs and activities can work and learn together in an atmosphere free of all forms of discrimination and harassment. Such behavior is prohibited by law and university policy. The

university will respond promptly and effectively to reports of discrimination and harassment, and will take appropriate action to prevent, to correct, and when necessary, to discipline behavior that violates university policy.

Student-Related Matters. The University of California, in accordance with the applicable Federal and State law and university policy, does not discriminate on the basis of race, color, national origin, religion, sex, gender identity, pregnancy,[1] physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services.[2] The university also prohibits sexual harassment. This nondiscrimination policy covers admission, access, and treatment in university programs and activities.

Employment Practices. The University of California prohibits discrimination against or harassment of any person employed by or seeking employment with the university on the basis of race, color, national origin, religion, sex, gender, gender expression, gender identity, pregnancy,[1] physical or mental disability, medical condition (cancer-related or genetic characteristics), genetic information (including family medical history), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services.[2] The university also prohibits sexual harassment, which is a form of sex discrimination.

Consensual sexual or romantic relationships between members of the university community are subject to other university policies, including the Faculty Code of Conduct and the UCI Policy on Conflicts of Interest Created by Consensual Relationships.

University policy also prohibits retaliation against any employee or person seeking employment for bringing a complaint of discrimination or harassment pursuant to these policies or against a person who assists someone with a complaint of discrimination or harassment, or who participates in any manner in an investigation or resolution of a complaint of discrimination or harassment.

In addition, it is the policy of the university to undertake affirmative action, consistent with its obligations as a Federal contractor, to assure equal employment opportunity for minorities and women, for persons with disabilities, and for protected veterans.[3]

University policy is intended to be consistent with the provisions of applicable State and Federal laws. Inquiries regarding the University's nondiscrimination and sexual harassment policies may be directed to: Kirsten K. Quanbeck, Associate Vice Chancellor of Equity, Diversity and Inclusion and Sexual Harassment/Title IX Officer/Director of the UCI Office of Equal Opportunity and Diversity, 103 Multipurpose Science and Technology Building, Irvine, CA 92697-1130; oeod@uci.edu; telephone (949) 824-5594 (voice), 824-7593 (TDD).

1 Pregnancy includes pregnancy, childbirth, and medical conditions related to pregnancy or childbirth.

2 "Service in the uniformed services" as defined by the Uniformed Services Employment and Reemployment Rights Act of 1994 (USERRA), as well as state military and naval service.

3 Protected veterans includes veterans with disabilities, recently separated veterans, Vietnam-era veterans, active duty wartime or campaign badge veteran, or Armed Forces service medal veterans.

Sex Offenses Policy

UC Irvine is committed to creating and maintaining a community in which all individuals who participate in university programs and activities can work and learn together in an atmosphere free of all forms of harassment, exploitation, or intimidation, including sexual assault, sexual misconduct, domestic violence, dating violence, stalking, and retaliation. Such behavior violates both law and university policy. The university will respond promptly and effectively to reports of sex offenses, and will take appropriate action to prevent, to correct, and when necessary, to discipline behavior that violates university policy.

Questions or reports regarding the University's policy on sex offenses may be directed to Kirsten K. Quanbeck, Associate Vice Chancellor of Equity, Diversity and Inclusion and Sexual Harassment/Title IX Officer/Director of the UCI Office of Equal Opportunity and Diversity, 103 Multipurpose Science and Technology Building, Irvine, CA 92697-1130; telephone (949) 824-5594 5594 (voice), 824-7593 (TDD); oeod@uci.edu.

Links to the full text of the university policies on Nondiscrimination, Sexual Harassment, the Faculty Code of Conduct, Conflicts of Interest Created by Consensual Relationships, and Sex Offenses are available at the Office of Equal Opportunity and Diversity Policies and Guidelines (http://www.oeod.uci.edu/policy.html) website.

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